Three Lectures

ON

THE PRACTICAL POINTS IN THE TREATMENT OF THREATENED ASPHYXIA.

Delivered at the Medical Graduates' College and Polyclinic, Chenies-street, W.C.,

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LECTURE III.[1]

GENTLEMEN,—Having now dealt with the subject of drowning sufficiently, I hope, to make it clear and practical, I will continue with a subject very closely allied to that which we have been considering—namely, stertor and the management of the apoplectic and comatose conditions. Stertor was known to the ancients, and Horace, in one of his Satires, says of a drunken bargee, "*stertitque supinus*," so that it had been recognised, in days long ago, that stertor had some relationship with the supine position of the body. [illegible]tor is the term applied to sounds in the throat, mouth, or the m[illegible] of the air-passages produced by the movements of tongue [illegible]during respiration and occurring in the apoplectic tongue[illegible] conditions. Several varieties may be recognised: (1) cong[illegible], arising from approximation of the alæ nasi towards [illegible] septum by the in-going air, as in the act of sniffing; (2) buccal, due to vibrations of the lips and puffings and flappings of the cheeks *during inspiration or* expiration; (3) palatine, arising from vibrations of the soft palate, whether the breath passes through the mouth or the nose; (4) pharyngeal, caused by the lolling back of the base of the tongue into near contact with the posterior wall of the pharynx; (5) laryngeal: this variety is referrable to vibrations of the chordæ vocales, as in croup and whooping-cough; and (6) mucous: mucous stertor is a term which may be given to the bubbling of air through mucus or fluids in the trachea or larger air-tubes.

All *sounds of an abnormal* character *having their origin* in the larynx, trachea, or bronchi at once give rise in the professional mind to a sense of impending danger. It is felt that the life of the patient is in jeopardy from sudden or more commonly gradual progressive suffocation, ending in death. It is known that some physical changes, intrinsic or extrinsic, have arisen which have narrowed or diminished the lumen of the chief air-ways, and the causes of those physical changes are anxiously and carefully sought for, and, if possible, promptly removed. The subsidence of abnormal sounds implies to the anxious physician the *absence* of at least immediate danger. This danger has not, until quite recently, been so much felt with abnormal sounds having their origin in the nasal, oral, and pharyngeal cavities. In those localities, it is true, they have been observed and noted, and then passed by as of trivial or secondary importance—as having, in fact, no serious bearing on the life or well-being of the patient; but in these portions of the air-ways, as in those lower down, abnormal sound *does* imply danger, not immediate perhaps, or difficult to combat—but that it is a danger, and that it requires all the intelligent care and skill of the physician, will, I think, on reflection, be readily conceded.

Noise, then, in any part of the air-way is a danger signal; its importance the physician must determine. The stertor of the apoplectic state may prove equal in danger to the crowing of the croupy child or the stridor arising from the pressure of a thoracic tumour. *Stertor is therefore a symptom with two* meanings: the noise expresses the mechanical interference and the mechanical interference is an accidental concomitant of the unconsciousness. The accident which determines whether "the stroke" be or be not accompanied by stertor is in most cases due to the accident of the patient's happening or not happening to be upon his back; or should he exhibit stertor while upon his side there must be some derangement of the *ordinary relations* of the pharynx, such as the chin being too near the sternum, the existence of a local œdema,

-tubes, pressure from

rrows *the respiratory*

The German physicians Strümpell, Nothnagel, and others, and the modern French physicians, are, like us, in general agreement as to the symptoms and causes of the apoplectic state, and the same may be said of its treatment. Practically, Dr. Strümpell's entire treatment of the apoplectic attack *is* directed to the relief of arterial tension, and this tension is believed to have some relation with the deep, noisy, stertorous breathing; but what that relation is is left to the imagination. It is clear, however, that the means suggested (bleeding) for the relief of the arterial tension is not looked upon as really trustworthy; the writer shows that he has no abiding faith in the means which he advises. They are suggestions only; he evidently is not fully satisfied of their end and object. I hope to be able to satisfy you that the arterial tension has no direct causal relation with the cerebral hæmorrhage; on the contrary, it is shown to be entirely indirect, and a consequence simply of an easily removeable cause, suffocation, indicated by the stertorous breathing, which, when relieved, *so entirely changes* the symptoms that the question of bleeding or other depleting remedies cannot even be entertained. I have never failed, during long experience, to relieve arterial tension in these cases by removing the obstructions which cause the stertor, and by so doing I have at the same time found the nature of the attack to be made more clear and the management of it more simple and effective.

The first effect of a cerebral hæmorrhage is shock, which produces a tendency to syncope; and this state is only *changed by the supervention of stertorous, i.e.,* difficult and suffocative, breathing, when the flushed and turgid countenance, pulsating carotids, and strong bounding pulse at once indicate some powerful reaction. The heart is labouring to overcome some serious obstruction, and it is now obvious enough, from the distension of the systemic capillaries, that such obstruction can only exist in the pulmonary circulation. Nothnagel says, under the head of "Treatment of Apoplexy": "Against the lesion itself nothing is of any avail. The vessel once ruptured the hæmorrhage necessarily follows without our being able to arrest its progress. The treatment, then, ought from the commencement to be exclusively directed against functional troubles, and above all against paralysis of the encephalon. Every effort of the physician should aim at arousing the excitability of the nerve-tissue. Bleeding constitutes—when the general state of the patient permits of it—the most efficacious means It diminishes the intracranial pressure, *arouses circulation in the encephalon*, and combats the hyperæmia which sometimes complicates hæmorrhage and tends to maintain the neurolysis. But if blood-letting is of real service in certain cases, it is in others *strongly* contra-indicated, and it cannot therefore be practised indifferently in all cases of apoplexy without danger." Jaccoud and Hallopeau say: "In the treatment of apoplexy, *it is necessary* above all to be guided by the general condition. When the patient is young, robust, the pulse full and bounding, the cardiac impulse powerful, then *la saignée générale* is *strongly* indicated. Bleeding from the arm is to be preferred. The vein should be opened boldly, so as to obtain a rapid depletion of the circulation. The relief is in certain cases almost immediate, and patients are even seen to regain consciousness during the operation."

The conditions allied to the apoplectic state—i.e., those in which from any cause the mind and will are in abeyance and the body is left in that *state of physical* helplessness in which the functions necessary to the maintenance of life become endangered by forces acting from within and from without—I will briefly touch upon under their respective headings, such as concussion and fracture of the skull, drowning, hæmoptysis, chloroform-poisoning, convulsions, epilepsy, bronchitis, and so on. Each condition I propose to illustrate *by typical cases, in order to demonstrate* to you the varied applications of the principles *contended for.*

Quite early in my investigations I entertained the conviction that by separating the suffocative symptoms from the shock of apoplexy we should so simplify the case as to enable us to mark the position and probable extent of the cerebral mischief. *As I have watched the progressive steps* in the localisation of brain-functions I have become more and more convinced of the practical value of removing the mystifying symptoms of suffocative stertor as an essential element of diagnosis and prognosis, quite independently of the frequent and valuable aid afforded in the final recovery of the stricken and suffering patient. It may be asked whether in any case bleeding is justifiable in apoplexy. A wider knowledge of pathology has taught us that the short-necked, fresh-coloured, plethoric-looking man is not the individual most liable to "a stroke." It is probable that the ordinary appearance of a man in the apoplectic state, with the presence of stertor and suffocative symptoms, and therefore with a congested and turgid countenance, may have led to the error of labeling the plethoric-looking man with the prefix "apoplectic." Of course, such a man may have a stroke, and it is possible that under certain conditions blood-letting may become a question of treatment in the case; but my experience teaches me that even in such constitutions, if no stertor exists and there are no impediments to the free entrance of air into the lungs, the propriety of "letting blood" has never appeared to be necessary or justifiable; the stroke has, through "shock," acted sufficiently as a sedative and removed all traces of bounding pulse and arterial tension. It is conceivable that the circulatory centre may in some cases be fretted by poisoned or disordered blood and that arterial excitability and tension may result from excitability of nerve-tissue, even without obstruction in the air-way; if so, of course blood-letting may be useful and permissible; but in apoplexy I have never seen such a necessity when all respiratory difficulties have been removed.

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[1] Lectures I. and II. were published in THE LANCET of June 22nd (p. 1748) and 29th (p. 1814), 1901, respectively.

CASE 1.—In November, 1857, I was called to see an old lady who had been attacked with sudden sickness whilst talking to some friends; faintness followed, with an inability to express herself, though she was to a considerable extent conscious. She was put to bed and kept quiet; mustard poultices were applied to the epigastrium and to the nape of the neck and hot bottles to the feet. In an hour or two reaction commenced, and *pari passu* coma and stertorous breathing set in, which steadily increased in intensity until my second visit, when this condition had lasted about three hours. Her pulse was now full and excited, but as she was 73 years of age, and had already suffered from two or three attacks of paralysis, no severe measures were adopted. The skin was hot and covered with a profuse perspiration, the face was swollen and livid, and the mouth was half open, the pupils were contracted and insensible to light, and the eyeball was insensible to touch. The stertor was very deep and the breathing was laboured. Whilst I was at the bedside of my patient she was very nearly suffocated from the stomach ejecting a portion of its contents into the throat. I at once turned her on to her side and emptied her mouth, and she then breathed not only freely but without the slightest stertor. I was somewhat surprised, but proceeded to place her in what appeared to be the most comfortable position—on her back; her respiration instantly ceased and she convulsively struggled for breath. Supposing it to be the tongue which had choked her I thrust my finger into the mouth, and hooked it forward from the base, when the breathing again became easy and free from stertor. The patient was now laid comfortably on her side; and until her death, which took place two days afterwards, the stertor never recurred when she was in that position, but the respiration continued as naturally as if she slept. To convince myself that this was due to position I several times turned her on to her back for a few moments and invariably, when I did so, the *stertor was as marked* as ever. The lateral position had another advantage, for it allowed the saliva and mucus to drain away instead of remaining in the bronchial tubes and giving rise to "mucous stertor," and thus offering another impediment to the respiration. Other changes occurred coincidently with the change of position. The pulse became calmer, the skin cooler and less bedewed with moisture, the eye sensible to touch, and general sensation returned to such an extent that the patient evinced signs of discomfort at the removal of a mustard poultice. Nevertheless, whenever the supine position was adopted, the stertor, difficulty of breathing, lividity of face, and other unfavourable symptoms returned in full force. It was easy to observe that as the position was changed to the back the paralysed tongue gravitated downwards and backwards.

This case suggests many important points for consideration:—1. That the paralysed tongue may, under certain circumstances, cause even death by suffocation; for I believe that this patient would have died if I had not been present when the tongue fell so suddenly back and when the fluid was ejected from the stomach into the throat. 2. That s arises from the tongue falling back in the supine position the body, thus offering a serious impediment to the tion, since it required greater muscular force to breathe stertor than when the respiration was noiseless. 3. That saliva and mucus (other respiratory impediments) drain away when the patient was on her side. 4. That improvement of the general symptoms occurred upon establishment of easy breathing in the lateral position—pu skin, and sensation all undergoing material alterations for better.

CASE 2.—A man, aged 65 years, became comatose exhaustion supervening upon extensive subacute inflammati of emphysematous lungs. When I entered the room he lying on his back with his mouth open, breathing st rously, though not to a great extent. On looking into th mouth the soft palate appeared remarkably small shrivelled, so that it did not come very decidedly into with the tongue, even though partially paralysed. Whilst was standing at the bedside my patient suddenly ceased t breathe, became very livid in the face, struggled convulsiv and then became rigid. My recollection of the first induced *me to turn this patient on to his side*, when h instantly recovered with a long groan and then breathed quite naturally. He was turned on to his back again; returned and he became choked from a quantity of bronch secretion. The lateral position was resumed, the mucus an saliva drained away, and he now breathed quite easily un his death which took place about half an hour afterwards.

CASE 3.—This was a severe epileptic attack with ster which disappeared at once in the lateral position a patient recovered. In this case, too, as in Case 1, and pulse altered in character as the stertor ceased such a case that "position" can be a curative as palliative measure. Here was a delicate man, subj epilepsy and disease of the mitral valves. Supposing breathing to have gone on with great labour and the lungs have become more and more congested, and consequently brain and heart also, one or other or both of these vi organs might have suffered and death ensued.

It is well known that the cavity of the pharynx, having only a fixed boundary posteriorly, may have its capacity materially affected by the ever-varying position of the sides, of the soft palate, the tongue, and the larynx. The and sides of the pharynx have, I believe, but little connexi with the cause of stertor; I shall therefore not further refer to them. The tongue, being attached to the lower jaw by its mucous membrane and its muscles, has its relations with surrounding parts altered as the mouth is opened or closed. When the mouth is closed the horizontal portion or body of the jaw forms nearly a right angle with the spinal column, from which the symphysis is then at its greatest distance. When the mouth is opened by the dropping of the jaw the symphysis describes the arc of a circle and approaches more nearly to the spine, where the posterior wall of the pharynx is attached. The tongue, having its chief attachment to the symphysis, would consequently be drawn away from the pharynx in the former case and allowed to rest in contact with it in the latter. This, if not true in every case, is at least true in some. A dissection was made with great care, so as not to displace the parts more than was necessary to give a fair view of the base of the tongue and the epiglottis. When the mouth was open and the subject on its back the road to the larynx was completely obstructed, in consequence of the tongue resting in contact with the back of the pharynx; but the obstruction could be removed by hooking the tongue upward and forward from its base. When the mouth was closed the tongue was lifted from the pharynx, leaving ample breathing space. But even with the closed mouth, if the chin were much bent on the sternum the base of the tongue was almost in contact with the back of the pharynx. It would seem from this dissection that the muscles of the tongue attaching it to the symphysis of the jaw are ordinarily too short to admit of the base of the tongue reaching the back of the throat when the mouth is closed and the head is thrown back. The purpose served by such an arrangement would appear to be to keep the base of the tongue away from the back of the throat during deglutition. In the act of deglutition the mouth is firmly closed, and the genio-hyoid and genio-hyo-glossi muscles, taking their fixed point from the now immovable symphysis, draw the body of the tongue upwards and forwards, allowing sufficient room for the morsel of food to travel easily through the cavity of the pharynx.

Were these muscles of greater length the base of the tongue might become a source of inconvenience if not of danger. The dissection, besides demonstrating the respective positions of the tongue with the open and the closed mouth, suggests the necessity of caution being used in raising the head with pillows; for if the head be too much bent forward on the chest the tongue may lie in dangerous proximity to the pharynx, even when the mouth is closed.

The different characters of stertor.—From having observed the snoring of sleep sometimes to take place through the nostrils with the closed mouth, and sometimes through the open mouth, and having also observed differences in the apoplectic stertor, I endeavoured to analyse the particular cause of each of these varieties by some experiments on myself and by clinical observation. I placed myself as nearly as possible in the condition of an apoplectic patient by paralysing my tongue, or rather by allowing it to assume its own position by gravitation. After a little practice, and with some care, I succeeded in effecting this. 1. I found that it required much more voluntary effort to snore through the nose and breathe stertorously through the mouth in the upright and prone positions than in the recumbent and supine, and that the greatest impediment to the respiration occurs when the jaw is dropped and the mouth most widely open. 2. I found that the deep, vibrating snore of sleep, with the closed mouth, depends upon the tongue pressing the velum palati upwards and backwards, thus narrowing the opening between the nose and pharynx, the velum vibrating as the air rushes through. Sometimes, when the mouth is partially open, the soft palate drops upon the tongue and vibrates as the air rushes between it and the tongue. To either of these noises in which the soft palate is concerned I have applied the name of "palatine stertor." 3. The harsh, sharp, husky noise occurring in apoplexy, with the mouth wide open, always arises low down in the pharynx, and depends upon the narrowing of the passage between its posterior wall and the base of the tongue. By holding a looking-glass before the face whilst producing this noise, it can readily be seen that the soft palate is in no way concerned in it. In the cases just recorded this was the nature of the stertor which existed, and as it arises solely in the pharynx I have given it the name of "pharyngeal stertor." 4. There is a variety of stertor in apoplexy which may be named "mucous stertor" as it depends upon the presence of mucus in the bronchial tubes. So common is this, either alone or in combination with one or other of the preceding varieties, that in "Hooper's Medical Lexicon" it it stated that "apoplectic stertor appears to depend upon the presence of mucus in the air tubes," as though it were always the cause.

Of these different varieties of stertor, that which is named "pharyngeal" is at first the most dangerous, for the greater the paralysis the more effectually does the tongue block up the passage, and each inspiration only adds to the distress by sucking the tongue lower down into the pharynx. Its danger is, however, not due alone to the gradual impediment it offers to the respiration, but also to the fact that at any moment this impediment may be absolute and cause death by suffocation. This has been before referred to in the remarks upon Case 1. We may observe a similar example in the snoring sleeper who, after drawing several inspirations with evident effort, at last comes to a sudden check from having been gagged by the tongue falling back. This will rouse him from his stupor and he will then sleep on quietly until the same thing recurs from his deepening sleep.

It is admitted that apoplexy may result (and very commonly does result) from an alteration in the state of the general circulation. I conceive that anything which would mischievously affect the circulation during the apoplectic attack would militate very considerably against the chance of the patient's final recovery. Let me suppose a case. A man with disease of the heart or large vessels on making some unusual effort falls down in a fit; he is taken up and laid on his back in bed. Stertor at once begins; if it be not relieved the respiration becomes impeded, venous engorgement of the lungs takes place, then of the right side of the heart, then of the jugulars and of the brain. And now another direct source of apoplexy exists—increased congestion of the brain, and this, too, with unaerated blood, itself a poison sufficient to destroy life. As long, then, as the stertor is allowed to continue the mischief increases and remedies will be of little avail. But suppose that when the man is taken up in a fit of apoplexy he is laid in such a position that his respiration cannot be impeded, that the blood may flow steadily on in its course, that he is placed in such a position, in short, that Nature will meet with no impediment in her attempt to right the temporary disturbance which a sudden effort brought about. Then, I think, we may fairly hope for a better issue, if judicious aid be afforded by means which the urgency of the case may render necessary. This especially applies to cases of congestion dependent upon, or complicated with, atheroma; the danger would then be doubly great, for the increased congestion might be more than the diseased cerebral vessels could bear; they might give way, and the case would become one of sanguineous apoplexy.

In the second class of cases of Dr. John Abercrombie (those not primarily apoplectic), where the symptoms depend upon an effusion of blood in the brain, if there be any hope it must at once be forfeited if the respiration be impeded, since this would increase the congestion of the cerebral vessels and cause the blood to make its way out of those which were ruptured with greater force. The same would apply to laceration of any of the sinuses or vessels of the brain from fracture of the skull. I remember to have seen a boy who had fallen from a bridge brought home in a state of syncope. Extensive simple fracture of the vault of the skull was detected. He was laid on his back on a table, and as reaction commenced he fell into a state of coma with stertorous breathing. In a short time the symptoms became so urgent that trephining was performed, whereupon a large quantity of blood made its escape with considerable force. The boy was relieved, but died three weeks afterwards. On examination after death there was found a large quantity of clotted and fluid blood on the surface of the brain, the superior longitudinal sinus was lacerated, and the substance of the brain was much injured. In a case of this kind, to impede the onward current of blood through the jugulars must be the first step towards death, for the blood would make its way where there was least resistance, through the wound of the sinus. If, however, there were no obstruction in its natural course we may fairly presume that it would follow that, rather than turn aside through an opening in which, perhaps, a coagulum had already formed.

Such, then, are the dangers which may result from a persistence of stertor in apoplectic and similar conditions; but there remain the other and more immediate dangers of the supine position. 1. Fluids or other foreign matters may make their way into the larynx from the mouth or the stomach. This I had repeated opportunities of observing in the dead subject when engaged on our original experiments in 1856; but that it is a real danger in the living man is placed beyond doubt by a remarkable case which is related in the *Medical Times* as having been under the care of the late Dr. Bristowe. A drunken man died from symptoms of suffocation. At the necropsy some of the contents of the stomach were found in the bronchial tubes.

The forms of stertor, then, which have a direct connexion with the apoplectic state are—the palatine, arising from the vibrations of the soft palate; the pharyngeal, from the gravitation of the tongue into the back of the pharynx; and the mucous stertor, from the presence of mucus or other fluids in the larger air-tubes.

CASE 4.—In October, 1863, a woman was seized with apoplexy. On my arrival there was a partial return to consciousness and the left side was found to be paralysed. There was pharyngeal stertor when the patient was in the recumbent posture and she appeared uneasy when she was placed on her right side, so she was placed on her left—the paralysed—side, when the stertor ceased. A blister was applied to the nape of the neck and she remained in this position for nine days. She was now better and spoke to me. Fearing a bedsore I desired the nurse to change her position by turning her from her left on to her right side. Soon after this was done she was distressed for breath and her countenance became livid. On my arrival, a few minutes later, I found the difficulty of breathing gradually increasing, the blistered surface and the ear, upon which she had lain, of a dark purple hue, and the pulse, which had before been weak and irregular, full and bounding. There were large mucous râles over the whole chest; she was quite unconscious, and death from suffocation was imminent. Finding that these symptoms supervened upon the change of position I had her replaced upon her left side, and immediately the pulse sank, the mucous stertor ceased, the breathing was relieved, the lividity of countenance passed away, and the blistered surface, which had been almost black, resumed a bright cherry-red colour. This additional shock, however, proved too much for her, and she died the same day, calm and conscious.

The salient points of this interesting case are: (1) that pharyngeal stertor ceased when the patient was placed on her side; (2) that there was a slow but gradual improvement subsequently to this; (3) that mucous stertor and imminent death supervened when she was placed on the opposite side; (4) that relief was instant on resuming her original position; and (5) that a return to consciousness was coincident with the cessation of stertor—in other words, on the removal of the respiratory difficulty. On a careful examination of the chest after she had become quiet I found all râles slowly fade away from the right side, that which was uppermost, and the natural breathing return; but the left lung, which had been dependent throughout, was dull on percussion and deficient in respiratory murmur. The explanation now became clear—viz., that the dependent lung had become filled with saliva or mucus or froth, and that on changing the side the fluid, by gravitation, was finding its way across the trachea to the opposite lung, but in doing so it had been churned into foam by the ingoing air, giving rise to mucous stertor, and that this foam, by filling up the larger bronchial tubes, was quickly causing suffocation with all its usual results.

As a point of management, then, in a case of apoplexy it would appear necessary to keep the patient on one side and not to change it; but which side should this be? Healthy people when lying on the side breathe chiefly with that side which is uppermost, for the intercostal and other thoracic muscles of the lower side are fixed between the weight of the body and the bed, and the breathing of that side is necessarily almost entirely diaphragmatic.

I have reason to believe that in hemiplegia from progressive disease of the brain a low form of inflammatory action takes place in the lung of the affected side, due to disturbed innervation of the pneumogastric nerve of the same side. In a recent case of tuberculous mass in the centre of the brain which was under my care this was the case and precisely the same distress as above mentioned occurred from mucus when the paralysed side was placed upwards. It must be remembered, too, that in placing the paralysed side downwards the injured side of the brain is upwards, and therefore relieved from congestion, a condition always liable to occur when an injured part remains dependent.

Apoplexy, with much mucous stertor, is, I believe, always of the most grave and dangerous character, for it indicates as well as muscular paralysis loss of function (neuro-paralysis) of such vital nerves as the pneumogastric; and I believe that the time will soon come, now that cases can be so simplified by the removal of stertor, that by a careful consideration of the functions of the various nerves a very accurate diagnosis and prognosis will be arrived at even in the early stage of apoplexy. Here are two cases in illustration.

CASE 5.—A woman was found lying on her back, breathing stertorously and with great difficulty; the trachea was filled with frothy mucus and she was almost in a state of collapse. She was turned on to her right side, when the stertor and difficulty of breathing ceased. Seventeen hours afterwards she was lying quiet and comfortable; the depending cheek was dusky and congested, the upper cheek was pale. She was now turned on to her left side; the difficult breathing immediately returned and both sides of the face became highly congested; the breathing was shallow, and large moist râles were present in both sides of the chest; on resuming the original position all difficulty ceased. She died the next morning.

CASE 6.—A woman was seized on Sept. 24th, 1867, with left hemiplegia. She was unable to speak or to masticate and could only swallow liquids with much difficulty; the pulse was 80 and very feeble. She was placed on her left side. On the 28th (four days after) the respiratory murmur on the lower or left side was shallow and feeble, there were some râles, and the percussion sounds were dull. She was turned on to her right side, when immediately great distress of breathing and mucous stertor supervened; this gradually disappeared on replacing her on her left side. This shows that patients can get well after long resting on their sides. When turned on her back for the use of the bed-pan mucous stertor commenced, and it was noticed that in this position the intercostal muscles and the diaphragm acted more feebly on the paralysed than on the unparalysed side. On Sept. 29th there was a little more power and she was less excitable. The respirations, which had been 56, were now 44. She was able to remain half an hour on the right side before the difficult breathing commenced. The following day she was still better, and the dribbling of saliva, which had been very great, ceased, but she still had no control over her bladder or rectum. On Oct. 6th during the last week she had slowly improved. Several experiments of change of position had been made and it was found that as her power returned she could remain longer on the right side before the difficulty of breathing began, and now could remain one and a half hours in this position. In March, 1870, the patient was still alive and well, but had a good deal of weakness on the left side.

Remarks.—In its early stage this case was most critical. Had a little extra strain been put upon the patient she must have died, and no strain could have been worse than the persistence of a condition (stertorous breathing) which would indirectly cause obstruction in the jugulars. In the supine posture, from the paralysed and insensible condition of the pharynx much of the saliva which dribbled away in the lateral position would have entered the trachea and added to the trouble. Much might be said in illustration of this point and reports of many cases have been sent to me by friends corroborating these observations. They have reported cases of apoplexy in which, on the change of position, stertor has ceased and the patients have died peacefully and quietly, to the great relief of the distressed and sorrowing relatives. I have never in my own practice failed to put an end to stertor by position and management.

CASE 7.—At a medical meeting in May, 1862, after urging my views on stertor, the late Mr. Francis of Boughton stated that he had just left an old lady dying from apoplexy who had been in a state of stertor for many hours. At the November meeting in the same year he informed us that the old lady was still alive and well. On his return home in May he found her just as he had left her, dying, as he believed. He changed her position, the stertor ceased, and she gradually but perfectly recovered.

CASE 8.—The late Mr. Eustace Carver of Melbourne, a former house surgeon at the Middlesex Hospital and Nottingham Hospital, and a careful observer, was called to an aged patient who was in deep stertor and moribund. Life was evidently more a question of minutes than of hours. The position was changed, the stertor ceased, and the old gentleman lived for nine months.

Many cases have demonstrated that as power returns to the brain the pneumogastric nerves and probably also the sympathetic nerves regain their power and effusion into the lung ceases; and, moreover, it has been clearly shown that the lung is not injured by remaining inactive and filled with mucus for a long period. The consideration last mentioned induced me to adopt a lateral position in all condition of the lungs in which much mucus was secreted.

CASE 9.—In April, 1866, a little child, three months old, after having suffered from a slight catarrh for a few days, was seized with difficulty of breathing at night. When I arrived in the morning the child was livid, the eyes were sunken and half closed, and the pulse was remarkably slow, feeble, and irregular. The child breathed with great difficulty and had a loose mucous cough, feeble and ineffective. The quantity of mucus in the chest was so great that the child could not inspire and appeared to be dying. The patient was turned on the right side, ammonia was applied to the nostrils, and 10 drops of brandy were administered every quarter of an hour. On the following day the child breathed with greater ease, the expression had improved, and the pulse, though still slow, had a little more power. The air now entered the left side freely and the râles were few; there was no breathing at the right side. The child gradually recovered, but for several days there were bronchial breathing and bronchial voice on the right side. Before the child was turned on to the right side there was no difference on auscultation between the two sides.

In bronchitis generally, and especially in the bronchitis of the old, I endeavour to leave one lung free for breathing, and then, as vital power returns, the position is gradually changed. In the convulsions of children there is often a large flow of saliva and secretion into the bronchial tubes. This becomes immediately churned into foam and greatly impedes respiration. In the lateral position all this foam drains away, the breathing is freed, and recovery begins. In epilepsy the fit will often cease at once by removing stertor, but here it requires a little more management than placing the patient on his side, for the spasms of the mouth, tongue, and fauces require opposing by various mechanical contrivances

CASE 10.—In May, 1866, I was sent for to a phthisical patient who was said to be dying from hæmorrhage. I found him lying upon his back, partially elevated by pillows, and apparently breat[illegible] his jaw dropped. He made a few [illegible] large mucous râles were heard in the trachea. [illegible] could just be felt feebly flickering. He was immediately placed well over on the right side and ammonia was applied to the nostrils. A little brandy-and-water was introduced into the mouth, but there was no effort to swallow. A handkerchief was, however, soaked in brandy and a portion left in the mouth. The mouth and tongue were quite cold. In a minute or two the respirations became longer and air could be heard entering the uppermost lung, but none entered the lower. Gradually the râles diminished in the upper lung, air entered more freely, and the percussion sounds became more resonant. Consciousness, which had been utterly lost, gradually returned, and by the following morning he was perfectly himself and could have transacted any business. He lived for four days, breathing with one lung only.

CASE 11.—On March 22nd, 1894, I was hastily summoned to an apparently dying man. I found him lying on his back on the floor, motionless with the exception of occasional ineffectual gaspings; he was of a livid colour and his pupils were widely dilated. The feeble pulse could occasionally be felt but not counted. Three policemen and several coachmen were standing helplessly by. Observing blood on his clothes and about his mouth I opened the man's shirt and rapidly surveyed, percussed, and auscultated the front of his chest; finding more percussion dulness on the right side than on the left, and that no air was entering that lung, I gently turned him on to his worst side (the right), so as to leave the better lung free, and propped him up in that position with pillows. Each gasp now became a short gurgling inspiration, and signs of returning life began to show themselves by clutchings of the hands and spasmodic actions of the legs and an occasional moan. Some air entered the upper lung, the râles [illegible] the pulse became fuller and countable [illegible] left him in charge of Dr. E[illegible] a hypodermic injection of caffeine in sodium salicylate and an enema of two ounces of brandy. In half an hour Dr. Waggett reported that the man had quite recovered from present danger and was talking naturally to his friends. On the following morning I saw the man in consultation with Mr. Wise, his own medical attendant, and found him still lying on his right side, looking wonderfully better and quite himself; the temperature was normal and the pulse was 120. He was expectorating freely blood-clots and blood-stained muco-pus. There were very few râles to be heard in the upper (left) lung, and the air entered quite freely, so that as far as the danger from suffocation was concerned the man was safe.

This case recalled another, similar in its onset, different in [illegible] as a demonstration of [illegible] ent of such cas[illegible] ards in my student days the physician commented on the salient points of a case of phthisis in a young girl who was sitting dressed on the side of her bed. Ten minutes afterwards the physician was hastily summoned from the other end of the ward to see her again, and she was dead—at least, she had entirely ceased to breathe. She had been seized with hæmoptysis, the nurse had laid her on her back on the bed, and she had so become choked. At the necropsy large coagula were found in the trachea and bronchial tubes.

Lately I was taken by surprise in a case of hæmoptysis by a patient suddenly developing dyspnœa and cyanosis with starting eyeballs and dilating pupils whilst in the sitting posture. With sudden and violent effort he coughed up three or four large pinkish-grey masses similar in appearance to portions of emphysematous lung; on examination they proved to be coagula infiltrated with numberless fine air vesicles. It appears that in his terror of increasing his blood flow he had maintained the sitting position for some hours, and had studiously avoided coughing when he felt the râles in his chest, so that the small oozing from the affected (right) lung had gradually found its way into the sound lung, and had become inflated into large masses by the air vesicles which had slowly formed in the coagulating blood.

Death from tea in the lungs.—On Feb. 23rd, 1894, Dr. W. [illegible] the Clinical Society of London a case [illegible] diphtherial paralysis who had died [illegible] tea; after death one and a half ounces of tea were found in the bronchial tubes. Dr. White stated that after coughing for some seconds "the patient became very distressed in his breathing, exactly as if he had been suffering from asthma; there was at no time any evidence that the larynx was obstructed." The patient was dead in less than 10 minutes from his having taken the tea. The pulse was good to the end. It was assumed that the patient had died from spasm of the bronchial tubes from the specific action of tea on the nerve centres; but may it not be assumed, with even more confidence, that the patient was practically drowned with tea? One and a half ounces were found in his trachea after death. This is a large amount, and probably during life it was larger—quite enough, when mingled with mucus and churned into foam, to obstruct the main bronchi and thus to cause fatal suffocation. At the same meeting Mr. Pearce Gould related a case of suffocation in a child with diphtherial paralysis. Tracheotomy was instantly performed and the child was turned over, whereupon the bread-and-butter which the patient had been eating ran out of the wound in a liquid form and recovery ensued.

Dr. Frederick Weber told me of a case of death from suffocation in consequence of milk having been inspired in a case of diphtherial paralysis, so that bland fluids such as water and milk will cause death when introduced into the windpipe; we need not therefore assume that the specific influence of tea had anything to do with the cause of death in the case above referred to. We know what horrible distress supervenes on even one of the large bronchi becoming suddenly plugged by a cherry-stone or by a pea. In cases of drowning the amount of fluid usually found after death might not amount to more than was found in the foregoing case. It must always be remembered that the introduction of any fluid excites mucous secretion which, with saliva, inspissates the fluid and gives rise to foam bubbles, more or less large, and these add greatly to the difficulties of inspiration.

From these points of view it is clear that cases such as these may be successfully treated either by turning the patient on to one side, as in the cases of hæmoptysis just related, thus freeing one lung and so giving time for the obstructed lung to relieve itself by expelling or absorbing the intruded fluid; or relief may even more quickly be given by placing the patient on his face and pressing or striking on the back to assist the expulsion of the tea. Independently of its effect upon stertor "position" has a direct influence in many conditions allied to the apoplectic, such as chloroform-poisoning, drunkenness, &c.; and I have observed that in cases of great exhaustion the change from the back to the side is accompanied by immediate and great relief; the breathing, from having been carried on with evident effort, has become at once peaceful and easy. During sleep, when the vital powers are resting, it is not the back but the side which is selected as nature's position; and I believe the explanation to be that on the back the diaphragm has to lift the liver and abdominal organs with each inspiration, whereas on the side—especially the right side—the liver lies practically on the bed and the diaphragm can do its work without oppression.

[illegible] conclusions which may, I think, be fairly [illegible]—1. That [illegible] forms I formerly defined. 2. [illegible] tor which [illegible] with the apoplectic state are [illegible] the mucous stertor. 3. That [illegible] their remote cause, are the [illegible] 4. That it is necessary [illegible] that side should not be changed, and that the paralysed side should be downwards. 5. That mucus and other fluids gravitate into and fill up the lower lung; and therefore that if the sides be reversed the mucus will find its way into the opposite lung. 6. That the fluid, crossing from the large bronchi of one lung to those of the opposite, becomes churned into foam and causes dangerous obstruction to the respiration. 7. That the lung, by remaining inactive and filled with mucus for a long period, is not injured. 8. That these principles apply to all conditions in which blood, mucus, or fluid exists in the lungs and also to all conditions allied to the apoplectic, whether there be mucus or not. Finality in medicine never has, and probably never can, be reached. As the environments of man change so do his developments, both moral and physical; and the same may be said of all animal nature. We have, however, still left to us the first principles of the great laws of physics always at hand to apply to those changing conditions to which I have referred, and the object of these lectures has been to demonstrate to you many ways in which they can be practically applied to the relief of suffering humanity.

A CONTRIBUTION TO THE PATHOGENESIS OF CANCER.

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IT is certainly impossible to examine an epithelioma without being struck by the fact, for long well known to pathologists, that the epithelial cells distending the alveoli are identical in appearance with the epithelial cells in which the morbid process began; and, further, that the epithelial elements in the secondary tumours, though far removed from the site of the primary tumour, are identical with the parent epithelium. Here, then, the law prevalent in mammals that epithelium covers exposed surfaces is infringed. The cells leave their natural habitat and wander into and live amongst the subjacent fibrous and other tissues of the mesoblast. Not only so, but the delicate balance between waste and repair is disturbed and proliferation takes place in excess, resulting in tumour formation. If, then, in epithelioma, cells which are indistinguishable from the parent epithelium live and multiply in the tissues of the mesoblast, the interesting question presents itself to consideration—namely, Will the normal skin epithelium when placed under similar conditions continue to grow, and if it does so, what will the relationship of the growth be to cancer? This question, and many closely allied to it, have engaged the attention of pathologists ever since the structure and development of cancer have been made objects of study. Thus, why does epithelium tend to cover the surface of the body and not dip down into the underlying tissues? This has never been satisfactorily explained. Then, again, why does it not tend to cover an indolent ulcer? Why does it accumulate in a mass at the edge and penetrate to a certain extent down amongst the sub-epithelial fibrous tissue? What is the meaning of this? Possibly it is because the surface of the ulcer is formed by exposed fascia, tendon, &c., covered by sloughing material. Whenever the slough has been removed by surgical treatment and the surface covered by young connective tissue with vascularity then the epithelium tends to run over instead of accumulating at the margin. There must be a proper young connective-tissue basis before the epithelium spreads, and all surgical treatment aims at stimulating the surface of the ulcer so as to produce this. Then, and only then, as a natural consequence the callous margin disappears and the epithelial growth is directed over the surface. So long as this young connective-tissue basis is absent the epithelium has no tendency to run over the abraded part but accumulates in a hard callous mass at the edge, penetrating to some extent the fibrous tissues beneath. This penetration, however, is more apparent than real, because the granulation tissue at the margin tends to sprout out through the callous mass, giving the appearance as if the accumulated epidermis had penetrated further than really is the case. Even here the penetration is comparatively slight and not such as one finds in an epithelioma of the skin. Not only will the epidermis at the edge run over this young connective-tissue basis once it is formed but pieces of epidermis taken from a distance, as in the skin-grafting of Reverdin and Thiersch, will also take hold upon it and grow. Again, in healing by first intention one frequently sees a piece of epithelium buried in the young cicatrix, but here there is good reason to believe that as the cicatrix increases in consistence it vanishes and becomes absorbed. Moreover, this appearance of an island of epithelium being buried is sometimes, at all events, fallacious for the reason that in cutting through the skin perpendicularly in making a microscopic section a portion of what is in reality a peninsula of epidermis is lopped off and in a single section gives rise to the appearance of an island of epidermis separated from the parent mass on the surface.

Among surgeons it is a pretty well-recognised fact that cancers of the skin are apt to form in old cicatrices. Even granted that this is so there is still wanting an explanation of how these tumours originate. Is it that a fragment of epidermis during the process of healing has become separated from that which covers the surface of the body generally and begins to grow on its own account and gives rise to a cancer tumour? Or may it not be, if we accept the parasitical origin of cancer, that the epidermis so buried has had in contact with it some parasite living on the surface of the skin which sets up the epithelial stimulation?

On these matters we are as yet completely in the dark, but so far as our knowledge at present goes the trend of opinion seems to favour the notion that normal epidermis, when separated from its proper nidus as an investing layer for the surface of the body and other exposed surfaces and buried deeply in tissues of mesoblastic origin, has the tendency to die and to become absorbed. This has been the current opinion of pathologists for many years past, but as all such matters are dependent for their refutation or verification upon experiment it is only natural that those who have been interested in the subject should have looked forward to evidence *pro* or *con* of this nature. Such experiments, although as yet not very numerous, have been performed abroad, and also to a certain extent in this country, with somewhat varying results. Kaufmann[1] in 1884 made a number of experiments upon the embedding of skin with a view very much similar to my own—namely, that of ascertaining whether epidermis when placed deeply in the tissues underwent any proliferative change comparable to what takes place in the case of a skin cancer. His most important experiments were made on the combs and wattles of fowls, such being selected on account of the absence of hairs on their surface or glands in the substance. The above structures are of the nature of erectile tissue, the blood-vessels being very large, somewhat cavernous and very numerous, and from a close inspection of them he was able to verify what is generally held to be the case—namely, that they are devoid of glands. His experiments consisted in circumscribing an island of skin surface by a continuous incision, raising flaps on each side and stitching them together over the island of skin. He made a large number of experiments and examined them at different times, the general result being as follows. The submerged epidermis began to grow apparently quicker than that of the flaps covering it and rose up at the margin so as to form a hollow structure into the opening of which there spread a quantity of young connective tissue and blood-vessels. The cavity in course of time closed so as to form a hollow tumour-like structure having very much the appearance of an atheroma cyst. The resemblance was rendered all the more striking by the epithelium on the inside of the cyst desquamating and forming an atheroma-like mass. The cyst lay embedded in the tissues and did not form any connexion with the epidermis of the flaps. The epithelium forming its wall did not die but continued to grow until the cyst-like cavity was completely closed. Thereafter, after a matter of 210 days, it appeared to remain stationary. Round about the cyst-like structure numerous giant cells formed, very much as they do round foreign bodies introduced into subcutaneous tissues. From minute examination he was convinced that these giant cells had no connexion whatever with the epithelium either of the island of skin or of the investing flaps, and he is inclined to trace the formation of some of them at least to the endothelium of the blood-vessels. Most of the giant cells were inclosed singly in a circumscribed space lined by cells of small size; others, however, were arranged in groups within a space lined by cells of small size, and in the centre of this aggregation of giant cells there was a channel-like lumen. These collections of giant cells he traces to the blood-vessels of the part and is perfectly clear that they were not the offspring of the epidermis anywhere in the neighbourhood.

The chief points of note in these experiments were in the first place that the submerged epidermis did not die, and in the second place that it tended to form an atheroma-like cyst which apparently in course of time came to lie as an inert tumour in the part in which it had been embedded. He also made similar experiments with the skin of young dogs but was apparently less successful with these, most of the wounds having suppurated.

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[1] Ueber Enkatarrhaphie von Epithel; ein experimenteller Beitrag zur Entstehung der Geschwulste, Virchow's Archiv, Band xcvii., p. 236.

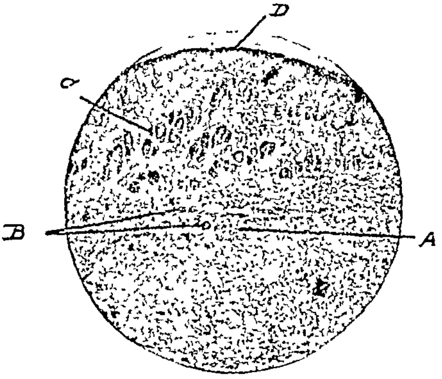
Chronic irritation seems undoubtedly to be a factor in the etiology of cancer, for it is a matter of everyday clinical experience that common sites of cancer in the human body are parts which are liable to frequent mechanical irritation. Then, again, the effects of chemical irritants in the production of malignancy is seen in the cancer of paraffin and tar workers. D'Arcy Power[2] investigated the effects of chronic irritation upon living tissues, more especially epithelium. His method of procedure was to irritate for a considerable period by the application of iodine liniment the mucous membrane of the vagina and then to observe the changes produced. The animals he utilised were rabbits, guinea-pigs, and rats, and the interest of his experiments lies in the fact that he was able to prod [illegible] respects those seen in [illegible] were mostly of the natur [illegible] such as vacuolation and œdema, while cell-nest formation was also observed. *In the case of a guinea-pig, after irritating* the vagina for some time, he found a lumbar gland enlarged which on section presented appearances almost of an endothelioma.

Acting on a particular theory as to the origin of cancer Beatson[3] instituted a number of experiments with the view of ascertaining whether the epithelium of the ovary and testicle of rabbits would proliferate when transplanted into other tissues or when inoculated with cancer from the human subject. In no case, however, did he meet with a positive result, the transplanted tissues being completely absorbed.

The object of my own experiments was to put to the proof what has been asserted—namely, that epithelium will not grow when taken from its natural site and buried deeply in the tissues, more especially those of mesoblastic origin, or in the various cavities of the body. In respect of the line of these experiments no doubt they have been anticipated to a certain extent by those of Kaufmann and others, but though the facts ascertained in these previous experiments were, so far as they went, convincing, yet they lacked confirmation, and it was partly with a view of verification and partly with a view of extending them that I undertook the present research. In Kaufmann's experiments the method of procedure was chiefly, as above said, that of covering an island of skin still retained in its natural position as regards the subjacent tissues by two flaps of skin raised up on either side of it. In this respect the experiment is less crucial than when the epidermis and other layers of the skin are detached from their natural site everywhere, except at one side which is held in connexion with the surrounding blood-vessels, and are then buried in the subcutaneous tissues; still less crucial than when the skin is completely detached from its surroundings and buried deeply in a tissue of which it is not a constituent part. T[illegible] were guinea-pigs and rabbits, s[illegible] paratively young. They were anæ[illegible] er and thereafter the area to be operated on was shaved and thoroughly disinfected and the operation was conducted with strict antiseptic precautions throughout. Collodion and absorbent wool after the application of spirit and ether were used as a dressing and the healing in all cases was by first intention, the animals remaining in good health. In preparing the sections afterwards, the tissues were dehydrated and then embedded in celloidin and cut either in a Schanza or freezing microtome in the usual way. The stains employed were logwood and eosine.

Experiment No. I.—Incisions were made through the skin of the abdomen of a guinea-pig, mapping out an ellipse about half an inch long and a quarter of an inch wide, and thereafter the edges were raised up so as to form flaps and united by sutures over the ellipse, so that it came to lie in the subcutaneous tissue under a linear wound. In such respect this was a repetition of Kaufmann's experiment. At the end of 14 days the animal was killed and a quadrilateral part of the whole thickness of the abdominal wall inclosing the wound and buried skin was cut out. In this case sections were made at right angles to the linear wound above mentioned. The flaps had united by an extremely fine cicatrix depressed at the immediate point of union as in ordinary healing of a wound by first intention. The epidermis was at the point of union very little if in any degree thicker than the epidermis of the surrounding parts. *The union, in fact,* seemed to be typically that of first intention. The cicatrix uniting the flaps was so fine that it could hardly be traced, a few spindles running downwards in a somewhat irregular fashion being all that indicated the line of union. As regards the portion of skin which was buried beneath the flaps taken from either side, the greater part of it seemed to have vanished. The epidermis had completely gone and the only portion that seemed to be left was that which corresponded with the corium (Fig. 1, *a*). This was densely infiltrated with spindle-shaped fibroblasts and was united to the superjacent flaps by a layer of cicatrix in which the connective-tissue cells were still more abundant than in the corium, some of them in the round stage, some elongating into spindles. Chiefly within this cicatrix uniting the remains of the buried piece of skin, but partly in the remains of the skin itself there were numerous sections of hairs to be seen evidently in process of absorption (Fig. 1, *b*). They appeared translucent and somewhat shrunken and their outline in many cases was irregular. The fact of many of these lying in the cicatrix between the embedded piece of skin and the flaps embedding it would seem to show that considerable absorption not only of the epidermis but also of the subjacent corium had taken place. In fact, the part of the skin left seemed to be the deepest layer of the corium and this again was attached to its subcutaneous fat tissue in a natural fashion. Running through the above-described cicatricial tissue, uniting the under surface of the *united flaps to the upper surface of the embedded* piece of skin, there was a fair number of capillary blood-vessels engorged with blood. There was no evidence of giant cells and in the remnants of the embedded piece of skin the skin glands were either absent or in process of absorption. The subjacent parts seemed to have undergone very little alteration farther than there being rather more cellular material round the blood-vessels and in the lymphatic spaces.

FIG. 1.



(*a*), Remains of corium densely infiltrated with fibroblasts and containing numerous sections of hairs (*b*) in process of absorption; (*c*), sections of normal hair follicles of flaps; (*d*), epithelium of superjacent flaps. × 50 diameters.

Experiment No II.—The above experiment was repeated and the animal was killed after the same lapse of time. The appearances differed in no way from those just described.

Experiments No III., IV., V., and VI.—The same experiment was performed in four guinea-pigs which were killed after three, four, five, and nine weeks respectively. After three weeks the hairs of the buried ellipse were considerably less distinct than in the previous experiment; also the fibroblasts were less numerous and the young fibrous tissue was more abundant. After four weeks hardly any trace of the buried ellipse could be found at all, while after five weeks not a vestige was to be seen.

Experiment No. VII.—An incision was made through the linea alba of a guinea-pig and the abdominal cavity was opened. A piece of skin half an inch long and a quarter of an inch wide was detached from the abdominal wall and stitched to the parietal peritoneum with the epithelial side next the abdominal cavity. Three months afterwards the animal was killed and the abdomen was opened. No trace could be found of the transplanted skin and the internal organs appeared to be healthy in every way.

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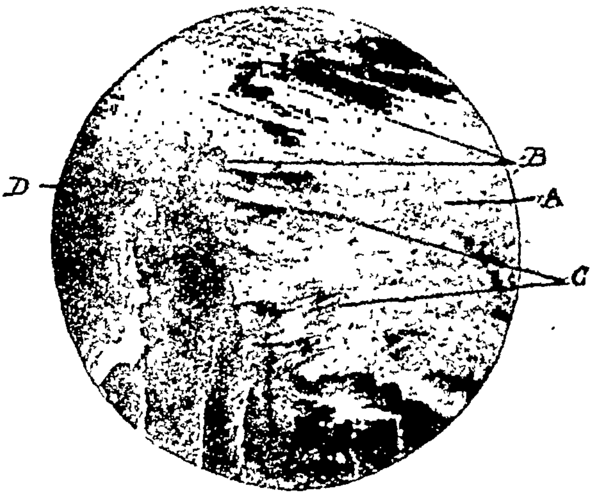
[2] Brit. Med. Jour., Oct. 14th, 1893.
[3] Ibid., Feb. 18th, 1899.

Experiment No. VIII.—From the abdomen of a guinea-pig a rectangular tongue of skin one inch long and half an inch broad was dissected up but left attached at one of its narrow ends. The skin under the attached end and for a little distance behind was undermined so as to form a small pocket in the subcutaneous tissue into which the dissected tongue mentioned was turned so that it came to lie under the skin with its epithelial side downwards. By making relaxation incisions the oblong gap left was closed, forming a T-shaped incision. After 14 days a square-shaped piece of the whole thickness of the abdominal wall containing the inverted skin was cut out and sections were made parallel to its long axis. Here, as in the case of the buried ellipse experiments (Nos. I. to VI.), no vestige of the buried epithelium remained. At the point where the skin turned so as to dip into the subcutaneous pocket the epithelial layer was well marked, devoid of hair follicles, and ran evenly on without dipping into the underlying tissues. Immediately under this the remnants of the rectangular tongue of skin presented appearances very similar to those seen in experiment No. I.

Experiment No. IX.—An oblong-shaped tongue of skin with its long axis at right angles to the linea alba was dissected up from the right side of the abdomen of a guinea-pig, leaving the base which was at the linea alba still attached. The abdominal cavity was afterwards opened beneath the attachment, the tongue of skin was turned in and attached to the parietal peritoneum on the left side by silkworm-gut sutures, so that it lay with its epithelial surface next to the intestine. The abdominal wound was then stitched up. Ten days afterwards the whole abdominal wall was cut out and the site of the tongue of skin was found covered with plastic exudate. The portion of tissue around and including this was separated from the surrounding abdominal parietes and sections were cut at right angles to the linea alba. Just where the tongue of skin ran through the abdominal wall to reach the peritoneum a small depression was noticed on the surface of the section. This depression was covered by epithelium and in the young cicatrix immediately below were one or two islands of epithelium, but on tracing the tongue of skin further on no epithelium could be seen, while the fibrous tissue stained well with eosine but failed to react to the logwood, an appearance which probably indicated that the tongue of skin was dead or in process of absorption. The hair follicles were fairly well marked and retained to some extent the logwood stain. The vessels did not appear to have been unduly constricted. The change that had taken place in the tongue of skin seemed to have been alike with that which occurred in Experiments I. to VI. where the skin was not detached but simply embedded in an abnormal situation.

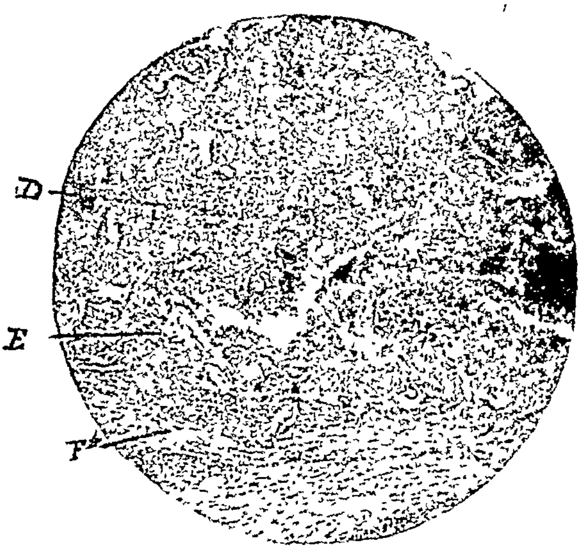
Experiment No. X.—An incision through the skin and subcutaneous tissue was made over the most muscular part of the hip of a rabbit and an inter-muscular septum was found. This was penetrated so that the adjacent muscles were separated for a short distance. A small compartment was thereafter cut out of the muscle on one side and into it was placed a piece of skin detached from the hip, about three-eighths of an inch square. The piece of skin was rolled in a section of sterilised sponge and held together by fine catgut. The inter-muscular space and the skin incision were closed. Four and a half months after operation the animal was killed and on exposing the inter-muscular septum the sponge with its contents inclosed in the compartment could be felt as a hard round nodule covered with some fat. A piece of muscle with the nodule in its centre was cut out and sections were made. The sections showed a central oval portion, evidently the nodule with its sponge, &c., and an outer surrounding area. The latter was seen to consist of muscle-fibres cut in various directions. Immediately within this and encircling the oval portion a thin layer of fat was found. The nodule consisted of a small central part stained almost entirely with the eosine and a surrounding part deeply stained with logwood. The central eosine-stained part proved to be the buried skin (Fig. 2, *a*). This was found cut in various directions in different sections, but those in which the skin had been cut perpendicularly to its surface showed best what had happened. The line of demarcation between the epidermis and the subjacent corium (Fig. 2, *b*) was well marked, the epithelial remains being coloured deeply with the logwood but in a very diffuse fashion, while the subjacent corium had taken on the eosine stain alone. Running downwards into the latter were the remains of the hair follicles very indistinctly mapped out and with the stumps of the hairs still remaining in their centre (Fig. 2, *c*). Neither in the remains of the epidermis, the hair follicles, nor the subjacent corium were there any individual cells to be seen, clearly pointing to the fact that the piece of embedded skin was dead and undergoing disintegration. The superficial layers of epidermis were converted into a granular amorphous mass which coloured deeply with logwood, but in which epidermic cells were indistinguishable. Immediately surrounding the skin and making up the rest of the oval nodule were to be found the branching fibres of sponge framework (Figs. 2 and 3, *d*). The interstices of its fibres were everywhere filled by a dense mass of amorphous caseous-looking material, except at the circumference of the nodule, where for a short distance this was penetrated by

FIG. 2.



Centre of nodule containing skin (*a*) (the light-coloured part to the right) showing the line of demarcation (*b*) between the epithelium and the subjacent corium penetrated by bundles of hair stumps (*c*) and surrounded by the dense mass of amorphous caseous-looking material with sponge framework (*d*). × 50 diameters.

FIG. 3.



Periphery of central oval portion showing sponge framework with caseous amorphous-looking material (*d*) penetrated for a short distance by fibroblasts (*e*) with bundles of newly-formed fibrous tissue (*f*). × 50 diameters.

great numbers of round and spindle-shaped cells with corresponding single nuclei, evidently fibroblasts (Fig 3, *e*), with here and there bundles of newly formed fibrous tissue and occasional capillary blood-vessels (Fig 3, *f*)

Experiment No XI—This experiment, which was performed also on a rabbit, was precisely similar in detail to the previous one, but the animal was killed two and a half months after operation The appearances differed in no respect from those of the previous experiment except that the layer of fibroblasts at the periphery of the nodule was not so deep The epidermis in this experiment also was represented by an amorphous granular mass

These conclude my experiments with natural epidermis, and while making them, having recently excised an epithelioma of the cheek and had an opportunity of getting some cancer tissue from the bladder of a living subject, I thought it might be opportune to transplant these under the same circumstances as in the foregoing experiments where the skin was completely detached As is well known, cancer transplantation experiments from the human subject have been made to the lower animals in numerous instances previously mostly with negative results, but as the results in this case agree so closely with the other results I have obtained with normal epidermis perhaps it may be of interest to quote them in this connexion.

Experiment No XII.—An incision was made through the skin of the back of a guinea-pig and a small pocket formed in the subcutaneous tissue *Into this a small piece of a* recently excised epithelioma of the cheek was placed and the wound stitched up The animal remained perfectly well and two months after the experiment it was killed and the site of operation was examined No trace, either naked-eye or microscopic, could be found of the epitheliomatous tissue, the scar being perfectly healthy, as were also the internal organs

Experiment No XIII—A portion from the centre of a cancerous nodule taken from the bladder was buried in the subcutaneous tissue of the abdominal wall of a guinea-pig with the same result as in experiment No XII

Remarks—The results of my experiments, it will be seen, although conceived on the same lines as those of Kaufmann, are in some respects directly opposed to those obtained by him As previously detailed in the synopsis given of his experiments, the buried epidermis even after a term of 210 days continued to live and became converted into a cyst-like tumour On the contrary, in my own case I found invariably that the epidermis dies, quite irrespectively of the skin being entirely separated from its normal surroundings and its natural blood-supply, or whether the blood supply is still continued This seems a very curious antagonism in the results and how it is to be accounted for is not quite clear Quite possibly the epidermis of the cock's comb or wattle possesses greater power of vitality than the ordinary epidermis, otherwise it is difficult to explain the discrepancy which prevails in the results of his experiments and my own So far, at any rate, both sets of experiments seem to be at one in this respect, in that they show that when epidermis under varying conditions is transplanted into or buried beneath a tissue of mesoblastic origin even though it may continue to live it does not manifest the properties of a cancerous growth Even in the cyst like tumour which was formed in Kaufmann's animals the character of the growth was essentially what might be called homologous In none of his preparations did he discover a heterologous breaking up of the epidermis and its invasion of the tissues of which it is not a normal constituent So far as these two sets of experiments point the lesson we are therefore bound to conclude that a cancer tumour is not merely epidermis which has found its way deeply into the underlying parts, but that the epithelium entering into the composition of these tumours must for some ulterior reason be endowed with specific properties, not merely of proliferation, but of burrowing into foreign parts What this particular property depends upon, whether it is parasitical or not, remains as yet, we may say, in great part unsettled On the one hand, we have the allegation made by Lack[4] that, in the case of the epithelium of the ovary at any rate, all that is necessary in order to cause it to exhibit the properties of cancer epithelium is to set it free in a cavity such as the peritoneal On the other hand we have authors such as Plimmer[5] asserting quite as *confidently that the disease is a* parasitic one, that the parasite can be cultivated artificially, and that when it is introduced into the system of a suitable animal it occasions a tumour at least of epitheliomatous nature In how far we are to conclude for the one view or the other or whether the truth may reside in either is probably in the minds of most pathologists and practical surgeons as yet of the nature of a *quæstio vexata* It has been asserted by Shattock[6] that cancer is a disease of rabbits to which they are subject naturally, and so far as I am aware Lack has not succeeded in repeating successfully his extremely interesting experiment The coincidence of the outbreak of cancerous disease with the scraping of the ovary and transplantation of its epithelium to the peritoneum seems on the face of it a very remarkable one, and quite possibly it is an experiment which might succeed in one out of a large number of instances, but until *this experiment* or one allied to it has been repeated successfully most pathologists and surgeons will I am afraid, be inclined to hold the case *sub judice*

My experiments have a further important bearing on the whole subject of epithelial transplantation and proliferation when taken in connexion with those of Ljunggren and Wentscher Ljunggren[7] preserved carefully sterilised patches of human skin in sterile ascitic fluid and to his surprise found that even for as long as three months the cells of the deeper layers showed well stained nuclei and good protoplasmic structure Not only so, but he also discovered the very remarkable fact that if these pieces of skin, after being retained in the sterile *ascitic fluid*, were *transplanted to a* granulating surface that not only did they become united to it, as might have been the case with many bodies *destitute* of vitality, but, as proved by microscopic examination, that the pieces of skin continued to live, took hold upon the part, and became incorporated with it Strange as such a statement may appear to any biologist and sceptical as one might be as to the truth of Ljunggren's allegation, these experiments were very shortly afterwards quite independently not only corroborated but extended by Wentscher[8] Briefly stated, the most important points in Wentscher's extremely interesting paper are that he excised patches of skin ("Thiersch'sche Läppchen") from the living subject, either the subject of experiment or *derived from* another person, in their entire thickness and including a small amount of subcutaneous fat tissue The pieces measured six by four centimetres or thereabouts and immediately after being excised (by preference from the skin of the leg) they were treated by one of two different methods Either they were placed in aseptic 0 6 per cent solution of common salt, antiseptic precautions being used all through the course of the operation, or they were merely hung up by means of a silk thread in a sterile bottle plugged with cotton-wool In either case the pieces were left for a varying time, up to 22 days at the longest In the case of the piece of skin hung up in the sterile bottle the surface had become to some extent *mummified, dry, and of* a brownish colour, and on the day previous to transplanting it it was placed for a matter of 24 hours in the above salt solution, by which time it had again swollen up and resumed in great part its normal aspect. These pieces of skin, treated by the methods just detailed, were then placed in the midst of a healthy granulating surface which as far as possible was rendered aseptic but previously to the application of the graft a piece of the granulating surface was completely excised either corresponding to the dimensions of the graft or somewhat smaller, in fact, in some of the experiments the graft overlapped the edge of the wound Extraordinary to relate, it was found that after a period of from three to *nine days the grafts were found* to have formed an attachment to the underlying surface The superficial horny epidermis tended to desquamate, leaving, however the underlying rete Malpighii, which assumed a peculiar transparent and glossy appearance in contrast to the appearance of the surrounding skin As soon as the graft had taken hold upon the surface pieces were excised from the centre for the purpose of histological examination and, curious to relate, not only was the epidermis found to retain evidence of vitality in the staining of its nuclei and preservation of its protoplasm but was in process of active mitotic division Vessels very soon penetrate into the graft and as soon as they reach the papillary layer of the cutis vera this activity of the epidermic cells becomes manifest. In those experiments where the graft overlapped the edges of the wound these edges curled up and apparently died, but the portion which was placed in contact with the area from which the granulation tissue had been excised continued to live, became attached to and completely incorporated with it, and in this way brought about the healing of the wound. The immersion in salt solution of the patches or the drying of them previously to transplantation had little or no effect in destroying the vitality of the epidermis even after so long a time as something like three weeks.

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[4] Journal of Pathology and Bacteriology, July, 1899: "The Pathology of Cancer—an Experiment"

[5] The Practitioner: Special Cancer Number, April, 1899

[6] *Brit Med Jour* Jan 20th 1900 p 136 A Criticism of the [illegible]

[illegible] from "Om Hudepitelets [illegible] na Bibehalla lifvet [illegible]

[illegible] zur Allgemeinen Patho [illegible]

In my own experiments the epidermis was placed under conditions which might be reckoned the most suitable not only for its continuing to live but for reproducing itself. Yet as the account of them conclusively shows, in no case, modify the experiment as I chose, did the epidermis continue even to live beyond a few days, and in some instances after a matter of 14 days not only had the epidermis disappeared but even the true skin had almost entirely vanished. In fact, the whole skin graft had practically entirely disappeared. Apart from the drying and immersion in the various liquids quoted in Ljunggren's and Wentscher's experiments the main difference in their experiments as compared with mine was the fact that the one set of grafts was placed upon an exposed surface while the other set was buried deeply in the underlying tissues or placed in the abdominal cavity. What the difference in the result was due to, why the skin continued to live under such extraordinary circumstances and became incorporated with the surrounding tissues, and why in the other case it invariably died and was absorbed, appear to me a complete mystery. We are almost forced to believe that the exposure on the surface, whatever the influence be which is brought to bear upon the epidermis, is the main factor which determines whether transplanted epidermis will live and grow or not. In Wentscher's experiments it was found that certain islands of epidermis became separated and pushed out from the glands contained in it, but apparently these tend either to come to the surface or die out. Even at some parts of the epidermis thus grafted the rete Malpighii was found to extend downwards in processes for a certain distance, but in none of the cases is it recorded that anything like a cancer tumour resulted. These appearances were nothing more than one sees so frequently in epidermic surfaces under the influence of stimulation.

In conclusion, I have to thank Professor D. J. Hamilton for very valuable help during the above research. I am also indebted to Dr. J. S. H. Walker and Dr. G. M. Duncan for the micro-photographs.

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A CASE OF TUBERCULOUS ISCHIO-RECTAL ABSCESS AND FISTULA, WITH LARDACEOUS DISEASE OF THE KIDNEYS.

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A man, aged 32 years, was admitted to the Gordon Hospital on August 29th, 1900, complaining that he suffered a great deal from constipation. He said that from the constant straining efforts which he felt compelled to make he would frequently pass blood which would be followed by diarrhœa or a discharge of mucus and a feeling of soreness. For the last two years the symptoms had been getting worse; the pain on defecation had been intense and the discharge of mucus and diarrhœa had become constant. The patient had been in India for 10 years. Though no definite history of syphilis could be elicited there were two somewhat suspicious-looking scars in the skin over the right side of the liver. He had never had dysentery. An abscess in the right loin had been opened, the scar from the operation being apparent. In both groins there was an enlarged gland. On the left side this was partly caseating, the bluish skin over it being undermined; on the right side, though there was no actual discharge, the skin was adherent, and the gland looked as though it would break down on the slightest provocation. The patient was evidently a tuberculous subject.

The operation was performed on Sept. 4th, when a large ischio-rectal abscess on the right side was found which was opened and enlarged and the cavity thoroughly scraped. A small fistulous track ran upwards from the cavity to the interval between the two sphincter muscles on the right side. This was laid open in the usual way. Immediately in front of the lower end of the coccyx a somewhat ill-defined thickening of about the size of a hazel nut could be felt in connexion with the walls of the rectum. It was at first difficult to determine whether this thickening had any connexion with the abscess cavity or fistula mentioned above, but eventually it was found possible to pass a probe from the internal opening between the sphincters into the thickening. The intervening track was found to be directed from the right to the posterior aspect of the bowel. This was thoroughly divided with Allingham's scissors, and in so doing the whole of the internal sphincter muscle was divided. The thickening in front of the coccyx was evidently an old abscess cavity, the walls of which had become much indurated. There was little bleeding at the operation. The wound was carefully dressed from the bottom with wool wrung out in a perchloride of mercury lotion (1 in 4000).

On Oct. 13th the wound was looking healthy, though there was still a large unhealed surface over the site of the fistula. The patient, who had previously suffered from complete incontinence, was now able to retain his motions for a short time. On the 20th the contraction of the sphincter muscles was good, and the motions could be retained for the greater part of the day. The evening temperature ranged from 99·4° to 100° F. The wound, which was not yet healed, was dressed with nitrate of silver (four grains to the ounce). The patient subsequently had diarrhœa, and on the 30th the granulating area, though a little less extensive, was not so healthy. The evening temperature remained the same. On Nov. 27th the patient was examined under an anæsthetic, when the ulceration over the site of the operation wound was found to extend upwards for one and a half inches. The patient left the hospital on the 29th having been directed to keep the bowels open, and to have the ulcerated surface dressed twice a day with calomel ointment. On Dec. 14th considerable œdema of the ankles and legs was noticed. The urine was quite clear, its specific gravity being 1015; it contained nearly a quarter of albumin. On Jan. 1st, 1901, the œdema became general and extended to the face; the eyelids were not much swollen. On the 12th the œdema had entirely subsided, except from the genitals. The urine was still clear and contained about a quarter of albumin. The ulceration in the rectum had almost disappeared, but there was a slight tendency to constriction; the forefinger, however, could easily be admitted. There was no pain on defecation and no incontinence. During February and the early part of March the patient was able to be up for the greater part of the day, and he had no trouble whatever with the rectum. On March 23rd there was a slight discharge from the rectum but no pain on defecation and no stricture. On April 20th the patient complained of intolerable itching all over the body. The scrotum was found to be ulcerated and the left epididymis swollen and painful. The abdomen was large and the œdema about the ankles and knees was still apparent. On May 11th the œdema became again more marked and the abdomen was larger and a little fluid was present in the abdominal cavity. The urine still retained the same characteristics; its specific gravity was 1015, it was quite clear and absolutely free from casts, and on boiling it became nearly solid from the large amount of albumin present in it. On the 22nd, after 10 days' complete rest in bed, the œdema had again entirely disappeared except from the scrotum and penis, the discharge from the rectum had ceased, there was no pain on defecation, and there was no stricture.

Remarks.

With such signs of tuberculous disease it can well be imagined that the patient was not the most favourable subject for operation, yet in spite of this the condition of his rectum has been much improved. Except for a slight discharge—which only comes on after he has been walking too much—he suffers no inconvenience, though at one time it seemed almost certain that a stricture would be formed, but this has been prevented by the daily passage of the finger. Another point worth noticing is the fact that though the internal sphincter muscle was completely divided, the patient has now entire control over the bowel, the contraction of both sphincter muscles being extraordinarily good.

From the medical aspect there can, we think, be no doubt that in this case the symptoms were due to the presence of lardaceous degeneration of the kidney. The marked œdema, the abundant urine of clear and non albuminous appearance, the enormous amount of albumin, together with the total absence of casts all point in this direction. Further, the presence of the more usual forms of nephritis is excluded by the normal condition of the heart and vessels. *Reduplication of the first and accentuation of the second* sound were altogether absent, and there was no hypertrophy of the left ventricle. The pulse, too, was very far from presenting the qualities found to characterise chronic renal disease.

The case seems to be an important one in the light of the difference of opinion which exists concerning the nature of the renal lesion which accompanies tuberculosis. Quite recently Dr Landouzy and Dr Bernard[1] published a paper in which they upheld a contention that tuberculosis, pulmonary and other, acts on the kidneys through the effect of the toxins which appertain to the activity of the tubercle bacillus. These authors maintain that the bacillus has no direct action on the kidney structure, but that a chronic inflammatory process is engendered by the "toxin" of the bacillus which eventuates in a chronic parenchymatous nephritis. Quite opposed to this view is that of Dr A. Brault[2] who strongly criticises the argument of Dr Landouzy and Dr Bernard. He says that there is no evidence whatever of the existence of such a form of nephritis as that described by the writers just named. Dr Brault attributes all the symptoms referred to by Dr Landouzy and Dr Bernard as being the result of the presence of amyloid disease of the kidney. He points out, further, that the so-called "large white kidney" of old days is neither more nor less than this same lardaceous degeneration of the organ. We are in entire accord with Dr Brault on this subject. We do not accept the arguments which would attribute to tuberculosis of the lungs and other organs the power of initiating kidney changes which are *sui generis* and are due to the action of a "toxin" of which nothing is known. But as for the "large white kidney"—a term happily now nearly extinct—we have no doubt at all that it is merely a more or less marked form of amyloid renal disease. It will be *noticed that in the present case* the symptoms are just those which were formerly attributed to the presence of the "large white kidney"—viz., large quantities of urine and of albumin, much œdema, and considerable pallor. The presence of tuberculous disease no doubt accounts for the lardaceous degeneration of the kidneys, a condition comparatively rare and one which has given rise to great errors, both as regards pathology and diagnosis. For this reason we think that the present case is one of some importance as elucidating a form of renal disease which has given rise to much misconception.

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[1] La Presse Médicale, March 16th 1901.
[2] Ibid April 6th, 1901

INFANTILE MORTALITY AT BATH.—At the meeting of the Bath Sanitary Committee held on June 24th the medical officer of health reported that he had caused leaflets *to be distributed* in regard *to the treatment* of children in the city. Dr Symons added that 31 children had died from diarrhœa in 1898 and 30 in 1899 whereas in 1900 only five deaths had occurred from the disease.

DISTRIBUTION OF CHARITABLE FUNDS.—The assistant commissioner of charity inquiries (Mr Cardew) has been holding investigations in connexion with the charities of villages near Devizes. At Rowde, one charity bequeathed in 1715 was stated to be disbursed in payments of 8*d* each to 492 applicants. Mr Cardew urged the adoption of some different method of distributing the money, such as contributing to a local hospital where the parishioners in need of medical and surgical treatment could receive treatment.

THE PHYSICAL CAUSES OF THE SLIGHTER FORMS OF MENTAL DEFECTS IN CHILDREN.[1]

BY FRANK M POPE, M D

IN 1899 the Elementary Education (Defective and Epileptic Children) Act was passed, entitled, "An Act to make better provision for the Elementary Education of *Defective* and Epileptic Children in England and Wales." This Act empowers school authorities (1) to ascertain what children in their district not being merely dull or backward and not being imbecile are defective—that is to say, what children by reason of mental or physical defect are incapable of receiving proper benefit from the instruction in public elementary schools, but are not incapable by reason of such defect of receiving benefit from instruction in special schools, and (2) what epileptics are capable of receiving benefit. The State thus did for mentally defective children what it had previously done for the deaf and dumb and the blind.

The duty of deciding as to what children came under the above definition was given to approved medical men, examination by whom was made compulsory, and the school age of such children was raised to 16 years. I was appointed to act in this manner for the Leicester School Board and have *in consequence* examined a large number of children. After doing this I looked up the literature on the subject, more particularly the work[2] and reports[3] referred to below, and Dr F Warner's article in "Allbutt's System of Medicine."[4] In the report of the Committee there is an immense mass of statistics, over 100,000 children of every degree of mental capacity having been examined. The direction the inquiry had taken was mainly that of observing the conditions of the children with regard to bodily development and defects. The former was in many cases found to be imperfect and the latter were frequent, and the conclusion sought to be enforced appeared to be that the physical defects and so-called abnormal nerve signs were on the whole an index of the accompanying mental defect if any. Abnormal nerve signs are the conditions of expression, tone of facial muscles, "position of hands," tremor, "response to action," and others, and the remark is made that observers in this field must depend for any good results on inspection mainly, this being thought to give better results than the appraisement of the mental deficiency by interrogation of the child. The physical defects to which the observers attached most significance were cranial abnormalities—large heads, small heads, cranial bosses (rickets), defect of forehead, frontal ridges, and head asymmetrical, defective ears (*external*), *palate*—high-arched V-shaped, cleft and others, defective nasal bones, and general debility. The correlation of these two classes of signs is made the criterion of mental defect. I reserve my criticisms on these reports till later, only remarking here (1) that Dr Warner acknowledges that some dull children have no defect and that some children with these signs are not dull, (2) that there is an underlying assumption throughout the report that these signs are those of degeneration, and (3) that Dr Warner says that these signs appear to be inherited. Their conclusions appear to be mainly that physical conditions are an index of mental ones, that both should be looked for, and that no risk should be run of neglecting children who exhibit defects. As a practical outcome of the Committee's labours the Act of 1899 was passed. I do not know *that one can blame these committees* for not having investigated the causes of such defects. If it was the case that they did not examine the children closely, as for cardiac defects and the like and that they were not supplied with family histories, it is obvious that they were not in a position to undertake the inquiry. Under the Act of 1899 the medical officers have the opportunities which were wanting to these committees. The parents are usually seen and the children can be closely and carefully examined. After making many such examinations it appears to me that it would be possible to inquire more closely into the pathological causes of the mental defects presented by the children with a prospect of arriving at some definite conclusions. I therefore undertook further inquiries into the subject, the results of which I here present.

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[1] Thesis for degree of M D in the University of Cambridge.
[2] Shuttleworth Mentally Deficient Children second edition (Lewis, 1900)
[3] [illegible] a Study of the Mental and Physical Condi[illegible]
[illegible] London:
Macmillan, [illegible]

I have examined about 120 children in the schools of the Leicester School Board. These children were most of them already in the special classes for defective children, having been found, by the teachers in the first place, and by the inspector, a man of great experience—Mr. H. Major, B.Sc. Lond.—in the second, to be unfit for the ordinary school work. All children examined were admittedly defective mentally. Thus by rule of thumb the special class desired had been already weeded out and the medical examination could be directed to ascertaining if any were either mentally so deficient that it was useless to expect any improvement under education, or, on the other hand, if there were any whose defect was not marked enough to prevent their being placed in the ordinary classes. In most cases the mother and the teacher were present at the examination of the child, so that the family history could be inquired into, and cross-examination (which is most necessary) could be practised. When I found that it was possible that some light might be thrown on the etiology of these mental defects by the facts which I had ascertained by leave of the London School Board I obtained access to the reports of about 200 of the defective children in their schools, and the result of this examination is included with my own results. In addition, I made observations on 500 children in the upper fifth, sixth, and seventh standards of the Leicester board schools, with a view of seeing if any of the defects supposed to indicate mental deficiency were present in those presumably the brightest of the scholars. It was my original intention to have excluded what are usually termed imbeciles from my statistics, but I soon found that apart from the difficulty of drawing a hard-and-fast line between these and the simply defective cases it was probable that they differed only in degree from the milder cases, and the causes producing the defective condition were probably alike in all. A certain proportion of the imbeciles and idiots are besides excluded from most of the statistics by the separation of the hereditary from the non-hereditary cases. It seemed probable that some of the causes producing insanity would also operate in those minor defective mental states (of course, excluding causes such as intemperance, &c., acting in the lifetime of the insane person), and of these that heredity would be one of the most important. Maudsley[5] says of the causes of idiocy that many of them operate after birth; they are epilepsy, the acute exanthemata, perhaps syphilis, and certainly starvation, diet, and overcrowding. Shuttleworth gives an excellent *résumé* of the various factors of causation. I need not enumerate them, as I shall take his list as the basis of classification of my own cases (see also Ireland[6]).

Heredity.—In the insanity of adults, in idiocy, and in imbecility there is no doubt that one of the most important causes is heredity. If to those cases having a clear history of insanity in the family we add those having a clear history of epilepsy we get a considerable proportion of cases of mental weakness accounted for. These cases are also in the truest sense of the word hereditary, for we can hardly conceive of the transmitted defect, be it what it may, as anything other than one which is of the essence of the organism, and as being present in the germ or sperm cell, and hence not only as having been transmitted, but as being also transmissible to future offspring. The question of the part played by heredity in insanity has been often fully treated, and I therefore consider myself justified in excluding altogether from the scope of my inquiry, at any rate as far as numbers and conclusions arrived at from numbers are concerned, all cases where a clear family history of insanity or epilepsy in the family can be ascertained. I therefore allow that a percentage of perhaps about 30 of the cases of mental deficiency which are being treated in special classes are due to inherited defect from insane or epileptic parents, and I am only attempting to show the causation of the remainder (perhaps 70 per cent.). I have satisfied myself, as far as the cases which I myself have examined, that I have excluded heredity, but with regard to the London cases I fancy that the family histories were not complete in all instances. As, however, the exclusion of some hereditary cases will tell against and not for my conclusions, such accidental inclusion will really strengthen my arguments.

Development of brain.—I need not enter very fully into the manner in which the brain is developed. After the hind-brain, with its centres for respiration and circulation, is developed, great tracts having for their function the placing of the hemispheres and subjacent great ganglia in communication with the organs of special sense and the tactile sensory system have to be elaborated, and the great motor tracts placing the hemispheres in connexion with the locomotor apparatus have to be formed, and *pari passu* with these growths are built up the cerebellar and other controlling mechanisms. Lastly, in the cerebrum there appears to go on for the greater part of life a linking up of the higher centres, making certain paths easier and possibly, but not so certainly, other paths more difficult, for nervous impulses to traverse. For the proper working of even the very lowest degree of human intelligence a comparatively high development of the central nervous system is necessary. The sense organs must be developed and intact, their sensoria developed and intact, the efferent apparatus for expression, whether lingual or cheirokinæsthetic, developed and intact, and the connecting links, if not all completely developed, must at any rate be in a condition allowing of development. By the time a child has reached an educable age it is probable that little difference could be distinguished histologically between the brain of such child and that of a man aged 25 years.[7] It is obvious that in the course of the growth of such a complex organ the possibilities of interference with its proper development are very numerous and that such interference may take place at any time. We are familiar with teratological monstrosities in which the hemispheres are undeveloped, with idiots in whom we can find every variety of arrested development—brains with few convolutions, non-development of optic or auditory tracts, and the rare cases of non-development of the pyramidal tracts. Shuttleworth divides his cases into congenital and non-congenital, and places between these a mixed class which he terms "developmental." This is, of course, a classification of utility only. The defect arising from an injury to the fœtus by the mother falling down stairs is precisely comparable to that due to the child of a few months being dropped, and so is intra-uterine to extra-uterine small-pox. I propose, however, to follow him to some extent and to classify the causes of mental defects into ante-natal, natal, and post-natal causes.

General mental condition of cases examined.—The children whose examination forms the basis of these statistics varied considerably in mental power. Some, as has been stated, were imbeciles, but capable of speech and of some amount of education, and from these the gradation could be traced up to the child who after a few months' training in the defective children's class was able to join normal children of a somewhat younger age. Moral defect was uncommon among them and except in the hereditary cases it was not usual to find them troublesome to their teachers. Perhaps the best way to describe them is to say that before special training they are about equal mentally to children of the age of four or five years. They lack the power of concentration of thought and, as a rule, cannot reckon except in very low numbers. Their imitative powers are weak, hence they seldom write or draw well.

Method of investigating the causes of the mental defects.—A few words are necessary as to the method by which the assigned causes of mental deficiency were ascertained. Two returns on forms prescribed by the Education Department were filled up for each child, one by the teacher of the class in which the child was and the other by a parent and the teacher conjointly. The latter contains statements of age of parents, their mental condition, condition as to temperance, cause of death if not living, ages and states of health of living brothers and sisters, and causes of, and ages at death of, deceased ones; whether insanity, fits, consumption, or scrofula existed in the family; the time when the mental deficiency of child was first observed; the cause to which it is attributed, and other facts. Taking these as a basis, the mother in most cases, the father or other near relative in a few, was seen and questioned, especially as to the time when the deficiency was first observed and the causes assigned for it, and care was taken that at least no cause was put down as probable unless it had preceded in time the observed mental deficiency The mere fact of such a disease as measles being assigned by a mother as a cause was not thought to justify its inclusion unless it was expressly stated that the child was very seriously ill at the time or unless the complications or sequelæ of the disease—e g , long insensibility, aural or ophthalmic trouble—gave some colour to the assertion, and so with other assigned causes In most cases the mothers were intelligent women and it is difficult to see whose opinion could be taken in preference to theirs, as a complete medical life history written by a medical man was impossible to be obtained The mothers had no pre existing ideas on the subject, and I think I shall show that in most instances the causes which they assigned had much to do with the arrest of brain development in the children

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[5] Physiology and Pathology of Mind, 1868.

[6] Mental Affections of Children (London: Churchill, 1898).

[7] Clouston: Neuroses of Development, London, 1891.

Classification of alleged causes —Ante natal hereditary brain disease or epilepsy, defects of ovum (syphilis ?), parental intemperance, age of mother, twin pregnancy, and intra uterine accidents (injury to mother, fright to mother, intra uterine diseases) Natal Causes acting at time of birth—premature birth lingering labour, and ophthalmia Post natal accidents—injury to brain, injury to organs of special sense and injury to body generally Diseases of brain, &c meningitis, hydrocephalus epilepsy, convulsions, chorea, and hæmorrhage (apoplexy) Maldevelopment in some definite area—e g , Broca's Disease of the spinal cord Friedreich's disease Diseases of special senses the eye, the ear the nose and pharynx, and the nose and adenoids Bacterial diseases whooping cough, measles, scarlet fever, typhoid fever diphtheria and fever Diseases of the lungs bronchitis, pleurisy, and pneumonia Diseases of the heart and of the kidneys General diseases rickets cretinism tubercle, rheumatism debility, want of appetite, &c , diseases of skin, eczema, &c This is a very long list, and it covers most of the diseases of children that are known to medicine I hope to show, however that most cases are not due to the operation of one cause alone with the exception of some of those due to hereditary brain disease and the obvious ones of accident or acute brain disease, such as hydrocephalus

Hereditary cases —After excluding some children who were not defective, and three or four in whose cases the cause was severe injury to the head in childhood, there remain for the purposes of my statistics 104 cases Of these, 28 or 26 9 per cent , had relatives who were either insane or epileptic These were grouped as follows epilepsy in family, eight , insanity 10 , imbeciles and idiots four , intemperate parents, three , and syphilis, one The last two items require explanation. The parental intemperance was very marked in these cases and it was almost certain that the parents were mentally of a very low type. Syphilis was placed here because it is so clearly an hereditary disease, and it is obvious that the age of the mother could exercise no effect on its transmission

Reasons for believing the causes probable —With regard to the second group of cases, where hereditary brain disease was not shown to exist, 76 or 73 1 per cent., of my cases were carefully examined, and I satisfied myself as far as possible that the causes given by the mothers as probable did correspond fairly well in the time of their occurrence with the time when mental deficiency was first noticed With regard to the 151 cases in the London board schools of which I have copied the notes I am not in a position to say as much , I have therefore not included these with my own cases, but have quoted them separately The close agreement in the percentages of the two series is remarkable and it strengthens the probability that the causes given are true and not merely apparent (No hereditary cases are included in the London series.)

AGE OF MOTHER.

Before directing attention to Table I on which I have tabulated the different causes, giving my own results in the first column and those from the London School Board in the second, I must explain that I leave for subsequent discussion what I have reason to consider the most important and frequent cause of all—namely, an advanced age of the mother at the birth of the child I mention it here because this cause must act on the ovum from its earliest age—that is if we leave out such questions as that of prolonged labour and lacteal supply, and therefore it should be grouped with the ante natal causes To consider the other causes *seriatim*

ANTE NATAL CAUSES

Syphilis —I only found undoubted hereditary syphilis in one case This is rather surprising, but it is borne out by the fact that only one of the London cases was assigned to this cause Hutchinson has noted the same fact among patients at Earlswood.[8]

Parental intemperance (No evidence of hereditary brain disease)—This is a very difficult subject on which to express an opinion I have already given reasons for including among hereditary cases the four cases from Leicester in which this cause was assigned If these reasons are admitted as valid there remains no case in which it is probable that this was the only cause of the child's condition Among the London cases two only have this as the sole assigned cause, though it appears in other cases in a

TABLE I —*Schedule of Causes*

—	Of my own 76 cases	Of 151 London cases
Ante natal causes—		
Syphilis	1	1
Parental intemperance (no evidence of hereditary brain disease)	4	2?
Twin pregnancy	1	1
Injury to the mother before the birth of the child	—	4
Fright to the mother before the birth of the child ..	2	2
Intra uterine diseases (congenital cataract)	2	1
Natal—		
Premature birth	1	1
Lingering labour	—	2
Post natal—		
Injury to brain	2	2
,, organs of special sense	—	1
,, body generally	—	2
Diseases of the brain—		
Meningitis or inflammation	—	3
Hydrocephalus	3	1
Epilepsy	9	8
Convulsions	6	10
Chorea	3	3
Hæmorrhage (apoplexy)	4	4
Defect of the speech area (cause ?)	2	—
Diseases of the spinal cord—		
Friedreich's disease	—	1
Diseases of the organs of special sense—		
Eye (blind cases excluded)	4	3
Ear (deaf cases excluded)	7	2
Nose and pharynx (adenoid growths)	—	2
General diseases		
Bacterial—		
Measles	16	21
Scarlet fever	6	12
Fever (?)	2	—
Typhoid	—	3
Diphtheria ..	3	1
Whooping-cough	Several	11
Of the lungs—		
Bronchitis	6	10
Pleurisy	—	—
Pneumonia	2	3
Of the heart	4	6
Of the kidney	1	—
Rickets	1	7
Cretinism	—	1
Tubercle ..	4	8
Rheumatism*	—	—
Skin disease—		
Eczema ..	—	2
Debility want of appetite &c	8	9

* See Chorea and Heart Disease

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[8] Clifford Allbutt : A System of Medicine, vol viii p. 235

different form, a not unusual combination being "intemperance of father, and his brutality to mother during pregnancy."

Twin birth.—In one instance in Leicester and in one in London this cause was assigned. Twins are frequently small and ill-nourished.

Injury to mother during pregnancy.—This is not stated in any of my cases. Four of the London cases are stated to have this cause. It is well known that abortion may be caused, or the placenta be partially or wholly detached, by injury causing death or serious malnutrition of the fœtus, and one can easily see the method by which this cause might obstruct brain development.

Fright to mother.—Of the Leicester cases two were assigned to this cause, as were also two of the London cases. In one of my cases the father was insane; in the other the child had also had an injury to the head at the age of three and a half years. This cause is so mixed up with the much debated subject of maternal impressions that I have great doubt of its validity, unless there has been actual physical injury at the same time.

NATAL CAUSES ARISING AT THE TIME OF BIRTH.

Premature birth.—This accounts for one case in Leicester and one in London. My case was evidently that of a very feeble child, for she did not walk or talk till the age of five years; she is deaf and speaks badly, but is not imbecile and profits by instruction. The arrest of cerebral development from this cause is easy to understand.

Lingering labour.—This was given as the cause of two London cases. Direct injury to the brain, rupture of vessels, and hæmorrhage, meningeal or otherwise, would probably be produced. Cyanosis, if recovered from, would probably not cause arrest of brain development. But stoppage of circulation might cause very serious lesions in nerve tissue.[9]

POST-NATAL CAUSES.

Injury to the brain.—Of this condition there were two cases among those from Leicester and two among the London cases. These require no remark, nor do those due to serious injury to the eyes or the body generally. Immersion in water, causing shock and subsequent pneumonia, is given in one of the London cases.

DISEASES OF THE BRAIN.

Inflammation of the brain.—This was alleged as to three London cases. It was impossible to inquire into them, but of course meningitis would naturally interfere with subsequent development.

Hydrocephalus.—I observed this in three cases. The heads were very large. The process appeared to have been arrested in all. It is impossible to say what the condition was due to. Probably to posterior basic meningitis. Tuberculous would not have been likely to be recovered from. There was one case from this cause among those from London.

Epilepsy.—There were nine Leicester cases and eight London cases. This cause is so well recognised that I need not say much about it. It must be remembered that the above small numbers only apply to the cases where heredity was not present or could not be proved, and that there were many other epileptics. The extent to which the mental capacity was affected by this disease varies much; some who only had an occasional fit were bright and learned well, while others who had frequent attacks were very dull.

Convulsions in infancy.—This was asserted to be the cause in six of my cases and in 10 of the London cases, or 7·9 and 6·9 per cent. respectively. The coincidence in the numbers is remarkable and shows, I think, that this is a real cause. I do not suppose that the causes of the convulsions are always identical. Some, no doubt, came on in the course of acute diseases or teething, while others might be true epilepsy now in abeyance and likely to appear again. The children in whom this cause only was alleged were, as a rule, not badly deficient mentally.

Chorea.—I have included this under brain disease as it is almost certain that the incidence of the toxin or bacillus, whichever it may prove to be, is mainly on the cerebral cortex, and this being so it is not surprising that its occurrence during the developmental period should cause mental defect, at all events for a time. Three of my cases and three of the London cases were due to it. An interesting question arises here as to whether some of the cases termed developmental and due to this cause among others may not really be true psychoses. I have recently seen a case of well-marked melancholia following an acute attack of chorea and another of chronic mania or dementia, and I shall later relate the case of a patient (Case 7) and give reasons for thinking that his deficiency may be due to dementia coming on at the age of five years after chorea.

Hæmorrhage into the brain or its membranes.—This is a rather frequent cause of mental deficiency. I found it in four of my cases and it was present in four of the London cases. Late contracture made cripples of these subjects. The mental defect was not severe in most of them. Whooping-cough was the cause of the hæmorrhage in one case. In two cases the children were the offspring of elderly mothers of the ages of 43 years and 41 years respectively at the time of the birth of the children. In all these cases there had been a distinct seizure or fit.

Defect of speech-area of the brain.—In Leicester there were two cases. I expect that these were really from the same cause as the last group, but I have no history of a distinct fit or seizure. The speech was very imperfect in both cases and there was impaired power of movement of the tongue in one case and of the lips in another. In neither was there anything like aphasia.

With regard to diseases of the spinal cord there was one case of Friedreich's disease and that was a London case.

The following are the returns of the diseases of the organs of special sense. From Leicester there were four eye cases and seven ear cases, and from London there were three of the former character and two of the latter, as well as two cases of disease of the pharynx and nose (adenoids). These are obvious causes of backwardness and perhaps of arrest of brain development in children. They do not call for much discussion. Many of the ear cases appear again under the headings of measles and scarlet fever. Blind and deaf cases are excluded, being all in special schools. The reason for the absence of cases with adenoids from the Leicester returns is special. The vice-chairman of the school board is Dr. F. W. Bennett, aural surgeon to the Leicester Infirmary, and he has taken great pains to have all such cases treated, with the best possible results. No doubt many more cases of backwardness from this cause existed before attention was so much directed to this condition.

GENERAL DISEASES.

This group corresponds to some extent to Dr. G. E. Shuttleworth's post-febrile group, but only partially. He, dealing with the more severe cases of idiocy and imbecility, has in his mind the cases where, as a result of the poison of one of the exanthemata, sclerosis with atrophy, or thickened and adherent membranes, following meningeal inflammations, were produced. I have no doubt that in some of my worst cases this may have occurred. In others, however, I consider that the brain has been affected along with, and in proportion to, the rest of the body, and that as a rule in this group of cases the cause assigned has been a secondary one, the primary or rather predisposing cause being the original weakness of the organism as a whole, due to pre-natal causes, especially to birth from an old and exhausted ovary.

Measles.—This disease appears more frequently than any other. There were 16 cases from Leicester and 21 from London. In several of the cases—one in four out of those from Leicester—there was some deafness due to middle-ear suppuration, but in others, though there was sometimes a discharge from the ear, there was no actual impairment of hearing. So common a disease as measles cannot be credited with being the sole cause, but along with the other exanthemata it is, I believe, a secondary cause in many instances. In several cases where there has been hereditary mental weakness imbecility appears to have followed an attack of measles.

Scarlet fever.—Of cases from Leicester there were six, and of London cases there were 12. Much the same remarks as those on measles apply to scarlet fever.

Of *fever* (indefined) there were two cases, both being from Leicester; while of *typhoid fever* there were three cases, all of which were from London.

Diphtheria.—From Leicester there were three cases, and from London there was one case. Apparently diphtheria is not a frequent cause. There has been much diphtheria in Leicester during the last few years.

Whooping-cough.—There were several cases of whooping-cough among those from Leicester, and they were generally in conjunction with measles or lung affection From London there were 11 cases. I have mentioned this complaint as leading to cerebral hæmorrhage in one case.

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[9] Experiments on Spinal Cords by Ehrlich and Brieger (Pierre Marie: Diseases of the Spinal Cord, New Sydenham Society's Translations, 1895, p. 401).

Bronchitis.—The Leicester cases were six in number and those from London numbered 10. As far as I can ascertain, the bronchitis which is credited with producing mental defect is the rather dry, chronic, inherited form. The repeated attacks seem to interfere with cardiac action and circulation, as well as with proper blood aeration. It must not be forgotten, however, that such a complaint interferes very much with proper school attendance, and hence backwardness results, intensifying the effects of any cerebral maldevelopment.

There were two cases of *pneumonia* from Leicester and three from London.

Heart disease.—Leicester, four cases; London, six cases. In a few cases the condition was congenital; in others it was due to rheumatism.

Kidney disease.—There was one case of chronic nephritis after scarlet fever.

Rickets.—Leicester, one case; London, seven cases. I expected to find this a much more constant cause, and, indeed, in a few cases besides the one enumerated the skull was bossed, but I could not satisfy myself that there was any enlargement of the ends of the long bones or of the ribs. Also rickets is not a common disease in Leicester. The milk-supply is good and cheap and overcrowding in houses is uncommon.

Cretinism.—I do not know why none of the Leicester children and only one of those from London were cretins. There must be some that have escaped the school board net. The condition needs no remark, its effect on the brain being so well known.

Tubercle.—Leicester, four cases; London, eight cases. In some of its numerous forms tuberculous disease is responsible for a good many defective children. It must be remembered that many of the sufferers from tubercle are much too ill for any question of school attendance to arise. The cases which I have seen are mostly those of old bone disease.

Rheumatism.—When this is a cause it is usually through its secondary results of cardiac disease or chorea, which have been discussed.

Skin diseases.—There were two cases of eczema among the London cases. Probably this caused backwardness from the children being prevented from attending school; sometimes these cases are coincident with bronchitis.

Debility, want of appetite, &c.—Some of these cases have been included under other heads, but there appears to be a certain proportion of children who are extremely weak and who resemble the prematurely born. Some of these may possibly be tuberculous cases. Inability to eat breakfast is alleged about many of these.

TUBERCULOUS FAMILY HISTORY.

In addition to those diseases from which the children have suffered or are actually suffering there is the question of those cases noticed by Shuttleworth and others where there exists a history of tubercle in the family. In children of such families there is a want of resistance to the invasion of the tubercle bacillus and often to that of other micro-organisms, the germ of the exanthemata particularly. Such a hereditary condition as this has many points of similarity with that which I am about to describe and which I consider to be the most frequent predisposing condition of all—namely, the age of the mother at the birth of the child. Many of these causes will be found to coincide closely with those of idiocy given by Fletcher Beach and Shuttleworth,[10] and one observation of theirs is worth notice. They say: "Experience teaches that it is rarely scientific to assign one specific [illegible] When it is possible thoroughly to [illegible] contributing factors may be [illegible] the mother at the birth of the child is not noticed as a contributing factor.

Age of the mother.—As the forms relating to the family history of the defective children state the ages of the father and mother, the age of the latter at the birth of the child is known. I was struck by the fact that the age of the mother appeared to be excessive in many cases. I then tried to ascertain the average age of the child-bearing woman. This I found to be very diffic[illegible] returns do not give the ages of [illegible] children. Statistics exist of the ages of women at the time of delivery from many lying-in institutions in various parts of the world, and these show that a very great majority of the patients in those hospitals were under the age of 30 years at the time of delivery. There are, however, many objections to accepting these statistics as representing the state of matters with regard to the general population. Many of the births in lying-in hospitals are those of illegitimate children, and many others are cases in which women have contracted early and imprudent marriages, and the proportion of primiparæ to multiparæ is very high. The result is that in these institutions more children are born to women under 30 years of age than is the case throughout the entire population. I found, however, some facts reported by Dr. Matthews Duncan,[11] which were taken from a population resembling in many particulars those of Leicester and London, whence my statistics were derived. The ages of mothers at the time of delivery were stated in the Registrar's returns from the cities of Edinburgh and Glasgow between the years 1850 and 1860. I have taken these for comparison. I give shortly Dr. Duncan's remarks on these statistics:—(1) that the actual, not the relative, fertility of our female population as a whole at different ages increases from the commencement of the child-bearing period of life until the age of 30 years is reached and then declines to its extinction with the child-bearing faculty; (2) that the actual fertility is much greater before the climax, 30 years, is reached than after it is passed; and (3) that at least three-fifths of the population are recruited from women not exceeding 30 years of age. Dr. Duncan gives his figures distributed in quinquennial periods and I have tabulated my own cases in the same manner (Table II.). Taking all my cases where heredity has been excluded, instead of two-thirds of the children being born when their mothers were under the age of 30 years I find in the Leicester cases that the proportions have been very nearly reversed and that almost two-thirds were born to mothers over 30 years of age, and that 40 per cent. were born to mothers over 35 years of age instead of 20 per cent. as in the normal population, or exactly double. As justifying the exclusion of the hereditary cases these latter approach the normal very closely. The above has reference to the cases observed by myself. The London cases (151), where the facts were ascertained by independent observers, show the point almost as strongly. 40 per cent. are the children of mothers under the age of 30 years and 60 per cent those of mothers over that age. I believe that if inquiries as to heredity had been pushed further the proportions would have been the same as in the Leicester cases. One difference between the London statistics and those of Leicester is that there are more cases at the ages of from 30 to 34 years and fewer at those from 40 to 44 years. This, I think, may be due to the fact that the London women inhabiting Southwark and Clerkenwell, the districts in which the children lived, undoubtedly "age" more rapidly than do women in a comparatively healthy provincial town like Leicester. I do not believe that such facts with regard to 227 admittedly defective children can be accidental, and there are several further reasons for thinking that advanced age in the mother has an important bearing on the health of her offspring.

TABLE II.—*Showing the Relative Ages of Mothers of Normal and Backward Children.*

—	Under 25 years.	25–29 years.	30–34 years.	35–39 years	40–44 years.	Over 45 years.	Total.
Normal, Edinburgh and Glasgow, 16,301 cases							
Per cent.	24·92	30 89	23 61	14 76	5·15	0 61	100
Leicester, not hereditary—No. of cases...	14	14	18	13	14	3	76
Per cent.	18 4	18·4	23 7	17·1	18 4	4·0	100
Leicester, hereditary—No. of cases... ...	8	8	5	3	3	0	27
Per cent.	29 6	29 6	18 8	11·1	11·1	0	100
London, not hereditary—No. of cases...	26	40	47	24	11	3	151
Per cent.	17·2	26 4	31·1	16·0	7·3	2 0	100

Other facts bearing on the importance of the age of the mother.—This is not altogether a new observation. Not to go so far back as "Little Benjamin," the youngest of a family of 12, or to Aristotle who remarks that the young of very old parents are deficient in body and mind, we find a recognition of the fact in provincial speech: there is a dialect word used in Leicestershire and other counties to denote the smallest animal in a litter, and also the youngest weakly child of a family—*dilling*, often pronounced *dillon*.[12] Dr. A. M. Mitchell[13] quotes a series of 85 idiots and finds that while many of them were children of first pregnancies a much greater number were the children of the eighth, ninth, and subsequent pregnancies than would have been the case in the same number of children with normal brains; also that nearly 25 per cent. were born of mothers between the ages of 40 and 44 years, instead of 5·15 per cent. which would be normal. Shuttleworth[14] in discussing the Mongol or Kalmuck type of idiot remarks that almost half of the representatives of this type are the last born of a long family. Of course, this implies considerable age in the mother. My observations confirm these remarks, but though it is common to find that the defective child is the last of a large family the family is not always large nor is the child always the last one. Taking 18 children whose mothers were over 35 years of age at their birth at haphazard I find the size of the families to be eight, five, three, 10, 10, five, seven, five, four, seven, six, six, seven, 12, 15, 10, 11, and eight, six of the families being over 10 in number and 12 being less than that number. All these children except two were the youngest of their families. With regard to one or two general diseases the same cause has been referred to. Dr. A. Carroll and Dr. C. Morley Phillips,[15] treating of the causes of rickets, state that it is a recognised fact that a mother advanced in life, even though she has not had numerous previous confinements, is more apt to produce rickety children than is a younger woman. One point more should be considered. It may properly be argued, How do you explain the fact that there are so many cases in children of mothers under 25 years of age? In answer I must first state my general conclusion. It is that the above statistics appear to show that the most frequent causes of defective mental states in children who have no family history of hereditary brain disease are (1), as a predisposing cause, birth from a comparatively aged mother, and (2), as an exciting cause, some acute illness, most frequently one or more of the exanthemata, to which infections children of elderly mothers appear to be particularly liable.

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[10] Clifford Allbutt: A System of Medicine, vol. viii.

[11] Fecundity, Fertility, and Sterility (Edinburgh, 1871).

Analysis of causes in children of younger mothers.—I am now in a position to discuss the reason why so many of these children are born of younger mothers. It is clear that certain post-natal causes are sufficient to cause mental deficiency in any child, healthy or otherwise, and my main contention is that the age of the mother produces in children the liability to be affected by causes which would not produce mental deficiency in healthier ones. (Tables III. and IV.) On the examination of the causes given as to children of mothers under 25 years of age we find that acute post-natal diseases are only alleged in five cases out of 13, while in those of mothers over 40 years of age we find acute post-natal diseases accounting for 12 cases out of 17. I think this very suggestive of the truth of my conclusion. In the London cases this is more marked, for acute exanthemata are a cause in the children of mothers under 25 years of age in only 15·14 per cent., while in those of mothers over the age of 35 years they are so in 45·1 per cent. Thus we find that when we are dealing with the children of younger mothers the causes of their mental defect are most frequently such as twin birth, premature birth, inflammation of the brain, accident to the mother, injury to the head, and cretinism—all causes which do not require a predisposing weakness of the child in order to produce mental deficiency; while in those of older mothers, these causes not being absent, we find in addition a large proportion in which the mental deficiency has been produced by such causes as acute post-natal diseases, which when attacking the stronger children of younger mothers have no such effects on the brain. It is to be regretted that the London School Board have recently omitted from their family history forms the ages of the fathers and mothers of the children, the importance of the age of the latter having evidently not been brought prominently before them. I now append a few typical cases.

TABLE III.—*Causes of Mental Defect in the Children of Mothers under 25 Years of Age.*

LEICESTER (13).

Fever (?)	2	Croup	1
Unknown	1	Defective speech area	1
Parental intemperance	1	Pneumonia	1
Epilepsy	3	Diphtheria	1
Premature birth	1	Imbecile	1

LONDON (25).

Age of father (?)	1	Bronchitis	3
Chorea	1	Injury to head	1
Unknown	4	Convulsions	1
Inflammation of brain	3	Operation	1
Accident to mother	1	Congenital cataract	1
Pneumonia	1	Heart disease	1
" and shock	1	Cretin	1
Debility	1	Syphilis	1
Tubercle	1	Twins	1
Premature birth	1		

TABLE IV.—*Causes of Mental Defect in Children of Mothers over 40 Years of Age at Birth (18).*

LEICESTER.

Epilepsy	1	Spastic paraplegia	1
Imbecile	2	Measles	4
Unknown	2	Bronchitis	3
Rickets	1	Scarlet fever	2
Whooping cough and cerebral hæmorrhage	1	Cataract	1

CASE 1. *Birth from a mother advanced in years; measles; abscess of the ears.*—The age of this child was nine years and nine months, and he was the youngest of eight children. His mother was aged 38 years at his birth, the father being of the same age. The boy's head was small and his expression was stupid. The palate was normal, the teeth were fair, the lobes of the ears were adherent, and the features were rather coarse. There was some corrugation of the forehead and the head was held rather on one side. The hands were normal in shape and the position when they were extended was normal. There was a good deal of twitching of the body when the boy was standing still. He had had measles severely in infancy, followed by abscess of the ears. He commenced to walk at the age of two years and to talk half a year later. In measurement he was two inches below the normal and he was two pounds under the normal weight. He could name objects well and he knew the day of the week. He could read a few short words, could write down badly words of three letters from dictation, could do a very simple addition sum but no subtraction, and was now (but only lately) fairly quick at manual work. His attention wandered very much and his memory was bad. He could not be trusted to perform an errand correctly. He was improving under special treatment, which he had been undergoing for a year. This is a typical case.

CASE 2. *The mother of advanced age; rickets; measles.*—In this case the child was of the age of seven and a half years and she was the sixth child, there being an interval of 11 years between the next oldest and herself. At the time of her birth her mother was 41 years of age and her father was of the same age Her head measured 20 inches and there were frontal and occipital bosses. The palate was normal, the teeth were bad, and the lobes of the ears were adherent, but the features were fairly good. She weighed four pounds less and measured two inches less than the normal. Her face twitched slightly, but the pose of the head was normal. The hands were normal in shape but the fingers were over-extended. The body was normal and she was cleanly in her habits. She had suffered severely from rickets, she walked badly, and she had had bronchitis and measles. She talked at one and a half years and walked at three years of age. Her powers of observation were weak, but she could name objects, and she knew the day of the week, could read words of three and four letters, and could write words of three letters from dictation. She had no idea of numbers. She had improved under special training for one year, but still she had no idea of numbers. This was not such a severe case as the previous one.

CASE 3. *Delicate; bad eyesight.*—This child was eight years of age and was the twelfth or thirteenth of a family of 16 children. When she was born her mother was 35 years of age and her father was the of same age Her head measured 17 inches Her expression was vacant the palate had rather a high arch but was not narrow, the teeth were fair, the ears were badly shaped and rather pointed, and the features were coarse She was five inches in measurement and 19 pounds in weight below the normal standard She had small thin hands which presented a drooping position when extended In her habits she was cleanly but she was always cold and had never been well Her eyesight was bad and she was slow in her movements She walked and talked at the age of two years She imitated movements slowly, read fairly, wrote very badly, and could only calculate up to four, but she could do manual work. Her health was very defective and her sight had also prevented the development of intelligence

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[12] Skeat: English Dialect Dictionary.

[13] Edinburgh Medical Journal, January, 1886.

[14] Mentally Deficient Children, second edition.

[15] Brit. Med. Jour., Sept. 21st, 1895.

CASE 4 *The youngest of 16 children, bronchitis* —This child, who was seven and a half years of age was one of 16 children most of whom had died in infancy, several from bronchitis The mother was 41 years of age at the time of the birth of this child and the father was one year older The head was normal, measuring 19½ inches The expression was bright, the palate was normal, the teeth were good the ears were normal, and the features were good In height she was two inches above and in weight two pounds below the normal The head was held on one side The hands were normal in shape and pose There was some twitching of the body Her habits were cleanly She had suffered much from bronchitis The father had chronic bronchitis and he had had dry eczema She looked a bright girl but was not too strong in the moral sense She could only read write, and count in the most rudimentary way but she could do manual work fairly well This child would have quite escaped all notice on Dr Warner's plan of examination Not any of his developmental or nervous signs were present, yet she was very defective

CASE 5 *The mother of advanced age, bronchitis* —The age of this child was seven years At the birth of the child the mother was 42 years of age and the father was of the same age The head measured 19½ inches, the expression was bright, the palate was normal, and the teeth were fair but the ears were not of good shape In height the child was four inches and in weight nine pounds less than normal—a very small, delicate-looking child Severe attacks of bronchitis had been experienced The child's habits were cleanly Objects were named with difficulty and the day of the week could not be told The child could only read words of two letters, could hardly write anything, and counting was very deficient, but the moral sense was good

CASE 6 *The mother advanced in years, chorea* —This child, the ninth of 11 children was of the age of seven and a half years The two children who were younger than himself had died from tubercle of the abdomen (?) The mother was 37 years of age at the birth of the child and the father was 39 years of age The boy's expression was dull, the palate had rather a high arch but was not narrow, the teeth were fair, the ears were coarse and they stood out, and the nose was broad The height and weight of the child were normal The head was held on one side, the hands were badly formed, and there was weakness in the pose as well as restlessness He had had chorea three times The memory was fair and he could read short words, count a little, and do manual work He was a very nervous child, but his condition was better than was that of the other children whose cases I have reported and he ought to do well

The last case is one to which I have already referred as being probably psychosis and not entirely a case of arrest of cerebral development

CASE 7 This boy, when I first saw him six months ago, was 11½ years of age His head which was narrow, measured 20½ inches At his birth his mother was 45 years of age and his father's age was 48 years He had a sullen and dull expression The palate was normal, the teeth were good, the ears were normal but the features were rather coarse In height he was one and a half inches and in weight five pounds under the normal He squinted slightly The head was fixed and the hands were weak in pose He had had measles and scarlet fever at the age of four years followed by left hemichorea which had existed ever since more or less till recently Two years previously he was pronounced to be an idiot by the medical attendant of the family I certified him to be an imbecile He could not name objects, could not read any letters or write, would not answer a simple question and was reported to lie, to steal and to be uncleanly in his habits and also to wander about the streets and to lose himself Now he certainly is not an imbecile; he can be entrusted to carry out an errand, can name objects well can answer questions, does not wander about or steal and is cleanly in his habits Such improvement, morally as well as mentally, indicates to me that this was a case of dementia following chorea I have lately met with two similar cases—one of typical melancholia and the other of chronic mania or dementia—following the same primary disease In this case I have no doubt the weakness of constitution derived from the excessive age of the mother predisposed to the mental affection

To sum up, the most careful observers divide the causes of mental weakness into pre natal natal, and post-natal With regard to the two latter groups my cases fall in with those given by other observers notably Beach and Shuttleworth[16] They, however, are evidently much impressed with the fact that in most cases there is a congenital weakness of constitution which, when acted upon by post-natal causes, induces the maldevelopment of the brain Even in their more serious cases of idiocy and imbecility, however, they are only able to point to somewhere about 40 per cent in which there was a family history which would account for such defect I claim that the excessive age of the mother will account for such congenital, though not hereditary, influence in from 60 to 70 per cent of the remainder

Dr Warner has so kindly placed all the information which he possesses at my disposal that I feel very reluctant to call his conclusions in question. There are, however, one or two points in which my results differ from his and which I should like to indicate In the first place, as I have already stated, all the observations on the 100,000 children in the report[17] are based on the assumption that it was impossible to ascertain facts as to family history and that it was also impossible to make physical examinations of the children Under the new Act these are now both possible Next, the statement is made "It is in the co relation of abnormalities in the proportion of parts of the body, with abnormal nerve signs, low nutrition and mental dulness that we find a criterion of the really defective status connected with the abnormality and the value of such signs "[18] I am not sure that I understand this but I take it to mean that there is some defect in the brain in these cases that we cannot detect by taking the ordinary methods of ascertaining the child's mental faculties To this I cannot assent It appears to me that we can ascertain the state of development of a child's brain at least as well by asking such child to name objects or by testing the memory &c, as by looking at the cranium, palate, hands, &c, and co relating any malformation of these with corrugated superciliary muscles, open mouth, or twitching fingers I do not wish to say that the results of the examination of so many children are useless, no such accumulation of facts can fail to be useful at some time or another to someone but when Dr Warner[19] states that ' by the analysis and study of such observations we are enabled to determine the causation and the treatment of mental diseases" I think he goes beyond his facts What are the signs on which he relies?[20] The first is that of the defects in development of the body and its parts in size form, or proportion "such signs appear to indicate inborn and fixed constitutional tendencies ' This is the doctrine of stigmata and I take leave to say that it is wholly unproven No one will deny that a child with a very imperfect brain may happen at the same time to have an imperfectly developed body and may even be *likely* to have this but I do deny that bodily imperfections are as a rule, an index of brain development Phrenology we have discarded We have Socrates to quote, or rather Plato, against the theory that the face is an index of the mind, and I will now state a few facts with regard to two of the supposed defects

The cranium —The measurement of the cranium is proverbially difficult The direction given by the committee[21] is that heads less than 19 inches in circumference after three years of age are to be considered small I venture to think that a careful inspection of any hatter's stock would show that hard and fast lines of this sort are of little value

The ear —This, if large and outstanding, or with imperfect helix, is supposed to indicate defect This is a favourite

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[illegible] A System of Medicine, vol viii [illegible] Physical

[18] [illegible] p [illegible]

[19] Clifford Allbutt: A System of Medicine, vol viii, p 193

[20] Ibid., p 199 [21] Ibid, p 20

subject with a class of writers who resemble those on palmistry, and a work has been written entirely on this subject.[22] The reviewer of this work in *Nature*, Dr. Keith,[23] relates how he himself had examined 40,000 ears of dwellers on both sides of the German Ocean in an endeavour to discover if any traces of affinity of race could be found by this means. His results were negative, but he affirms that he convinced himself that every form of ear may be found in persons of every grade of life and standard of intelligence, and that what has been described with confidence as the "criminal ear" is the normal form for inhabitants of these islands.

The palate.—The shape of the palate has great prominence given to it, and I have consequently made a good many observations with regard to it. The committee state that it has a high pathological co-relation. I found in 80 cases of mental defect that the palate had a high arch in 34, it was doubtfully high in eight, and was normal in 38. This does not seem a high percentage, and in the seven cases which I report fully, which were selected on quite other grounds and in which I had not specially noticed the condition of the palate, I found five to be normal, one doubtful, and one high. A diagnostic sign which misses five out of seven is not worth much.

I thought it worth while, having the opportunity, to ascertain if this sign and that of nervous pose of the hands were absent from children admittedly not defective, at all events as to their capacity for learning, and I therefore examined 500 children in the fifth, sixth, and seventh standards in the Leicester schools. I found in some of the higher standards examples of the most deformed palates, high-arch, V-shaped, and asymmetrical; and the totals worked out: examined 500, with high-arched palate 135, with hands of weak balance 126. Thus showing that half as many in proportion of the brightest children had high palates as the defective ones.

Nerve-signs, so-called, form the second of Dr. Warner's signs. These undoubtedly in many cases are an indication of irregular discharge of muscular impulses, and as such deserve attention; but many of these, especially the twitching of the face and hands, are really chorea and depend on a definite pathological condition of the cortex, while others are secondary to injuries of the brain or cord (athetosis in birth palsies).

The third sign on which Dr. Warner relies is that of low nutrition. This has in some cases a connexion with the mental enfeeblement. Dr. Warner says:[24] "It is among the children with defects in bodily development that we find the largest proportion of the pale, thin, delicate children whose tissue delicacy is connected in causation with the defective symmetry of features and parts of body." I have already explained that I consider most of the cases of extreme delicacy to arise in the children of old mothers who have been attacked by acute diseases, and this condition is not hereditary in any other sense than that it is partly congenital. I must state here, as I have done previously, that Dr. Warner himself allows that there is a small class of dull children who do *not* show defect, and that a considerable portion of children showing defects are not mentally dull. I therefore think that while undoubtedly those children with arrested brain development have more frequently than healthy ones signs of abnormal development in other organs, yet these signs are not so much more frequent in them as to give us much help in the diagnosis of the condition, which, moreover, can be readily ascertained by other methods.

CONCLUSIONS.

If the theory that a very large percentage of those cases can be accounted for by pathological or accidental causes acting on congenital weakness not of an hereditary character is true, does it afford any ground for believing that such conditions are likely either to increase or to decrease? The hereditary cases will no doubt for a long time continue about the same. State regulation of marriage is almost the only measure that could control them, and that appears as yet to be far distant. The law of reversion to type and intermarriage with healthy stock will no doubt prevent their increasing to any great extent, even if they do not diminish. With regard to the children of elderly women I think that some good may be done if it is freely recognised that women who bear more than a moderate number of children run the risk of bringing weakly ones into the world, that the same remark applies to women much over 30 years of age, and that if such children are born they require additional care, and in particular protection from the germs of infectious diseases.

Leicester.

THE TREATMENT OF GLAUCOMA BY EXCISION OF THE SUPERIOR CERVICAL GANGLION OF THE SYMPATHETIC.[1]

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AT the present time, when the advisability of removing the superior cervical ganglion of the sympathetic for glaucoma is under consideration, the following case is of great interest.

A man, aged 23 years, was admitted into the Leeds General Infirmary under my care on Oct. 28th, 1899, for injury to the left eye sustained by the bursting of a soda water bottle. There was a small lacerated wound at the corneo-scleral junction, into which the base of the iris was prolapsed. The patient was warned of the possibility of sympathetic trouble, but went home as soon as the wound healed and was not seen again until March 31st, 1900. He then returned with intense irido-cyclitis in the left eye and in the right eye marked sympathetic iritis, which had set in three weeks previously to his second admission. The left eye was excised, the sight being quite lost, and under atropine, leeches to the temple, &c., the right eye rapidly improved, the pupil dilated, and the iritis subsided. He went out on May 12th, when the eye was quiet and vision was $\frac{6}{12}$. On August 11th the man returned, vision having rapidly failed within the previous three weeks. There was then considerable ciliary congestion, the anterior chamber was shallow, the pupil was fixed, and the iris was swollen and acutely inflamed. Tension was + 3 and the vision was reduced to ability to count fingers at six inches. Paracentesis of the anterior chamber was performed without giving relief, and three days later iridectomy was attempted but could not be satisfactorily performed, the iris being found to be firmly adherent to the lens throughout its entire breadth. Tension remaining + 3 paracentesis was performed on the 29th and on Sept. 20th, and iridectomy was again attempted on the 29th. On Oct. 3rd sclerotomy was performed; tension, however, rose again to + 3 on the following day. On the 7th it was decided to remove the superior cervical ganglion of the sympathetic, which operation Mr. B. G. A. Moynihan at my request performed on the same day. The ganglion was reached through an incision behind the posterior border of the sterno-mastoid, carefully separated from the surrounding parts, and excised.

The immediate effect of the operation was striking, the tension of the eyeball falling rapidly to + ½, although there was no contraction of the pupil, the iris being fixed as described above. The following day (the 8th) tension rose to + 2, but two days later it was + ½ and vision had improved to ability to count fingers at 14 inches. There were slight fluctuations in the tension from day to day, but the improvement in vision was maintained until he left the hospital on the 30th. I saw him again on Jan. 5th, 1901, and found the tension + 1 and vision = ability to count fingers at 18 inches. No treatment, local or constitutional, was carried on subsequently to the operation, so that the reduction of tension and improvement in vision must be attributed entirely to the removal of the ganglion.

The effects of the operation are immediate and secondary. The immediate effects are relief of pain in the eye, contraction of the pupil when not fixed by adhesions, congestion, and lacrymation of the eye, reduction of tension, and unilateral sweating of the head; the secondary effects are progressive reduction of tension, sometimes preceded by a temporary rise, gradual improvement in vision, slight ptosis, and some sinking of the eyeball into the orbit. The lacrymation, congestion, and sweating usually disappear within 48 hours.

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[22] The Human Ear: Its Identification and Physiognomy.

[23] Nature, vol. lxiii., p. 392.

[24] Ibid., p. 199.

[1] A paper read before the Leeds and West Riding Medico-Chirurgical Society on March 15th, 1901.

The exact manner in which this operation gives relief in glaucoma is a matter of some doubt. Jonnesco[2] of Bucharest thinks that glaucoma is caused by a central lesion and that removal of the ganglion destroys the communication between this centre and the eye The vaso constrictor fibres are destroyed, blood-pressure is lowered, and extravasation is reduced. The excito-secretory fibres to the uveal tract are destroyed and the secretion of the aqueous is limited The iris dilating fibres are destroyed, the pupil contracts, and the filtration angle is opened up At the same time the fibres supplying the non-striped muscle in Tenon's capsule are cut off, so that the pressure on the efferent veins is removed

From a consideration of this case it is clear that the contraction of the pupil, drawing the iris away from and so opening up the filtration angle following the removal of the ganglion, is a minor factor in the reduction of tension It is obvious that the control of the sympathetic over the circulation and nutrition of the uveal tract is of much greater importance We know that in many cases of serous cyclitis the filtration angle is free and unobstructed, and the rise of tension often seen is due to changes in the constitution of the intra-ocular fluid It seems highly probable, therefore, from the *rapidity with which the tension fell after the completion* of the operation in the present case, although the pupil could not contract, that the good results which were seen after the performance of this operation were due, not so much to any change in the filtration angle brought about by contraction of the pupil, but rather to the abolition of the control of the sympathetic over the vascular apparatus and secreting epithelium of the uveal tract, whereby the character and amount of the intra-ocular fluid were materially altered.

Sympathectomy for glaucoma was first performed by Jonnesco in 1897 and since then has been carried out by many surgeons abroad and in England Abadie,[3] Panas,[4] Ball[5] (St Louis), Burghard,[6] Work Dodd,[7] and others have recorded cases In Jonnesco's cases, which were chronic or subacute with only one acute case, very encouraging results were obtained There was marked and permanent improvement in vision in all the chronic cases except those in which optic atrophy had set in, but there was no improvement in the acute case In all cases the tension was immediately lowered and remained so and there was marked permanent contraction of the pupil with loss of pain in the eye In the cases reported by Panas and Burghard the results of the operation were unsatisfactory and in Work Dodd's case disappointing Ball's two cases were relieved, tension being reduced and vision improved, but there is no evidence that iridectomy would not have been equally effective In Burghard's case intense pain at the side of the head and neck followed the operation This unpleasant complication has been recorded by other operators From a general consideration of the recorded cases, with the present large percentage of comparative and complete failures, it is probable that the severity of the operation as compared with iridectomy will prevent its performance in any but selected cases, particularly those in which iridectomy and sclerotomy have failed

In glaucoma simplex the results have been more uniformly satisfactory than in inflammatory cases, but in the latter when iridectomy has failed sympathectomy holds out some hope of relief In, however most cases of glaucoma arising from obstruction in the filtration angle, especially acute cases, iridectomy will remain the operation of choice and will be found to give equally satisfactory, or even better, results than follow removal of the superior cervical ganglion of the sympathetic

Leeds

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[2] La Presse Medicale, 1898

[3] Archives d Ophtalmologie, 1898.

[4] Ibid

[5] Proceedings of the International Ophthalmological Congress, 1899

[6] Brit Med Jour Oct 20th 1900 p 1175

[7] THE LANCET, Oct 13th 1900 p 1071

BRISTOL MEDICAL CHARITIES —The late Mr. J E. Exley bequeathed £1000 each to the Bristol Royal Infirmary, the Bristol Children's Hospital, and the Queen Victoria Convalescent Home, Bristol also £500 to the Trowbridge Cottage Hospital The residue of the property is left to his widow during her life in trust for the Bristol Royal Infirmary, which will eventually become entitled to about £15,000.

ON THE PATHOLOGICAL CHANGES IN A CASE OF PROGRESSIVE MUSCULAR ATROPHY.

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DURING recent years many distinct clinical varieties of chronic muscular atrophy have been separated from progressive muscular atrophy Hence cases to which the term "progressive muscular atrophy" can now be applied are rarely met with, and several writers have grouped together progressive muscular atrophy and amyotrophic lateral sclerosis as the same disease In cases regarded as progressive muscular atrophy during life the lateral or crossed pyramidal tracts of the spinal cord have very often been found sclerosed more or less on pathological examination, even though there has been no spastic condition of the legs, and this is one reason for grouping together amyotrophic lateral sclerosis and progressive muscular atrophy as one pathological affection or one disease A few rare cases are on record, however, in which during life the symptoms were those of progressive muscular atrophy (of the Aran-Duchenne type), and on pathological examination of the spinal cord the lateral or crossed pyramidal tracts were found to be normal Such cases have been recorded by Dr C E Beevor, Professor Strümpell and MM A Dutil and J B Charcot and others (In several cases there has been a slight degeneration of nerve fibres in the anterior ground bundle close to the anterior horns though the crossed or lateral pyramidal tracts were normal, in other cases all parts of the anterior and lateral white matter were normal) To the few cases hitherto recorded the following pathological report may be added, it appears to be worthy of publication owing to the rarity of such records

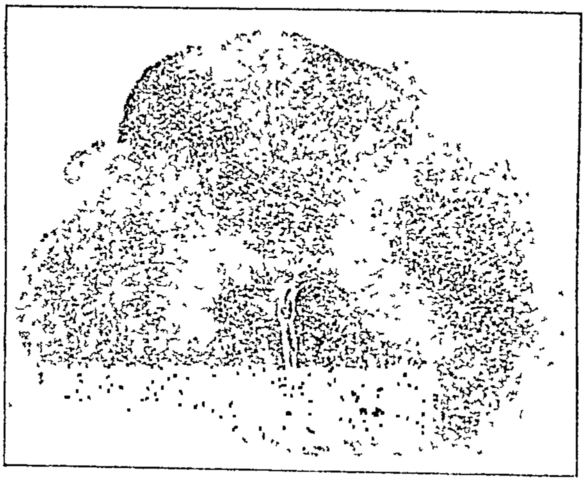
The spinal cord of this case was kindly given to me by the late Dr Leech of Manchester, who, had his life been spared would probably have written the clinical portion of this article My report will be devoted, therefore, to the microscopical examination, and to this I have added a brief clinical note of the case which I had the opportunity of examining from time to time, for many years, when the patient consulted Dr Leech at the Manchester Royal Infirmary

I first saw the patient, a man of middle age, in 1879 At that time both arms were paralysed, and the disease had commenced a few years previously I last examined the man, along with Dr Leech, in 1898 The patient died about 12 months later The clinical features of the case were those of progressive muscular atrophy (of the *Aran-Duchenne type*) as described in the older text books There was slowly progressing muscular atrophy, with paralysis, affecting the small muscles of the hands, the forearm and the upper arm muscles, and finally the muscles of the neck The arms for 20 years hung quite helpless by the side and the head was bent forwards There was no affection of sensation, and the legs, bladder, and rectum were unaffected up to the time of the last examination On many occasions I examined the condition of the legs with the object of ascertaining whether there was any evidence of spastic paralysis, but I was never able to detect any When I last examined the patient in 1898, 12 months before his death and more than 20 years after the onset of the disease, the condition was briefly as follows Both arms were markedly atrophied and completely paralysed and hung quite helpless by the sides Every muscle of the hands and arms appeared to have atrophied completely The head was bent forwards owing to the paralysis of the muscles of the neck. There were no symptoms of bulbar paralysis The bladder and the rectum were unaffected The patient was able to walk quite well There were no indications of a spastic gait There was no paresis of the muscles of the leg nor any rigidity to passive movements The knee jerks were present and there was no ankle-clonus Sensation was not affected Clinically, therefore, there were no symptoms to indicate any affection of the lateral pyramidal tracts of the spinal cord at the end of 20 years I did not see the man during the last few months of his life and do not know the exact cause of his death Dr W H Pomfret, formerly surgical registrar at the Manchester Royal Infirmary, having heard of the patient's death, succeeded in getting permission to make a limited post-mortem examination. He removed the spinal cord, the musculo-spiral nerve, and a piece of the adjacent muscular tissue of the forearm. To Dr. Pomfret, therefore, I am directly indebted for the specimens which he kindly forwarded to me with the permission of Dr. Leech The specimens were hardened in Müller's fluid, embedded in celloidin, and the sections were stained according to Weigert's and Marchi's methods, and also with aniline blue-black and logwood. The nerve roots were stained according to Heller's pyrogallic and osmic acid method.

Microscopical Examination.

In the lower and middle cervical regions, on transverse section, whether stained with aniline blue-black, logwood, or according to Weigert's or Marchi's methods, the crossed or lateral pyramidal tracts of the white matter appeared to be quite normal (Fig. 1). Also the direct pyramidal tracts and all the white matter of the anterior and lateral columns of the cord appeared to be normal with the exception of a very slight excess of neuroglia connective tissue in the region of the direct cerebellar tracts. The white matter in the antero-lateral columns close to the anterior horns appeared quite normal. In the anterior white commissure, in the sections stained according to Weigert's method, the nerve fibres were seen very distinctly. In the posterior median columns there was a very slight excess of neuroglia connective tissue (seen both in sections stained according to Weigert's method and in those stained with aniline blue-black), but the posterior external columns were normal. The anterior horns of grey matter were a little smaller than they are in sections of a normal cord at this region. The ganglionic nerve cells of both anterior horns had disappeared. After examining a number of sections of this region I was only able to find one atrophied nerve cell in the median region of one anterior horn. On examining sections stained according to Weigert's method the disappearance of nerve fibres in the anterior horns of the grey matter was very evident. The fine delicate nerve fibres (seen so clearly in the normal anterior horns in sections stained according to this method) were greatly diminished in number (Fig. 3). The fine nerve fibres of the posterior horns appeared to be normal. The nerve fibres from the posterior roots which enter the median side of the posterior horns were quite normal and were seen passing forwards to the intermediate grey matter, whilst the fine fibres in the surrounding median grey matter were diminished in number. In sections stained with logwood and eosin the nuclei of the neuroglia in the anterior horns were seen to be increased in number. The anterior nerve roots, even to the naked eye, appeared to be markedly atrophied; they were much smaller than the posterior roots and much less firm to the touch. On microscopical examination the posterior roots were normal, but the anterior nerve roots were seen to consist chiefly of fibrous tissue and empty nerve sheaths, with here and there a very few normal nerve fibres.

Fig. 1.



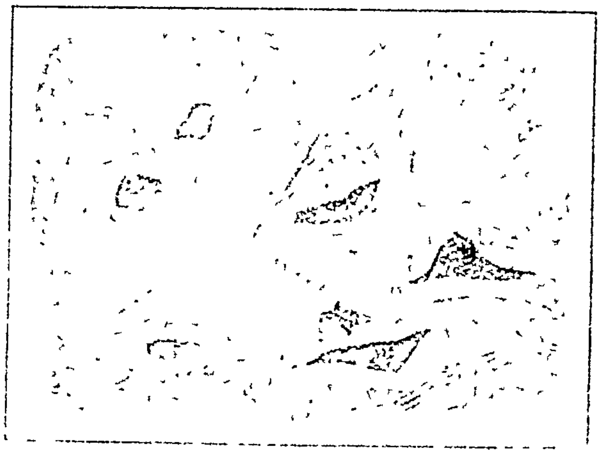
Transverse section of spinal cord, lower cervical region; progressive muscular atrophy; Weigert's stain; crossed pyramidal tracts normal. (Micro-photograph.)

The few remaining normal nerve fibres in the anterior roots were widely separated by fibrous tissue (as was well seen in specimens stained according to Heller's method). There was marked "hyaline" thickening of the walls of the small bloodvessels in the anterior median fissure and in the anterior horns of grey matter.

In the upper cervical region the condition was much the same. Most of the nerve cells in the anterior horns of grey matter had disappeared or atrophied markedly. The crossed or lateral pyramidal tracts and other parts of the white matter were normal, with the exception of a very slight excess of neuroglia connective tissue in the posterior half of the posterior median columns. Sections of the dorsal region (upper and lower) presented normal appearances. The lateral or crossed pyramidal tracts, the posterior columns, and other parts of the white matter appeared to be normal both in sections stained according to Weigert's and Marchi's methods, as well as in those stained with aniline blue-black. Some of the nerve cells in the anterior horns and in Clarke's columns were pigmented, but otherwise the cells and fibres in both of these regions appeared to be normal. The anterior nerve roots, to the naked eye and on microscopical examination, were normal in the dorsal region.

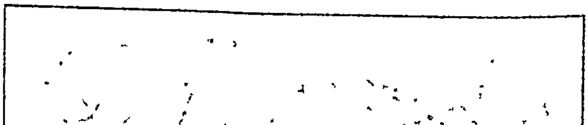
In transverse sections of the musculo-spiral nerve most of the bundles of nerve fibres appeared to be normal; in a few bundles there was a little increase in the connective tissue between the separate nerve fibres. The atrophied muscular tissue from the back of the forearm presented a very slight

Fig. 2.



Normal anterior horn of grey matter, cervical region; Weigert's stain; showing nerve cells and numerous fine nerve fibres.

Fig. 3.



Grey matter of anterior horn, lower cervical region; progressive muscular atrophy; Weigert's stain; nerve cells absent; fine nerve fibres very scanty.

resemblance to normal muscle to the naked eye, but it was very soft and flabby. On microscopical examination, however, the changes were most marked. Not a single normal striated muscle fibre could be detected. In place of the muscular tissue were collapsed muscle sheaths containing numerous elongated or round muscle nuclei which stained with logwood. Between these bundles of collapsed, well nucleated, muscle sheaths there was loose connective tissue, with a few clusters of large fat cells here and there. No evidence of hyaline or fatty degeneration of muscle fibres could now be detected.

The microscopical examination here recorded is of interest, because the case is one of the few which furnish clear pathological evidence that the crossed or lateral pyramidal tracts may appear normal in cases which have presented the symptoms of progressive muscular atrophy (of the Aran-Duchenne type). The crossed or lateral pyramidal tracts, from the highest cervical to the lowest dorsal region, presented no evidence of degeneration on microscopical examination, even in sections stained according to Marchi's and Weigert's methods. Also during life, up to the time of the last examination (more than 20 years after the onset of the disease) there were no symptoms of disease of the crossed pyramidal tracts.

Progressive muscular atrophy is closely allied to amyotrophic lateral sclerosis, and probably the pathological processes are in many respects similar; also there are transitional forms—cases corresponding clinically to progressive muscular atrophy, but pathologically to amyotrophic lateral sclerosis more or less. There is, however, a small group of cases which, both clinically and pathologically, differ from amyotrophic lateral sclerosis—cases such as that described in this article, and those previously recorded, to which I have referred. For these cases it appears advisable, at present, to retain the old name of "progressive muscular atrophy."

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Manchester.

TETANY.

BY FRED. TRESILIAN, M.D., M.R.C.P. EDIN.

TETANY, which is not an uncommon disease in children, is somewhat rare in adults, and therefore a few cases which have occurred in my practice of which I kept notes may be worthy of record.

In adults tetany is largely confined to women, being frequently associated with either pregnancy or lactation; it was primarily recognised by Trousseau in this connexion. It is only very occasionally—perhaps never—that it appears as a primary condition, being generally caused by some other disease of which it would seem to be a result. It has no special pathology of its own—at least, none has as yet been discovered—and it is apparently due to a reflex irritation of the excitable portion of the cortex—i.e., the motor areas, either alone or perhaps with the groups of cells in the anterior cornua of the cord. Clinically it is connected closely with epilepsy and chorea. Its association in adults with dilatation of the stomach is now established, and two of the cases which I have recorded below are an evidence of this point. The cases of this kind are mostly confined to the female sex. It may be assumed in these cases with gastric dilatation that it must be due to absorption from the stomach of toxins due to fermentation of food acting on the cells in the motor regions of the brain. In one of my cases this was manifest and the result was fatal. A similar explanation may be given of its occurrence in infants in association with diarrhœa and gastro-enteritis, in which conditions fermentation is nearly always present and toxins are in abundance, and even in rickets similar causes may be at work and may account not only for tetany but other nervous lesions, such as eclampsia and laryngismus, which are so frequent. Even those cases occurring in connexion with pregnancy or lactation, as well as those recorded by Weiss and Wölfer after excision of the thyroid gland, may possibly be explained by the same hypothesis—of some toxin present in the blood which affects the cortical grey matter. I have but six cases to record and four of these are in children.

CASE 1.—The patient was a male infant, aged seven months. He cut his first teeth at five months and was a healthy child. He had sudden attacks of convulsions—both tonic and clonic spasm—which continued for three days, when acute pneumonia appeared in the right lung. The convulsions continued intermittently for a week until the pneumonia began to clear up, when they ceased. This was followed by an attack of diarrhœa and sickness, which got better in a few days and left as a result constipation with large hard masses of fæces. The child was very much reduced by his illness and the tetany occurred while he was in this condition. There was marked tonic carpo-pedal spasm which was continuous even in sleep. The position of the hands was characteristic and the toes were flexed into the soles. There was considerable œdema of the face and of the backs of the hands and feet which were solid and non-pitting. There were jerky twitchings of the hands and arms. The condition lasted for some weeks and then got well. There was no evidence of rickets in this child. The treatment adopted was the administration of syrup of chloral and emulsion of cod liver oil. Carpo-pedal spasms are a rudimentary form of tetany, but are much more common than real typical tetany.

CASE 2.—The patient was a male infant, aged 15 months. There were no signs of rickets. He had been, and was at the time of treatment, a fine, healthy child. His first teeth had come when he was seven months old and he had got teeth rapidly within the following two months. He had been suckled and had lately had food as well. There was no history of diarrhœa or convulsions and no assignable cause for the present attack. There were contraction, tonic spasm, and œdema of both hands and feet. He had a cough with a crowing sound—"like a fowl crowing," his mother described it—evidently associated here with laryngismus which is essentially a rickety neurosis, still I could find no outward and visible signs of rickets.

CASE 3.—The patient was a female infant, aged three years, a stunted, rickety child, of about the size of a baby of eighteen months of age. I think this was the most marked case of rickets that I have ever seen. The child had never made any attempt to walk, she did not get a tooth until long after she was 12 months old, she had many attacks of both bronchitis and convulsions, and she had distorted joints and spine, &c. There was so much œdema of the face and hands that I examined the urine for albumin. The position of the hands and feet was just as in the other cases.

CASE 4.—This was an exactly similar case to the last. The patient was a stunted, rickety female child, aged two years, whom I had attended for both convulsions and bronchitis.

CASE 5.—The patient was a married woman, aged 41 years. The present was her third attack. The first had occurred 11 years before soon after her confinement, when she had got up and was suckling her infant. She had loss of feeling in the feet and pain and spasm in the hands and also, she said, loss of sight which lasted three days. She said that she felt at the time as if her face was greatly swollen but that it was not swollen and that this condition lasted then for six or seven weeks. She asserted also that she lost her speech for part of a day. Seven years ago she had another attack in just the same way after a confinement and while suckling her baby. This attack was not quite so severe as the previous one, but still it lasted for four or five weeks. She had recently had influenza. She had just nursed her daughter through a long attack of peritonitis, and she had recently moved from one house to another and had not got straight when the influenza occurred. I mention this to show that the patient had a good deal of both anxiety and worry. The position of the hands was characteristic and the spasm of the interossei so much that she could not separate the fingers, and my efforts to help her to do so evidently caused her great pain. There was a good deal of pain in the hands and arms. The feet were unaffected; sensation in both hands and feet was normal. On examining the abdomen I found marked dilatation of the stomach, reaching down to below the umbilicus. There were dulness at the lower level, a tympanitic note above, and a distinct splashing sound on succussion. Peristaltic action was evident and retention of food with periodical vomiting of large quantities of sour fluid. The condition disappeared in about a week. This case is interesting from the fact, if true, that she had temporary aphasia and loss of sight. It shows that the toxin which causes the tetanic spasm to appear is capable of attacking other regions than the motor part of the cerebral cortex, and that the motor area is not exclusively selective.

Case 6.—The patient was a woman, aged 53 years. I first saw her in October, 1900, when she had suffered from gastric symptoms for eight months and pain and vomiting with loss of flesh. On examination I found extreme dilatation of the stomach reaching downwards to the hypogastrium, with marked peristaltic action from left to right on stimulating the stomach to contract. There was a hard, square, nodular tumour over the pylorus which was tender on pressure. She vomited enormous quantities of thick fluid daily or on alternate days, with ease to her pain. There was advanced malignant disease of the pylorus. She held her own until Dec. 20th, when I was called urgently to see her and found her comatose. The condition was peculiarly interesting. The face, hands, arms, and body in general were of a dark red colour with a bluish tinge. The hands were in the position characteristic of tetany. There was slight flexion of the wrists, but the fingers were extended at all joints and were opposed to each other. The feet were similarly affected, each foot being extended with the toes flexed into the soles. The pupils did not react to light and the conjunctival reflex was absent. She had had two convulsive attacks previously to my seeing her, and she had one in my presence in which she became livid and after which the colour became dark red as before. The convulsions were chiefly facial, with twitchings of the arms. There was incontinence of urine. During and after the eclampsia there was some tetanic spasm of the jaws, but it could easily be overcome. The eyes were closed and on raising the lids I found that there was divergent strabismus. There was no opisthotonos or any approach to it and the legs were *not* affected by the convulsions. She had another convulsive attack after I had seen her. She died the next day. The coma lasted to the end. A fatal result during tetany must be of rare occurrence. A peculiar feature about the cortical irritation was, that though bilaterally the leg centres are so close together, they were not affected by the convulsions, which emanated chiefly from the centres for the facial and ocular muscles and the arms and hands. The cortical discharges apparently did not spread upwards or across by the callosal fibres.

Enfield.

CASE OF MULTIPLE EPITHELIOMA OF THE TONGUE IN A WOMAN, AGED TWENTY-FIVE YEARS, RESULTING IN SPONTANEOUS AMPUTATION OF THE GREATER PART OF THE ORGAN.

By T. E. HAYWARD, M.B. Lond., F.R.C.S. Eng.,

AND

R. G. HENDERSON, M.A., M.B., Ch.B. Aberd.

The following case presents so many points of interest that we feel it ought to be put on record. As the patient only came under our notice in the later months of the disease we are unable to vouch for the early history of the case, but the facts as gathered from herself and friends are as follows.

About the beginning of 1900 or the end of the previous year the patient, then about 24½ years of age, noticed a blister on the left border of the tongue opposite the molar teeth. The blister was irritated by the adjacent tooth and broke, a small sore resulting which was very painful. For some months, however, she paid little attention to this and in the meantime, having become pregnant, medical advice was further postponed till after the birth of the child. She then consulted a medical man who advised removal of several teeth and this was done in a provincial infirmary last December. At the same time a portion of the ulcer, which she describes as being "only a small opening then," was removed and examined and was stated to be "not cancer." She was given a mouth-wash but no medicine. The ulcer, however, now got rapidly larger and after a stay of three weeks in the institution she went out feeling rather worse than before. On March 23rd of the present year the patient came under our notice for the first time suffering from severe arterial bleeding from the mouth. This proceeded from a huge ulcer of the tongue about the middle of the left border or rather farther back. The ulcer appeared as a deep cavern about half an inch in diameter at the surface and an inch or more in depth, its direction being down and in towards the hyoid bone. The base could not be seen on account of its great depth but could be felt with the finger and from the base the bleeding appeared to proceed. The walls of the ulcer were even, firm, but not indurated, while the margin was clean cut, perhaps a little raised, but not indurated or everted. The bleeding was stopped by packing with gauze moistened with turpentine and perchloride of iron.

The diagnosis at this stage was difficult. The patient was a young married woman, aged 25 years, the mother of three healthy children and of good previous health, although now rather pale and poorly nourished. She had never had a miscarriage or anything to indicate syphilitic infection. Her family history was excellent. Her parents and grandparents were still alive and were known to us as particularly healthy people. A remote family history of cancer was, however, obtained: (1) the patient's great-grandfather (grandfather's father) died from cancer; and (2) a nephew of her grandmother died from cancer of the lip, aged about 50 years, attributed to the use of a clay pipe. A slight taint would therefore, appear to be present in both grandparents which we mention for what it is worth. The pain from the ulcer was only *moderate*; the discharge was slight and fœtid. The jaw appeared to be slightly swollen on that side and a small gland was felt under it. The diagnosis we considered uncertain, but we put the patient on anti-syphilitic and tonic treatment, together with an antiseptic alkaline mouth-wash. On March 25th the patient was suffering intense pain on the right side of the tongue, especially on attempts to swallow; this had been present, more or less, for two days, but was now much worse. She attributed it to the manipulation in packing the ulcer two days before when the tongue was pushed to the right side and irritated by a sharp tooth. This we found to be the case. There was an acute inflammatory swelling of the size of a large pea, very red and tender, on the border of the tongue, while the adjacent tooth had a sharp ragged edge. This tooth was removed on the following day, together with one on the opposite side which it was thought might irritate the ulcer. On the 29th it was noted that the ulcer was getting smaller. The inflammatory swelling on the right side was also rather smaller and the pain was almost gone. The swelling was paler in colour also, and at one part the pale, semi-translucent appearance, together with the increased hardness, suggested malignancy. On April 1st the ulcer was noted as getting smaller, but the walls appeared more roughly irregular. The tongue moved as if it would break across if pushed to the right. The swelling on the right side had not disappeared, but was now pale and hard and had begun to ulcerate on the summit. On the 19th the swelling on the right side had ulcerated deeply, so that there was now a cleft extending across the right half of the tongue towards the original ulcer. Behind and in front the cleft was bounded by a raised hard ridge of clearly malignant character. On this day also the patient complained of pain in the floor of the mouth under the fore part of the tongue. She had felt it slightly for a day or two. On examination a narrow transverse ulcer was found in the region of the frænum. This ulcer was malignant in character but quite distinct from either of the other two. The disease now made rapid progress. The cleft on the right side extended across to join the large ulcer on the left, so that the tongue appeared to be divided into two parts by a deep ulcerating trench running horizontally across the dorsum about its middle. The possibility of relief by operation had been suggested to the patient some time before but was not urged as we considered neither the local nor general conditions favourable. At our request, however, she entered the Liverpool Royal Infirmary on April 27th under the care of Mr. F. T. Paul, but operation was considered undesirable and she returned home in a few days. On May 4th the anterior portion of the tongue became detached, a result we had expected for some time. There was no bleeding. The patient, who had felt it getting loose for a day or two, simply lifted it out of the mouth without any severance of tissue. The detached portion was received the following day. It measured one inch long from tip to base and one and a quarter inches broad at the base which was slightly oblique. The under surface was ulcerated. The extreme tip had become black from commencing gangrene. The floor of the mouth now presented in front a dirty grey nodular area, limited behind by an ulcerating overhanging wall which represented the free edge of the root of the tongue. The increased pain now called for large doses of opium, and this for a time had the effect of slightly improving the patient's general condition which was very miserable, and also we feel sure of checking to some extent the local disease. Life dragged on till June 15th, when she succumbed to the extreme exhaustion from pain, lack of nourishment and the effects of occasional large hæmorrhages. Her age at death was 26 years and one month. A few days before her death the local condition was as follows. A deep excavation ran alongside the left ramus of the jaw, extending back to involve the fauces and tonsil. The bone itself was carious and thickened on the same side. On the right side the ulceration was less deep. The floor of the mouth was flat and firmly nodular in front while behind the root of the tongue was represented by a low mound of tissue with a median depression permitting a full view of the pharynx. The general emaciation was extreme. The total duration of the illness was about 18 months. Although the clinical features had for long left no doubt as to the diagnosis a portion of tissue was sent for examination to the Clinical Research Association who reported: "The sections show a typical squamous celled epithelioma of the tongue which has already invaded the muscular tissue. There is no evidence of any previous syphilitic lesion. The age and sex of this patient are very exceptional."

Remarks.—We have confined our account chiefly to the local features of the case as these were of the most peculiar interest. The pain, salivation, difficulties of feeding, and general distress were such as occur in every case of advanced cancer of the tongue. A few points however call for special remark. First, as to age and sex. Cancer of the tongue is decidedly rare under 30 years of age. Butlin[1] refers to the few recorded cases: three in males and three in females. In the present case the trouble began about the age of 24½ years and lasted about 18 months, but we are doubtful whether it was malignant from the beginning. It is also a curious fact that whereas of cases of cancer of the tongue in general only about 15 per cent. are women, yet when the disease occurs under the age of 30 years it affects the sexes equally. Then as to the multiple character of the lesions. We had here three distinct centres of malignant ulceration: first, the original large ulcer; secondly, the acute inflammatory swelling on the right border of the tongue, which from day to day we watched gradually assume malignant characters and from which the fragment for microscopical examination was taken; and thirdly, that beginning on the frenum and extending backwards. Each of them was clinically malignant although a portion of one only was submitted to microscopical examination. Butlin[2] states that a good number of double epitheliomas have been recorded but that the number two has not been exceeded. We think in the present case that there were three and to a certain extent we can explain their occurrence. Assuming, as we must, that in this patient there existed some overwhelming tendency to cancerous disease we would expect it, like other pathological conditions, to attack spots of lowered tissue vitality. This was clearly so on the right border of the tongue where a sharp tooth caused an acute inflammatory swelling—a common enough occurrence; however, although the cause was removed the effect did not disappear but became gradually transformed into a malignant tumour. So with regard to the frenum. The constant soaking in an extremely irritating and possibly infective discharge would undoubtedly lower its vitality and hence it succumbed. Thirdly, the combined effect of these lesions in producing a spontaneous amputation of the greater part of the tongue must be, we imagine, a very unusual occurrence. We have not seen a description of anything similar. The way in which it was brought about was very simple. The two ulcers on the opposite borders of the tongue gradually united across the dorsum and then formed a deep vertical trench across the tongue, which was met by the third ulcer extending backwards from the frenum along the floor of the mouth.

Finally, as to the treatment little need be said. Anti-syphilitic measures although they appeared to bring about improvement at first were discarded after a few weeks. Fœtor was combated by an antiseptic mouth wash. Pain was allayed by a paint of β eucaine locally and opium internally. We believe that the free use of opium in the later stages prolonged the life of this patient by about two months.

Haslock, Lancashire.

A CASE OF EXTENSIVE ENTERECTOMY.

BY ARTHUR E. BARKER, F.R.C.S. ENG.,

PROFESSOR OF THE PRINCIPLES AND PRACTICE OF SURGERY AT UNIVERSITY COLLEGE AND SURGEON TO UNIVERSITY COLLEGE HOSPITAL, LONDON.

THE following case illustrates a very dangerous sequel to an ordinary simple strangulated femoral hernia operated on in the usual way and its cure by extensive enterectomy. It also suggests some questions bearing upon the general treatment of cases of severe strangulation without actual gangrene.

The patient, a married woman aged 39 years, was admitted into University College Hospital on July 1st, 1900. Her personal and family history was good. She had suffered from a right femoral hernia of moderate size for four or five months which had come down during a bad fit of coughing. It gave but little pain or other trouble and always returned on lying down. On the afternoon of June 30th, some 18 hours before admission, the hernia came down while the patient was walking in the garden and caused great pain all over the abdomen and the back which was continuous. At 9 P.M. she vomited and at intervals during the night. She took some castor oil but it returned at once. On one occasion the vomit contained a little dark blood. The next morning (July 1st) she was admitted and I operated at once. The usual incision was made and when the sac was opened a good deal of fluid of high colour and foul smell escaped. The gut was dark, congested, and œdematous, but it retained its lustre. Both sac and gut were now carefully washed before the constriction was divided. The bowel was then drawn down and examined for further damage but none was found. As the œdema of the loop soon began to disappear when released and as the circulation seemed good it was washed, dried, and reduced into the abdomen. The usual radical cure was then done and the wound in the soft parts was closed without drainage. Recovery was rapid and uneventful except for flatulence. The bowels acted unaided on the sixth day and subsequently. There was no sickness after the operation but there was some pain in the abdomen.

The stitches in the skin wound were removed on the tenth day when perfect primary union was found. The patient left the hospital perfectly well on the sixteenth day for Brixton. Some weeks later I heard from her medical attendant, Dr. Horden, that she had a severe attack of intestinal obstruction with great pain on vomiting. This passed off, however, under his skilful treatment with opium, enemata, and fomentations and she was able towards the end of August to return home to Cornwall. But before doing so she called at the hospital to show herself and she then seemed to be in excellent condition. At the beginning of October, 1900, I had a letter from her medical attendant, Dr. F. Hichens of Redruth, to say that on Sept. 9th she had been attacked again suddenly with intestinal obstruction in a very severe form with great pain starting in the right groin and spreading all over the abdomen with vomiting and distension, so that he feared for her life so great was the collapse and so extensive the peritonitis. His very thoughtful treatment was, however, followed by recovery. His object in writing was to suggest exploration of the abdomen as it seemed beyond doubt that there must be a kink or adhesion or both about the point of the bowel which was originally involved in the hernia. The patient returned to London with this object in view and she was re-admitted on Oct. 13th, 1900. She now appeared to be in good health, but she gave a history of great constipation alternating with diarrhœa ever since the first operation, combined with much flatulence. Since the last attack on Sept. 9th she had only to complain of irregular bowels, flatulence, and irregular and painful spasms on the right side of the abdomen. On examination there was no trace of the return of the hernia at the seat of the first operation and no tenderness was there. The abdomen was generally soft, but there was some tenderness in the right iliac fossa on deep pressure and there were some indefinite thickening and resistance as well. Nothing abnormal was found otherwise in the abdomen.

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[1] Butlin and Spencer: Diseases of the Tongue, second edition, p. 312.

[2] Op. cit., p. [illegible]

[1] A paper read before the Medical Society of London on April 22nd, 1901.

Taking the view that there must be either a kink at the original seat of hernial strangulation or bands of adhesion or both together I opened the abdomen (on Oct. 19th) by an incision along the outer border of the right rectus muscle. It was at once seen that the intestine was matted together round the knuckle of intestine originally in the hernia by many firm adhesions which fixed it in the position to which it had been returned. It was sharply kinked and soldered up into one mass in this position. The adhesions spread for a considerable distance around and one loop a foot from the kink was fixed by a strong band out of sight on the *left* side of the abdomen. To reach this I had partially to divide the right rectus muscle transversely from without and then only with the greatest difficulty could this band, which was about as thick as a goose-quill be separated from the bowel. An attempt was now made to undo the kink but it only resulted in opening the damaged, softened intestine. I therefore closed the intestine above and below all the portions involved in the matted adhesions in the Doyen's forceps and removed the whole mass, cutting the mesentery close to the intestinal attachment. The cut ends of the intestine were now united end to end in the usual way by two rows of fine silk sutures—a deep and a superficial. The hole in the mesentery was also closed and the area of operation was dried out. The transverse cut in the rectus muscle was stitched up with buried sutures, as also was the upper part of the vertical incision. The lower part of the latter was left open to hold a gauze drain for a few days.

The patient bore the operation very well and convalescence was uneventful, except for a slight rise of temperature for the first few days, until the gauze drain had been removed. She had been rather collapsed on the evening of operation, but she recovered rapidly under saline injections under the skin and rectal injections of brandy-and-water. The bowels acted well on the fifth day naturally and almost daily subsequently. The superficial wound healed per primam except at the lower angle where the drainage gauze lay and at the upper angle where there was some serum pent up in the fat. She was fed by the mouth with small quantities of albumin water from the second day onwards and was soon taking solids. At no time was there any trace of fæces in the drainage from the lower angle of the wound. The patient returned home to Cornwall just before Christmas quite well.

The following is the surgical registrar's description of the parts removed :—

> The length of the small intestine removed was ascertained by the curator to be 37 inches. The upper seven inches above the obstruction was hypertrophied and dilated. The chief narrowing consisted of an atrophied fibrous shrinking of the bowel, reducing its lumen to the size of a cedar pencil, at one spot about one-third of an inch in length. Immediately around this and for eight inches below the bowel is irregularly distorted by adhesions which matted it together during its stay in the abdomen. Towards the lower end there are several more adhesions which do not distort the gut.

This case must, I think, have a certain interest for all surgeons, whether in general or in special practice. It illustrates the need of an early operation in all cases of strangulated hernia. It also shows that although a relatively early operation may be done and be immediately as successful as any such measure can be all dangers are not necessarily thereby prevented. In this case we know certainly the moment at which the strangulation began. We know that the herniotomy was performed about 18 hours later. We know that the bowel although discoloured showed active circulation and no lymph upon its surface. And yet, though the recovery was perfect from the reduction and the radical cure, a most serious condition of things was left in the abdomen which led to two severe and nearly fatal attacks of intestinal obstruction and ultimately required one of the most serious operations in surgery. The first herniotomy was quickly over and it involved no great exposure of the gut to manipulation. It was such as one constantly does without misgiving, and yet the changes induced in the bowel by the strangulation were very grave. Fortunately, the subsequent attacks of obstruction were under the care of two highly skilful general practitioners who not only treated them with the utmost judgment but also recognised with promptness the need of subsequent surgical interference. It is also fortunate that now in enterectomy we have a means of remedying such conditions as result from kinks and adhesions without such severe risks as were formerly bound up with excision of the intestine.

Harley-street, W.

PRELIMINARY NOTE ON THE DIRECTION OF THE AIR CURRENTS IN NASAL RESPIRATION.

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OBSERVATIONS were carried out in order to determine the exact course which the air takes within the nose during nasal inspiration and expiration. The method employed for inspiration was that of impregnating the air with lycopodium by means of an insufflator held about eight inches from the nose both during quiet and forcible inspiration, and then noticing the disposition of the powder within the nasal cavities. For expiration the gentle, and afterwards the forcible, exhalation of tobacco-smoke through the nostrils was carefully observed during rhinoscopic examination.

The results of these observations show that in normal noses during quiet inspiration the powder impinges on the septum about half an inch within the nostrils and a third of an inch above the floor, and is then carried upwards and backwards in a broad band into the middle and superior meatus, entirely missing the inferior passage and lower turbinate. After deep and forcible inspiration the powder takes the same course and is, in addition, seen to be deposited round the upper part of the posterior choanæ, the upper fourth of the septum, and on the roof of the post-nasal space. It is also carried down the middle of the posterior wall of the oro-pharynx, coming to a point about the centre, from which spot it takes a straight course into the larynx, impinging on the arytenoids but missing the epiglottis. In expiration the smoke when gently exhaled passes chiefly through the inferior meatus—that is, below the upper level of the inferior turbinate. In forcible exhalation some smoke passes through the middle meatus as well as the lower.

In abnormal nares any irregularities, such as spurs, deviations, enlargements, and hypertrophies of the inferior turbinated bodies, &c., which prevent the passage of air from the vestibule to the middle meatus will become covered with powder and divert its course in a manner varying with the exact position and extent of the irregularity. Most spurs and enlargements of the inferior turbinate are situated too low to intercept the inspired powder; deviations of the septum, polypi, and enlargements of the middle turbinate, on the other hand, become thickly coated with powder. In expiration complete blocking of the inferior meatus diverts the smoke into the middle meatus, from which it issues slowly and diffusely instead of in a straight compact stream as seen when it comes through the inferior meatus in a normal nose. Spurs, as a rule, split the stream, so that some comes below it through the inferior meatus and some above it through the middle passage, in which case they apparently cause no difficulty to expiration.

In cases of adenoid hypertrophy where the growth is slight the powder takes the usual course in the anterior nares, but collects between the septum and the growths and around the posterior choanæ. In bad cases the powder takes a lower course than in a normal nose, being seen resting chiefly on the inner and upper surfaces of the inferior turbinate and on the lower part of the septum. Expiration is not as a rule interfered with. In no case of either normal or abnormal nares was any powder seen on the under surface of the lower turbinate or along the floor of the nose.

From these observations it may be gathered that during quiet inspiration in a normal nose the air traverses the middle, the superior, and probably the fourth meatus, and never the inferior meatus. This makes it a little difficult to explain how the inferior turbinates perform their function of warming and moistening the air, but renders the stimulation of the olfactory nerve endings easily explicable. As regards spurs and deviations of the septum and enlargements of the inferior turbinates it seems that they only interfere with inspiration when they are in the way of the entrance of air into the middle meatus. Polypi or enlargements of the middle turbinates, on the contrary, considerably interfere with easy inspiration. Hypertrophies and growths springing from the roof of the naso-pharynx will also cause considerable obstruction to inspiration, being in the direct air way. It may also be concluded that in expiration the air traverses the inferior meatus chiefly and that any hypertrophies or deformities causing stenosis of this passage will render expiration uncomfortable and difficult. In conclusion it may be noted that the use of lycopodium as above described may be applied for practical purposes. The powder will be freely deposited on any irregularity which is causing obstruction and which should be removed, and, conversely, if a spur, for example, is left untouched by the powder it may be left alone as far as respiration is concerned, unless it is sufficiently large to interfere with expiration, which is not often the case.

Harley-street, W.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

> Nulla autem est alia pro certo noscendi via nisi quamplurimas et morborum et dissectionum historias tum aliorum tum proprias collectas habere et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

ST. GEORGE'S HOSPITAL.

A CASE OF HÆMORRHAGIC TYPHOID FEVER.

(Under the care of Dr. W. EWART.)

FOR the notes of the case we are indebted to Dr. Lee Dickinson.

A woman, aged 29 years, was admitted into St. George's Hospital on Nov. 18th, 1892, under the care of Dr. Ewart. The family history was good and there was nothing upon the most careful inquiry that could be construed into inheritance of hæmophilia. The patient, indeed, had been liable to somewhat profuse menstruation for the last seven years, but there were no other hæmorrhages and the general health was fairly good. The only serious illness remembered was an attack of pleurisy on each side in succession in 1886; the left pleura was aspirated and she made a good recovery. There was no suspicion of alcoholism.

The patient was sent to the hospital as a case of typhoid fever of about 12 days' duration, the leading symptoms having been headache, perspirations, and disturbed sleep. Spots had been found four days before admission. When the patient was admitted she was somewhat anæmic and rather too fat, but she was not profoundly impressed by her illness, and there seemed to be no reason why she should not make a good recovery. The diagnosis of typhoid fever was fully confirmed. There were several rose spots on the abdomen at the time of admission and a few spots were observed as late as Dec. 7th. The bowels were at first confined. The temperature was irregular but never very high; it reached 103° F. on more than one occasion and averaged about two degrees lower. As regards the hæmorrhages, the first to be observed was a moderate loss per vaginam, which was present on admission and continued to within a week of death. Early on Dec. 12th severe hæmorrhage from the gums set in and later in the day a copious motion was passed consisting largely of red blood. Saccharated lime, gallic acid, and the usual remedies for intestinal hæmorrhage were employed, but blood continued to pass from the bowel, though not in large [illegible] appeared on the skin, a con- [illegible] ght eye and others beneath [illegible] 15th the urine was loaded with corpuscular bloo[illegible] ased. The retinæ were free [illegible] blood from the finger flowe[illegible] and was of pink colour [illegible] blood of pernicious anæm[illegible] ously diminished in number and individually rich in hæmoglobin. The leucocytes were considerably increased, and on one or two occasions granular masses of pigment were seen. The first copious hæmorrhage from the bowel was followed by a rise of pulse-rate from 112 to 140 and a general change for the worse in the patient; it had been apparent, however, for some days that the weakness was greater and the anæmia more intense than so mild an attack of typhoid fever would itself account for. Eventually she became extremely blanched and died from exhaustion on Dec. 18th.

Necropsy.—At the post-mortem examination, which was made by Dr. H. D. Rolleston, the blood was found to be generally fluid though the cavities of the heart contained pale clots. The pleural cavities were closed by old adhesions, but the pericardium and peritoneum showed numerous petechiæ, and beneath the endocardium of the right auricle was an extensive hæmorrhage. Hæmorrhages were found also under the capsules of the liver and spleen, under the mucous coats of the bladder and stomach, in the pelves of both kidneys, and in the right Fallopian tube. In the ileo-cæcal region there were many ulcers, some of which were not far from perforation. These ulcers were undoubtedly of typhoid origin, though the edges were less infiltrated and undermined than usual. The colon and rectum were vividly injected but were not ulcerated.

Remarks by Dr. LEE DICKINSON.—In THE LANCET of April 20th, 1901, p. 1156, there is an interesting annotation upon a paper by Dr. A. E. Eshner and Dr. T. H. Weisenberg in the *American Journal of the Medical Sciences* for March on Hæmorrhagic Typhoid Fever. The paper describes two cases of this exceedingly rare complication of typhoid fever and the annotation suggests that alcohol, to which both the patients were addicted, was an important contributory cause of the hæmorrhagic condition. The above case may therefore be of interest for it was a marked example of hæmorrhagic typhoid fever and one, moreover, into which the alcoholic factor did not enter. It seems equally certain that true hæmophilia may be excluded in so far as the term "hæmophilia" connotes a congenital tendency to hæmorrhage, but that many and various hæmorrhages took place and that they were in some way connected with the typhoid fever and directly dependent upon deficient coagulability of the blood is beyond all question.

The case occurred nearly nine years ago, since when certain therapeutic advances have been made in the direction of promoting the coagulative power of the blood when deficient, but whether the administration of any such substances as calcium chloride, nucleo-proteid, gelatin, and the like can be of material use when, as seems probable, the cause of the hæmorrhagic condition is a toxin in the blood may well be held as doubtful. In the future we may perhaps look more hopefully to some form of antitoxin treatment which will so far surpass the treatment at present in vogue for the prevention of typhoid fever as to neutralise at once the established disease and the general tendency to hæmorrhage, which is one of its rarest and most terrible dangers. Although the case is barren as regards therapeutic suggestion it seems to the point on the present occasion and for this reason I venture to submit it to the profession. I am indebted to Dr. Ewart for kindly allowing me to make use of the clinical records of the above case for which, as medical registrar at the time, I am entirely responsible.

SOUTH DEVON AND EAST CORNWALL HOSPITAL.

A SUCCESSFUL CASE OF LAPAROTOMY FOR INTUSSUSCEPTION.

(Under the care of Mr. C. WHIPPLE.)

THE value of early operation in intussusception is now generally acknowledged, and the increasing number of cases recorded confirms it. If we were to judge of the mortality after the operation by the cases published a decidedly erroneous opinion would be formed, for in this as in most other operations a larger proportion of the successful than of the unsuccessful cases find their way into print. If we take all the cases in a large hospital in which an operation is performed for intussusception we find a death-rate which is decidedly higher than that based on recorded cases. The mortality after operation need not deter us from operating, though it should impress on us the need of early operation, for the death-rate increases with the duration of the invagination.

A girl, aged two years, was admitted into the South Devon and East Cornwall Hospital on May 30th, 1901, for vomiting and abdominal pain. The history of the case was that she had been suffering from "ulcerated bowels" for the previous fortnight. On May 29th, about 9 P.M., the child was attacked with sudden acute abdominal pain; she cried a good deal and vomited. On the 30th, about 3 A.M., the bowels acted, the motion being dark and slimy, "like tar." The patient passed two similar motions afterwards, the second being at 3 P.M. The vomiting continued up to the time of admission in the evening.

On examination the abdomen was found to be slightly distended and tense from muscular action, but a firm elongated mass of characteristic "sausage"-shape could be felt in the situation of the transverse colon. Nothing abnormal was found on rectal examination. The pulse was 94 and the temperature was 99° F. At 10 o'clock the child was anæsthetised with chloroform (later in the operation a little ether was given). When under its influence the mass could be distinctly defined extending towards the right loin. The abdomen was opened by a three-inch incision slightly to the right of the middle line and the mass was drawn out on to a warm sterilised towel: it was found to be an ileo-cæcal intussusception. Reduction was effected with slight difficulty, a small peritoneal tear in the ascending colon requiring two Lembert's silk sutures. There were considerable œdema and a little lymph about the cæcum. About six inches of ileum and six inches of cæcum and ascending colon were intussuscepted. The extruded portions of bowel were washed in warm sterile saline solution and returned to the peritoneal cavity. The peritoneal incision was then closed with a continuous catgut suture and the wound in the abdominal wall was closed with interrupted sutures of salmon gut. The operation lasted 20 minutes. On May 31st the morning temperature was 101·6° and the evening temperature was 98°. The child's bowels acted twice, the motions being loose and yellowish. She was fed with two drachms of milk with two drachms of hot water every hour. On June 1st the temperature was normal. As the child cried a little boiled soft bread was added to the milk-and-water, the quantity of which was doubled. The bowels acted three times. On the 3rd the diet consisted of boiled bread with milk and tapioca pudding and milk. The bowels had acted once. On the 6th the wound was dressed and was found to be soundly healed; the stitches were removed.

Remarks by Dr. H. W. WEBBER.—I am indebted to Mr. Whipple for permission to operate on this case and to record the notes, and I am glad to be able to add one more to the number of successful laparotomies for intussusception. Operative treatment seemed to be distinctly indicated in this case as the condition had lasted 25 hours, by which time adhesion between the peritoneal surfaces would be commencing and œdema present—as was actually found, and the child's good pulse and general condition gave hopes that she would bear the operation well.

Medical Societies.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

Resection of the Intestine.—General Paralysis of the Insane.

A MEETING of this society was held on June 5th, Dr. A. G. MILLER, the President, being in the chair.

Dr. F. M. CAIRD read a paper on Resection and Suture of the Intestine, with special reference to Strictures of the Large Intestine. This communication might be regarded as supplementary to one read in the society in 1895 (Vol. xiv. of the Transactions) and was intended to give the results of further experience.

Dr. LEWIS C. BRUCE of Murthly Asylum read a paper on Clinical and Experimental Observations upon General Paralysis. It was necessary, he said, to define general paralysis as a disease marked by progressive degeneration of all the bodily and mental functions, commencing first with those most highly developed and recently acquired and ending with complete wreckage of mind and body. The course of the disease varied greatly according to individual resistance. Some showed mental symptoms before motor symptoms became prominent, while others presented motor symptoms sometimes for years before any mental peculiarities developed. The disease was regarded as incurable, but remissions often of a very complete nature were by no means uncommon. The typical disease was further peculiar in having several stages: (1) the first stage, in which the patient was often acutely ill with febrile temperature, loss of body weight, restlessness, excitement, and sleeplessness; (2) the second stage, in which he became fat, facile, lazy, and liable to congestive seizures; and (3) the third stage in which the patient again lost weight and became mentally demented and physically paralysed. The opinion that syphilis, if not the only cause, was certainly one of the chief, was at present gaining ground both in this country and abroad. The following observations were made upon patients suffering from undoubted general paralysis and might be classified as (1) those observations made on patients where the disease was steadily progressive; (2) those made in patients in a state of remission; and (3) those concerned in an attempt to produce remission. 1. In those in whom the disease was progressive the system which Dr. Bruce believed to be invariably affected throughout the whole course of the disease was the alimentary system. He had never met with a case in which there were not intestinal or gastric disturbances. In the second stage bulimia was generally added to the symptoms of the first stage, while in the third and last stage constipation alternately with diarrhœa was the rule. The significance of these symptoms had not been appreciated nor had it been realised that they ran from the beginning to the end of the disease, as they were so often masked by the mental symptoms. After quoting various authorities regarding the temperature in cases of general paralysis Dr. Bruce stated that he had carefully observed the temperatures of such cases for several years, making continuous charts of from four to six months' duration. In some few steadily progressive cases the temperature never rose above the normal. In others the temperature was irregular, febrile attacks occurring at long intervals. Such might be explained by the powers of individual resistance. As a result of his observations he supported strongly Dr. McPherson's opinion that the most characteristic temperature in general paralysis was the recurrent febrile attack every one or two weeks. On admission of the patient there was probably a febrile temperature of about a week's duration; then there was a remission for about three weeks, when again there was a febrile attack with or without mental symptoms, followed in turn by a remission of a month's duration it might be. When the second stage was established these febrile attacks became more frequent and the remissions shorter. As this stage passed slowly into the third stage the temperature tended to become subnormal, the febrile attacks of the second stage being represented by a gradual rise from subnormal to normal. The explanation was that the patient was becoming exhausted and did not react so vigorously as before. When the third stage was fairly entered the temperature became very irregular (the consideration of fever due to congestive seizures or apoplectiform attacks was purposely omitted as merely complicating matters). The constant recurrence of such febrile attacks could only be regarded as being due to some recurrent cause and that a toxic cause. Each febrile attack represented the resistive reaction of the body to some toxic substance and each interfebrile period an intermission when the resistive powers of the patient had subdued the action of the toxin. Kanthack considered it a rule that "previous to recovery from bacterial products an increase in the number of leucocytes takes place." Dr. Bruce counted the leucocytes and took the temperature daily of some six cases of general paralysis for three or four months continuously and a glance at the charts showed that every rise of the thermometer occurred with a similar rise in leucocytes. In the first stage the hyper-leucocytosis was often very great, being from 20,000 to 30,000 per cubic millimetre, and the higher and larger the leucocytosis the longer was the remission that followed the attack. In the second and early third stage the leucocytes still rose with each rise of temperature, but the reaction was not so vigorous and the remissions were shorter. In the later period of the third stage the leucocytosis resembled the temperature in being very irregular but not necessarily coinciding. There were practically no periods of remission. Even in those progressive cases where there were no recurrent febrile attacks there were still occasional instances of hyperleucocytosis. These latter coincided with periods of advance in the disease, and following on these periods of hyperleucocytosis there were remissions just as happened in those cases with febrile attacks. In one case of acute early general paralysis Dr. Bruce, while examining a fresh specimen of blood, found a motile bacillus. A film specimen showed apparent streptococci. Dr. Ford Robertson confirmed these observations. The urine of this patient contained blood and in it was found the same motile organism. This was the only case of general paralysis in which Dr. Bruce had found living organisms in the blood. He regarded it as an accidental occurrence, but one which might occur much more frequently than was supposed. As this motile bacillus resembled the bacillus coli Dr. Bruce tested the blood serum of the cases of general paralysis to see if they had the power of agglutinating bacillus coli. The serum from 10 such cases was tested in dilutions varying from one in five to one in 20 and no reaction was obtained. 2. Observations made upon patients in a state of remission had to be divided as follows: (1) remissions which followed upon acute attacks of intercurrent disease, as after erysipelas of the scalp, pneumonia, carbuncle, &c. Such were preceded by a high and continued hyper-leucocytosis. (2) Remissions which occurred naturally and without obvious cause during the course of the disease. In those cases where Dr. Bruce had observed actual improvement to take place he noted that the powers of the alimentary system improved. The temperature was never febrile, but the chief feature was that the number of leucocytes in the early stage of the remission rose higher than they were in ordinary health (from 9000 to 12,000 per cubic millimetre). As the remission became fairly established the leucocytosis gradually fell to that of ordinary health. The serum also of such cases contained some antitoxic substance which was not present in patients in whom the disease was progressive or in the serum of healthy persons. The power of the blood serum to agglutinate bacillus coli in dilutions varying from 1 in 5 to 1 in 20 was tested in 10 cases in states of remission and seven gave a definite agglutinative reaction. Nature then appeared to check the disease and produce remissions by firstly producing a hyper-leucocytosis, the leucocytes in their turn producing some substance of the nature of an antitoxin in the blood which protected for a limited time against further doses of the toxin. 3. In attempts to produce remission the observations which Dr. Bruce made led him to believe that the majority of cases of general paralysis were due to toxic poisoning derived from bacteria and absorbed through the stomach or intestines He believed that each febrile attack represented the actual entrance of bacteria or their toxins into the blood or tissues and that during the remission periods the blood must possess some antitoxic substance. He tested the truth of this as follows. A patient suffering from general paralysis in the second stage and during a well-marked remission had an attack of lumbago. This patient was wet cupped with antiseptic precautions and the blood so obtained was defibrinated. Two earlier and progressive cases of general paralysis were placed in bed and into each were subcutaneously injected two cubic centimetres of this defibrinated blood daily for three weeks. Patient No 1 was in the early first stage; patient No. 2 was in the early period of the second stage. Patient No. 1 became so far recovered that his friends insisted on his discharge and he accordingly left the asylum. The treatment was adopted two years ago, and though his mental condition was impaired this patient could support himself as a saddler and had done so since his discharge Case No. 2 had shown physical but no mental improvement, though the progress of the disease in his case had been definitely arrested for nearly two years. Four other cases of general paralysis, contemporaries of these two so treated patients, were now dead, and it was suggestive that these two men should have given the reaction they had done to treatment. It was obviously impossible to continue treatment on these lines, but Dr. Bruce believed that the blood of patients in conditions of remission could agglutinate the bacillus coli, that small subcutaneous injections of blood serum from a horse immunised to bacillus coli continued for from three to four weeks might produce artificial remission in the disease, and Dr. Bruce was giving this treatment a trial. His conclusions were (1) that general paralysis was a disease directly due to poisoning by the toxins of bacteria whose point of attack was through the gastric and intestinal mucous membrane; (2) that the poisoning was probably a mixed one, but that the bacillus coli was apparently one of the noxious organisms; and (3) that the result of treatment with serum taken from a case of general paralysis in a condition of remission and injected subcutaneously into an early progressive case pointed strongly to the fact that some form of serum treatment was the proper one for this disease.

Dr. Ford Robertson read a paper upon New Observations bearing upon the Question of the Pathogenesis of General Paralysis of the Insane. He stated that his own studies upon this question, pursued chiefly along the lines of pathological anatomy, lead him to conclusions in entire agreement with those formulated by Dr. Lewis C. Bruce. What was still disputed was not the fact of the toxic origin of the disease but only the mode in which the toxins acted. He explained the grounds upon which he was unable to agree with the conclusion of Mott and Krafft-Ebing. that general paralysis depended upon a premature involution of the cortical nerve cells, and he defended the opinion of Angiolella that the disease was the result of a chronic toxæmia which especially damaged the vessels of the central nervous system. The accumulated evidence in support of the latter view was now beyond all question exceedingly strong. The vessels of the central nervous system had special structural features which served to explain why they were specially prone to be injured by certain forms of chronic toxæmia. He referred to the numerous observations which showed that general paralysis had a remarkable association with various forms of bacterial infection. and that important gastro-intestinal disorders constantly accompanied the disease. He then described his own observations upon the condition of the liver and gastro-intestinal tract in a series of cases. In the liver there was constantly evidence of long-standing irritation of the fibrous tissues of the portal spaces. This fact pointed distinctly to the absorption of irritants from the alimentary tract. In all of 12 cases systematically examined he found various chronic lesions of either the stomach or intestines. Chief among these was a chronic catarrhal state of the stomach and duodenum and lower part of the ileum, associated with thickening and erosions of the mucous membrane. There was strong evidence that the changes observed were the result of the action of an irritant which bathed the internal surface He thought that the view that they were the result of the cerebral condition was quite untenable. Nevertheless, these gastro-intestinal changes were not the cause of general paralysis but the result of the same toxic action as that which gave rise to the other lesions in various parts of the body. When all the facts that had been ascertained were taken into account two conclusions seemed to him to be justified—namely (1), that the toxæmia of general paralysis was of gastro-intestinal origin, and (2) that the toxins were mainly bacterial. There was evidently a partial breakdown of those forces by which any harmful development of the intestinal organisms was normally prevented He discussed the question of how the inhibition of the growth of these bacteria was normally effected, and he insisted that the phenomenon could only be explained as essentially the result of the same forces as those by which the growth of bacteria was prevented in the living tissues—namely, by the action of leucocytes, alexins, and antitoxins. There was conclusive evidence that in the general paralytic, even at an early stage of his disease, there was a weakening of the natural resistance to bacteria or of the natural immunity Such weakened power of resistance would manifest itself specially in the alimentary tract in which the inhibitory substances were in a state of comparative dilution The toxæmia was probably in some measure established for months, or even years, before the first symptoms of nervous disease manifested themselves. In some individuals the cerebral vessels gave way earliest, and general paralysis was the result; in others, the vessels of the cord were the more vulnerable, those that received the largest quantity of blood and therefore of toxin suffered first and most severely, and the clinical and pathological picture of tabes dorsalis developed He advanced the hypothesis, against which he knew many as yet unanswerable arguments could easily be brought, that the alteration in the general immunity was dependent upon commencing exhaustion of the leuco-blastic functions of the bone marrow. He pointed out how this hypothesis would explain certain very contradictory facts regarding general paralysis and tabes. The factors which were known to favour the development of these two types of nervous disease were for the most part such as caused prolonged leucocytosis.

Dr. T. S Clouston said that the study of general paralysis was perhaps the most interesting in the whole range of medicine. He thought that the results of the work now laid before the society were (if substantiated further) epoch-making. For the first time in 40 years he had a feeling that this disease might be cured. He was not convinced that the disease was a vascular one but held it to be almost certainly proved that it was of a toxæmic nature. The disease seemed to begin in the highest centres of the brain and the progressive degeneration spread to every other centre of lower natures. He thought it was perfectly consistent with the toxæmic theory that the neurons were in the first place affected and the capillaries later.

Dr. BYROM BRAMWELL stated that syphilis was the most important element in the causation of general paralysis and tabes dorsalis, but some irritant or strain must be added to this to determine the disease. He thought that Dr. Bruce and Dr. Robertson were perhaps limiting the causation too much. It seemed to him that various forms of irritation might act on the nervous centres which had been already acted on by the syphilitic poison. Else why did the toxin not produce the disease in individuals who had not had syphilis?

Dr. WILLIAM RUSSELL said that a point of interest to him was the occurrence of leucocytosis during the febrile periods in the course of general paralysis. He regarded it as proof of a toxæmia. With regard to Dr. Robertson's contentions, there was a point which the pure pathologist was apt to overlook and that was the perturbation of function which preceded anatomical changes. In some cases he was satisfied that this occurred and that general paralysis supervened upon domestic and business worry with long days of work and short nights of rest and in persons, too, who never had syphilis. Following upon this functional perturbation came anatomical changes and he thought it very dangerous to assert, unless the evidence was very strong, that the vascular changes were primary and the surrounding sclerosis secondary. In various morbid conditions a local disturbance with the production of irritative products led to local endarteritic changes, and yet there might be no question at all that the vascular changes were secondary.

Dr. GULLAND, Dr. MCPHERSON, and Dr. JAMES RITCHIE also spoke and Dr. BRUCE and Dr. ROBERTSON replied.

DERMATOLOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND.—A meeting of this society was held at 20, Hanover-square, W., on June 26th, the President, Dr. A. J. Harrison, being in the chair.—Dr. H. Radcliffe Crocker proposed that a vote of condolence should be conveyed to the family of the late Dr. Cavafy on his death, and referred to the serious loss sustained by the society and by British dermatology in his death. The vote of condolence was passed unanimously by the meeting.—Dr. T. D. Savill showed a case of Bromide Eruption in a child, aged five and a half years, who had been under the care of Dr. Fletcher Beach and had been given 15-grain doses of potassium bromide thrice daily for 19 days.—Dr. Phineas S. Abraham showed: 1. A case of Lupus Vulgaris in a child, aged 13 years. The eruption had improved rapidly under treatment with x rays. 2. A second case of Lupus which had benefited by the same treatment.—Dr. E. G. Graham Little showed: 1. A case of Favus in a young lad, a Russian Jew; there were typical yellow scutula on the scalp and extensive loss of hair. 2. A case of Leucodermia and Melanodermia combined of four years' duration in a boy, aged 12 years. 3. A case of Hypertrophy of the Upper Lip in a boy aged 10 years; the swelling had been present for the last five months. There was a strong tuberculous history and it was possibly a tuberculous swelling. 4. A case of Multiple Lupus Vulgaris with a distribution and aspect of psoriasis and in addition an eruption of lichen scrofulosorum on both legs.—Dr. Graham Little also showed a microscopic specimen of a Favus Hair which was stained to demonstrate the invasion of the hair-shaft by the typical fungus.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.—The following members have been elected as officers and councillors for the year 1901-1902:—President: Mr. W. A. Maggs. Vice-Presidents: Mr. A. S. Underwood, Mr. F. J. Bennett, and Mr. W. H. Woodruff (resident); Mr. G. Brunton (Leeds), Mr. W. S. Woodburn (Glasgow), and Mr. W. B. Bacon (Tunbridge Wells). (non-resident). Treasurer: Mr. C. F. Rilot. Librarian: Mr. H. Baldwin. Curator: Mr. J. F. Colyer. Editor of Transactions: Mr. H. Lloyd Williams. Honorary Secretaries: Mr. J. H. Mummery (Foreign), Mr. A. Hopewell Smith (Council), and Mr. W. Rushton (Society). Councillors: Mr. J. H. Reinhardt, Mr. H. G. Read, Mr. G. Northcroft, Mr. R. Wynne Rouw, Mr. J. Mansbridge, Mr. M. F. Hopson, Mr. Morton A. Smale, Mr. R. D. Pedley, and Mr. J. Percy Smith (resident); Mr. D. Corbett, jun. (Dublin), Mr. Rees Price (Glasgow), Mr. G. O. Whittaker (Manchester), Mr. T. Mansell (Birkenhead), Mr. W. A. Rhodes (Cambridge), Mr. W. Glaisby (York), Mr. J. J. H. Saunders (Barnstaple), Mr. E. A. Bogue (New York), and Mr. J. F. L. Pike (Sheffield), (non-resident).

Rebiews and Notices of Books.

A Text-book of Pharmacology and Therapeutics, or the Action of Drugs in Health and Disease. By ARTHUR R. CUSHNY, M.A., M.D. Aberd., Professor of Mater Medica and Therapeutics in the University of Michiga Second edition. London: Rebman, Limited. 190 Pp. 732. Price 17*s.* 6*d.* net.

WE noticed the first edition of Professor Cushny's work our issue of April 20th, p. 1146. There is but little more say about this, the second edition. Although the title on t cover is simply "A Text-book of Pharmacology," the titl page bearing the more extended name given above, yet t book deals with pharmacology, therapeutics, toxicology, a materia medica, but the interest is so largely centred up the first mentioned that it is quite an appropriate name select. The volume includes references to all the drugs a preparations which are official in the United States Pharm copœia and the British Pharmacopœia, and it is worthy note that preference is expressed for the use of the metr system, although both systems of weights and measures a given.

With regard to therapeutics the author's position is ve clearly stated. He treats the subject from the experiment standpoint and makes the results of the laboratory invest gator the basis of almost every statement, and he objects the use of such terms as "alterative" or "tonic" whic refer to hypothetical conditions which cannot be establish by direct experiment.

As a text-book of pharmacology this work is very comple and very satisfactory. The author has read widely and ha incorporated the results of his reading with admirab lucidity and brevity, while at the end of each section has enumerated references to more detailed sources information. His direct and dogmatic style should facilita the employment of this book by students, even though occasionally represents only one side of a disputed subjec The arrangement adopted is that of Buchheim an Schmiedeberg, the drugs being grouped into classes name from the most prominent member or from some marke property possessed by all. In this way much needles repetition is avoided and students instinctively recognis the more important facts concerning each individua member of the group, although the actions of each are full given.

The drugs selected are principally those which are officia and naturally the greatest space is devoted to those whic possess well-marked actions, such as quinine, digitalis atropine, and nux vomica. Although these are treated i great detail many of the newer remedies receive adequat recognition, as, for example, anhalonium, heroin, urotropi eucaine, and orthoform. On the other hand, the author caution is well shown in the following remarks (p. 683) upo some of the newer antiseptic astringents: "As with so man of the products of the new industrial chemistry, they ar thrown on the market in such profusion, and are heralde with such exaggerated praise, that it is impossible at presen to state which of them are really improvements on the mor generally recognised preparations, and which are merel adapted to enrich the inventor, without materially ad vancing therapeutics."

Professor Cushny is to be congratulated upon havin presented a difficult subject in an attractive manner This book should do much to promote an intellige scientific employment of drugs and to discourage antiquate empiricism which has so long retarded progress. The bo is well printed and is provided with a satisfacto

On Some Practical Methods of Sanitation in India, with Special Reference to Cantonments By ERNEST ROBERTS, D P H Cantab, Major, I M S Reprinted from the Scientific Memoirs by Medical Officers of the Army of India, Part XII Simla: Printed at the Government Central Printing Office 1901

THE introduction of a system of treating sewage after the method pursued by nature and on what may be termed biological principles has been one of the practical results attending the investigation of the rôle played by mixed communities of micro-organisms in their action on the waste organic matter which is continually being received upon the surface of the earth in order to restore it to its original elements Nature's method is effected, as we know now, in two stages—by the breaking down and liquefying of the solid organic matter and by the subsequent nitrification or mineralising of the results thus obtained Both are accomplished by the instrumentality of organisms consisting of anaerobia and aerobia, according as oxygen is essential or not to their existence While both classes of organisms share in the liquefying process it is the latter (the oxygen-requiring organisms) that alone do the work of nitrifying or mineralising the liquefied sewage products

The object which the author has in view is, in the first place, to review the practical methods of sanitation in vogue in India and to examine the adequacy and scientific sanction of these methods and in the second to set forth and to elucidate the merits and main points and principles of the biological system of sewage purification while offering some practical conclusions and suggestions on the subject generally The pamphlet, which is an elaborately drawn up and well reasoned production, is a reprint from Part XII of the Scientific Memoirs by medical officers of the army of India and it consists of 158 pages together with an appendix and illustrative plans It deserves to be read as a whole, for it does not lend itself to any brief summary Major Roberts starts by referring to a subject about which the readers of THE LANCET need not be reminded—namely, the scourge which enteric fever has proved to our troops serving in India despite all that has been done to prevent or limit its spread There has been of late a growing belief that the dry-earth and trench system of conservancy carried out in hot climates has a good deal to answer for in this respect The dry earth sewage system only deals with latrine matters and does not remove, like a water carriage system, all the sewage products of a population or community However efficiently worked it simply reduces or abolishes nuisance, but it does not reach the causes of disease, on the contrary, as carried out in India and South Africa, for example, by the latrine matters fouling the surface soil and possibly the subsoil water and by getting blown about as dust by the wind or carried in dust storms or by flies it possibly disseminates them

Major Roberts, while recognising that this may not be inappropriately designated nature's method where it is carried out with the most scrupulous regard to all the essential conditions, very forcibly points out how this is not, and practically speaking cannot be, done, at any rate as far as India is concerned, where special difficulties exist and special risks and dangers are incurred, so that it amounts to this—that, to say nothing of the great difficulty of conveyance to the trench and the chances of leakage at every stage, he condemns the present system of latrines and earth disposal as really no system, because it has demonstrably failed in the essential points which it has to fulfil The remedy for all this, in Major Roberts's opinion, is the biological method, the aim and object of which is to recognise the respective parts played by bacterial organisms, to claim and utilise them as allies, and to appropriate them to their special work by adjusting the conditions for securing their rapid multiplication and working efficiency in such order and sequence as to be best fitted for obtaining their efficient coöperation in sewage purification There are various methods of doing this, but they all depend upon one and the same principle. There can be no doubt about the success of the method so far as our present knowledge and experience extend The biological system depends upon water-carriage and water is not always obtainable in hot countries, and, so far as India is concerned, Major Roberts discusses and deals with this point How far it is capable of destroying specific pathogenetic micro organisms has not, perhaps as yet been sufficiently determined experimentally The trend of the experiments undertaken by Dr Houston for the London County Council shows *a diminution in numbers of pathogenic bacteria* and a weakening of their powers, but direct evidence is yet wanting as to whether they are actually extinguished in the biological processes of sewage treatment *Major Roberts's pamphlet* comes at a very opportune time We cannot now discuss the point as to whether or not the harmful microbes can survive the biological treatment and the attacks of other microbes, but we may say that we concur in thinking it would be well to have recourse also to land irrigation—that is, to run the effluent thus obtained over land (which should be cropped) instead of into a watercourse or nullah, with the view, not only of avoiding the waste of a valuable manuring agent, but in order to make assurance doubly sure Where the biological process for liquefying and nitrifying sewage is thoroughly followed the organisms are found to multiply remarkably in number and in working *efficiency, sludge is got rid of, and the resulting effluent*, from the surplus oxygen stored up in it does not seem prone to undergo secondary putrefaction Major Roberts points out the marked differences in the character and strength of the sewage in India and in England respectively He prefers, on the whole, the Scott Moncreiff plan of open upward cultivation tank for anaerobic liquefaction and solution of the solids His description of the conservancy system and of the methods of sewage disposal as followed and worked in India at the present time brings out the existence of many defects and leakages of detail and shows that a good deal still remains to be done in that country in view of remedying these and in designing and developing a more perfect system *for the future* His pamphlet is written in a scientific tone and is by no means lacking in practical proposals. There are a great many points of detail on which there are differences of opinion about upward or downward action and as to whether the septic tank alone or a series of biological filters should be employed, and there are other matters of a technical sort which will probably turn on local and other conditions and considerations and the results of further experimentations, but Major Roberts has meanwhile, we think, done very good service in calling attention to the subject

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A Treatise on Medical Jurisprudence By GEORGE VIVIAN POORE, M D, F R C P Lond, Professor of the Principles and Practice of Medicine, University College, London Illustrated London. John Murray 1901 Pp 530 Price 12*s*

THIS *treatise is based on* lectures delivered at University College, London We are informed by the author in his preface that the lectures were taken in shorthand for the *Clinical Journal* at the request of its editor, and for the purposes of the present work considerable additions and emendations have been made and the matter has been divided into chapters As a result the style throughout the book is more colloquial than is usual in such a publication, and is all the more acceptable for that reason, as we are thereby presented more exactly with the thoughts and intentions *of the lecturer* Rarely have we found a text book more charming to read and at the same time displaying such a thorough grasp and knowledge of the subject By means of the free employment of illustrative cases, drawn from the records of the law courts and the author's personal experience, the dry details are endowed with lively interest which is likely to imprint them on the student's memory. We thoroughly endorse this plan.

In the first chapter minute directions are given as to the line of conduct that a medical witness should adopt whilst under examination. A barrister will do his utmost to try to confound a medical man whilst giving evidence, but if the latter has carefully considered the case from every point of view he will be enabled to hold his own against any crafty pitfall prepared by skilful and experienced counsel. Dr. Poore gives excellent advice on this subject, and if the practitioner carefully studies this chapter and applies all the advice and suggestions therein contained he need fear neither examination nor cross-examination. Some medical witnesses, especially the younger ones, are occasionally tempted to take a biased view and to try to appear learned about a thing that they know little or nothing about, when cross-examination is apt to become unpleasant. A practitioner should take to heart the following sentence: "If you are perfectly truthful and simple, and, let me say, think of your own reputation, not only for knowledge, but for honesty and truthfulness, you need not fear any cross-examination." Implicit directions are likewise given with regard to dying declarations. It is strange that so many errors are made in taking such declarations. The laws which govern them are explicit and simple, and yet again and again a prosecution breaks down owing to the neglect of the most elementary precautions. The chapter on the Legal Relations of the Medical Profession, containing remarks on the Medical Acts, the General Medical Council, the privileges of medical men, the relation of doctor to patient, malpraxis, the vaccination laws, &c., will be found highly interesting.

Chapters III., IV., and V. are concerned with the signs of death and the examination of persons found dead, with especial reference to medico-legal investigations. The medical jurist is more concerned with the dead than with the living, and hence these preliminary considerations are of the utmost importance. Dr. Poore has the faculty of expressing facts in a very straightforward and plain manner, and there is no mistaking his aim. In a subject like forensic medicine this is especially advantageous. If a dead body is found and foul play is suspected it is, of course, of primary importance that the time at which death took place should be determined as closely as possible. The cases quoted by Dr. Poore to illustrate his remarks on this subject are well chosen, being always to the point and bringing into prominence the phenomena likely to prove of value in a legal inquiry.

In the section devoted to Toxicology the author has limited himself mainly to the discussion of such poisons as have been actually used for criminal purposes and has wisely abstained, as far as possible, from trenching upon the domains of the physiologist, the pharmacologist, and the medical officer of health. The symptoms, post-mortem appearances, and treatment of the various poisons are clearly described, and the many illustrative cases that are brought forward serve further to impress upon the student's mind the difficulties that may arise in regard to differential diagnosis. The manner, too, in which the tests for the poisons are described is striking and original. The lecturer's words were taken down verbatim as he was performing each test; by this means a much more graphic account is given than is usually found in text-books. In speaking of phosphorus poisoning Dr. Poore naturally draws attention to the difficulty in determining between this condition and acute yellow atrophy of the liver, and he comes to the conclusion that it is not possible to say with absolute certainty which of the two is present in doubtful cases. The chapter on Poisoning by Arsenic is an excellent one and contains most interesting accounts of the principal cases of criminal poisoning which have come before the courts. Some interesting remarks are also to be found in the chapter on Food-poisoning; ptomaines, leukomaines, the growth of fungi, and bacteria in food are all duly considered. The medico-legal aspects of sex, sterility, sexual crimes, pregnancy, delivery, abortion, and infanticide are then dealt with in a manner which places before the student and practitioner all the principal points upon which stress is laid when such matters come before the courts either in civil or criminal cases.

The subject of insanity is dealt with in a rather more exhaustive manner than is usually found in text-books on forensic medicine. By means of an admirable series of photographs the various types of insanity are illustrated. Dr. Poore divides insane cases into four classes—congenital insanity, toxic insanity, insanity due to cerebral disease, and symptomatic insanity. This is an admirable classification for dealing with the matter in a small space. The author then considers the "legal relations of the insane," the precautions to be taken when giving certificates being stated at length. The last chapter is entitled the Plea of Insanity in Courts of Law. Four distinct classes of cases are mentioned in which such a plea may be offered: (1) in criminal cases; (2) for divorce or nullity of marriage; (3) testamentary capacity; and (4) affective insanity. A knowledge of such matters may at any time be of the utmost value to a practitioner who may suddenly be called upon to give evidence where the sanity of a litigant is questioned.

Taking this work as a whole we offer our warm congratulations to Dr. Poore on having written one of the most readable and instructive manuals in medical jurisprudence yet published, and we feel sure that it will meet with the success which it deserves. We may add that a study of it would prove useful, not only to medical practitioners and students, but also to barristers who so frequently have to deal with cases involving medical details.

Die Pellagra. By Dr. VICTOR BABES and Dr. V. SION. Illustrated. (Third section of the twenty-fourth volume of Nothnagel's Special Pathology and Therapeutics.) Vienna: Alfred Hölder. 1901. Pp. 75. Price 3 marks 60 pfennig.

PELLAGRA is a disease of which we have little or no experience in England, since it is practically confined to such countries as Italy, Spain, Roumania, and South America, where maize constitutes a common article of diet among the poorer classes. Dr. Victor Babes, professor of pathological anatomy and bacteriology in the University of Bucharest, has had unique opportunities for the study of this disease and with the assistance of Dr. V. Sion has compiled for Nothnagel's Pathology and Therapeutics the very valuable contribution under review.

Not only have the authors brought their practical experience in the disease to bear upon the subject, but they have also drawn up a very complete bibliography and have incorporated in the text all evidence of importance which can help to elucidate this somewhat obscure disease. Although there appear to be certain authors who still cling to the theory that the disease is one which is due to inadequate diet, Dr. Babes, after critically reviewing all the evidence for and against this view, unreservedly declares in favour of the specific nature of the disease. He believes that pellagra is never caused by eating sound maize, and that it only occurs where the grain has previously been exposed to fermentative processes. The exact nature of the poison has not been determined; apparently it can be liberated by many different varieties of bacteria and other fungi. It is soluble in aqueous and alcoholic extracts, and can produce in animals when experimentally injected symptoms analogous to those seen in patients suffering from pellagra. Animals which have recovered from such injections possess in their blood substances which can confer passive immunity in other animals.

Although Dr. Babes believes that ultimately a sero-therapy will be applicable in cases of pellagra occurring in man, he relies rather on prophylactic measures for the stamping out of the disease Such measures should be adopted by the State and should take the form of active supervision in the production, storage, and distribution of the grain

Perhaps the most interesting portions of this volume are those dealing with the pathology and etiology, but the chapters on the course and symptoms of the disease will be read with considerable interest by many in this country, owing to their similarity to those of other diseases with which we are more familiar as, for instance peripheral neuritis and certain degenerative diseases of the central nervous system

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Infant Feeding in its Relation to Health and Disease By LOUIS FISCHER M D Illustrated Philadelphia F A Davis Company 1901 Pp 368 Price $1 50

DR LOUIS FISCHER's object in undertaking this work on infant feeding has been to gratify the desire of many of his students for detailed information on the most modern and approved methods in this branch of dietetic With enormous practical experience and with a wide knowledge of the contemporary literature the author was apparently in an excellent position for preparing a handbook of this kind and as a book of reference the result is in no way disappointing From a literary standpoint as well as from the student's point of view it presents many deficiencies, the chief of which is an entire lack *of method in the general and particular arrangement of* the various subjects dealt with in the different chapters The reader wanders from chapter to chapter in a vain attempt to unravel the most complete tangle of disconnected facts it is possible to imagine The pages are full of inaccuracies and show evidence of being hurried through the press Of somewhat questionable advantage considering the avowed object of the book, is the author's impartial method of seeing both sides of every question He seldom commits himself to unqualified approval or disapproval of any of the methods of feeding of which he gives particulars and it is quite impossible to decide which method for general purposes is, in the author's opinion, best suited as a working basis If cow's milk is used as a substitute for breast feeding we are told that the less its "vital properties' are interfered with by physical or chemical manipulation the better will it be for the infant For this reason sterilisation is objectionable and mechanical separation of cream is to be avoided The so called vital elements in milk can be absorbed without any process of digestion—hence one obvious advantage of unboiled milk "Sterilised milk continually fed to the exclusion of raw milk or raw beef-juice will ultimately result in rachitis or scurvy '—a statement which is endorsed in a letter from Dr C Dukes published in our columns recently, which has become the subject of much correspondence Many readers will hardly subscribe to Dr Fischer's suggested method for the treatment of chronic constipation which is as follows ' Inject half a tumbler of ordinary glycerine mixed with one pint of warm water In safe hands if the mother or nurse is intelligent there should not only be no injury but positive good from the continued use And on page 301 many readers will wonder what is meant by the following sentence "Milk teeth remain until a child is a year old when they give place to permanent teeth '

Practitioners who take an intelligent interest in modern methods of infant feeding will find this book of real value as a work of reference but it is no book for inexperienced students or for those who have no previous knowledge of the subject

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LIBRARY TABLE

Appendicitis its Pathology and Surgery By CHARLES BARRETT LOCKWOOD, F R C S Eng, Assistant Surgeon and Lecturer on Descriptive and Surgical Anatomy in St Bartholomew's Hospital London Macmillan and Co 1901. 8vo Pp 296 Price 10s net —If we were to judge by the increase in the number of works on this subject which have in the last year or two appeared from the press we should be inclined to think that appendicitis had become much more frequent of late The explanation of the larger number of books on this disease is to be found rather in the greater care which is now being devoted to the study of appendicitis A few years ago the operation, which has somewhat laboriously been termed ' appendicectomy ' was employed by some surgeons at least for almost every case in which the symptoms pointed to disease of this organ At the present time, however it is recognised that an operation is not needed in every case or even is not desirable The more extended attention which the disease has received has enabled us to discriminate fairly successfully between those cases in which an immediate operation is imperative and those in which an operation would be not merely useless but harmful The time of the operation is also a point of the greatest importance The results of this increase of knowledge are evidenced by a manifest diminution in the death rate and we may look forward to a further improvement in this respect The work before us deals with all the aspects of the disease and its treatment, and it is based on the records of 83 cases in which histological examinations have been made Notes of all these cases are given and they serve to illustrate the chief features of the disease A useful account of the normal anatomy and histology of the appendix will enable normal variations to be distinguished from morbid changes The book is interesting and will well repay perusal

Saunders's Year-book of Medicine and Surgery being a Yearly Digest of Scientific Progress and Authoritative Opinion in all Branches of Medicine and Surgery Collected and arranged under the general editorial charge of GEORGE M GOULD, M D In two vols Surgery London and Philadelphia W B Saunders and Co 1901 —The year book issued under the editorship of Dr George M Gould has for the last five years occupied so well recognised a position among such works that a hearty welcome for this year's issue is assured to it before its appearance We find the same characteristic features which were so well marked in the earlier issues Each branch of the subject has been entrusted to a writer who would be recognised everywhere as an authority in that department Each sub-editor has epitomised the articles and papers which have appeared during 1900 and has in addition expressed his opinion on the value of the new operation or method described We would draw the attention of our readers to the great value of these editorial comments they add enormously to the interest of the work and serve to indicate those novelties which are indeed advances in our knowledge The careful supervision of the general editor is visible everywhere but it is nowhere more conspicuous than in the provision of a very complete index which occupies 48 pages in double columns

The Students' Manual of Venereal Diseases By F J STURGIS M D some time Clinical Professor of Venereal Diseases in the Medical Department of the University of the City of New York. Seventh edition revised and in part rewritten by F R STURGIS, M D, and FOLLEN CABOT, M D Instructor in Genito-Urinary and Venereal Diseases in the Cornell University Medical College, Genito-Urinary Surgeon to Bellevue Hospital Out patients' Department London Rebman Limited 8vo 1901 Pp 216 Price 6s net —The importance to those in general practice of a good knowledge of those diseases which are classed as venereal can hardly be over estimated yet the number of trustworthy handbooks on the subject is small 21 years have passed since Sturgis's Manual of the Venereal Diseases was first issued and it soon achieved as it deserved an extensive circulation in the United States. It is much less widely known in this country and therefore we take pleasure in commending to the attention of medical students this very practical treatise. For the articles on Chancroid and Syphilis Dr. Sturgis is responsible, while the chapters on Gonorrhœa were undertaken by Dr. Cabot. The work is well abreast of the times and the treatment advocated seems always to be judicious. The only criticism we would venture to make is that the account of the hypodermic medication in syphilis is unnecessarily brief, though we must agree with the author that the method is but little used in private practice.

Eczema, with an Analysis of 8000 Cases of the Disease. By L. DUNCAN BULKLEY, A.M., M.D., Physician to the New York Skin and Cancer Hospital, Dermatologist to the Randall's Island Hospitals, Consulting Physician to the New York Hospital, &c. Third edition, entirely rewritten. New York and London: G. P. Putnam's Sons. 1901.—This is the second of a series of works on Dermatology which Dr. Bulkley is bringing out, and eight more are promised. It is called the third edition of the author's work on Eczema and its Management, but the book has been entirely re-written, so that but little remains of the original work. There is no more difficult skin lesion to treat than eczema, and this little volume will afford great aid to the youthful practitioner in dealing with this troublesome disorder. The greater part of the volume is made up of an account of the methods of treatment of the varied manifestations of the disease, and this account is trustworthy; and though there may be room for discussion on some of the points referred to there can be no doubt that the treatment is well described. A valuable list of 72 prescriptions is appended, though its length may serve to confuse the neophyte somewhat, as he may easily be at loss to know which remedy to choose among so many.

Photographic Atlas of the Diseases of the Skin. A series of 80 plates, comprising more than 100 Illustrations, with Descriptive Text and a Treatise on Cutaneous Therapeutics. By GEORGE HENRY FOX, A.M., M.D., Clinical Professor of Diseases of the Skin, College of Physicians and Surgeons, New York, Consulting Dermatologist to the Board of Health, New York City, &c. To be completed in 16 monthly parts. Parts 1, 2, and 3. Philadelphia and London: J. B. Lippincott Company. 1900 and 1901. Price 6*s.* each part, net.—Dr. George Henry Fox is well known on both sides of the Atlantic as a very successful photographer of skin lesions, and already he has issued several works illustrated by this method. Photography has its limitations when employed to represent skin diseases, as the reds and yellows generally come out nearly black. With some precautions these difficulties can be in part obviated, and Dr. Fox's results show how satisfactory the results can be. The reproduced photographs are coloured and give in most cases a very good idea of the disease. Each part contains five plates with descriptions, and also some pages of a very good account of the treatment of diseases of the skin. If all the succeeding parts are as good as those before us the atlas will be a valuable work.

Die Blennorrhöe der Sexualorgane und ihre Complicationen, nachdem neuesten Wissenschaftlichen Standpunkte und zahlreichen eigenen Studien und Untersuchungen. (*Gonorrhœa and its Complications.*) By Dr. ERNEST FINGER. With 36 Woodcuts in the Text and 10 Lithographic Plates. Fifth edition, much enlarged and revised. Leipsic and Vienna: Franz Deutiche. 1901. Pp. 434. Price 7m. 50.—This work by Dr. Finger is well known in this country. It has reached a fifth edition in 12 years and translations of earlier editions have appeared in English, French, Italian, and Russian. This issue has been extremely altered and enlarged and contains a very complete exposition of the present state of our knowledge of the pathology and treatment of gonorrhœa. This disease is looked upon by the public as the least important of all venereal affections. Our increasing knowledge makes it evident that gonorrhœa, though of slight severity and brief in duration, is not uncommonly productive of the most serious res[illegible], and rivals syphilis itself in the number and variety of its manifestations and complications. This is true of the disease both in women and in men; in fact, it is probable that the results are even more important and more far-reaching in the female than in the male. Apart from the avoidance of the chance of infection there is no measure of more importance than an early thorough treatment of the disease, and in order to be able to take the full advantage of the recent advances in treatment medical practitioners should make themselves fully acquainted with the latest therapeutic methods, and no safer guide can be found than this work of Dr. Finger.

Obstetric and Gynecologic Nursing. By EDWARD P. DAVIS, M.D. London and Philadelphia: W. B. Saunders and Co. Illustrated. 8vo. Pp. 402. 1901. Price 8*s.* net.—This book has been written for the training schools of the Jefferson and Philadelphia hospitals. It is divided into two parts, Obstetric and Gynæcologic Nursing. The subject is considered in great detail and the practice of antisepsis and asepsis is strongly insisted upon. The author has been very successful in limiting his information to the amount really required by nurses, and yet has omitted no essential detail. Professor Davis has followed the plan of taking nothing for granted, and therefore, even at the risk of repetition, he has not failed to insist again and again upon important points. In the nursing of midwifery cases the standard aimed at is that attained in most lying-in hospitals, and although we are inclined to think that in the case of the ordinary, cleanly middle-class patient such a standard is an unnecessarily high one, yet it is a good fault to insist upon too much rather than upon too little. Not only nurses, but even newly-qualified medical men, would learn a great deal and would acquire a good idea of what antiseptic and aseptic nursing really means by a perusal of this book. It is written in a clear and pleasant style and is a work which we can recommend. The illustrations are fair and the index is full and complete.

Transactions of the American Gynecological Society. Vol. XXV. For the year 1900. Philadelphia: Doneter. Pp. 470.—The twenty-fifth volume of the Transactions of the American Gynecological Society contains abundant evidence of the vitality of the society. Amongst the more important papers included in the volume are Dr. Engelmann's presidential address upon the American Girl of To-day; an Historical and Experimental Research upon the Anastomoses of the Ureter with the Intestine, by Dr. Peterson; the Evolution of My Technique in the Treatment of Fibroid Uterine Tumour, by Professor Howard Kelly; and an interesting paper upon the Relative Value of Vaginal and Abdominal Operations in the Extirpation of the Pelvic Organs, by Professor Richelot. The proceedings of the twenty-fifth anniversary at Marshall Hall are also given, and include addresses by Dr. Emmet, Dr. Skene, and Dr. Van de Warker.

The Penalty of Death: or, the Problem of Capital Punishment. By JOSIAH OLDFIELD, M.A. Oxon., M.R.C.S. Eng., L.R.C.P. Lond. London: George Bell and Sons. 1901. Pp. 268. Price 3*s.* 6*d.*—Mr. Oldfield has written an interesting work. He objects to the death penalty as being neither necessary nor just, and he had an ally in the person of the late Lord Chief Justice who, in answer to a letter which Mr. Oldfield wrote to him in common with other judges, said that he was opposed to capital punishment It is not very clear what Mr Oldfield considers to be the best way of treating murderers, but apparently he would consent to life long imprisonment with the death penalty to follow if the prisoner killed a warder He quotes, presumably with approval, an opinion of Miss Skene, a lady who has devoted much time to the subject, that flogging joined to penal servitude would have a more deterrent effect than hanging We have always argued that flogging is dreaded by the criminal classes and have recommended it for Hooligans who assault harmless passers-by and for the scoundrels who poison their neighbours by selling putrid meat and adulterated food, but if we remember aright we were met with a chorus of indignation from Mr Joseph Collinson and other humanitarians to the effect that flogging brutalised both him who administered it and the person who received the flogging Mr Oldfield also argues (p 177) that if we wish to prevent a murderer from again committing a murder it is not necessary to hang him, but that under an anæsthetic the chief nerves of his arms and legs could be severed and that in addition portions of his brain could be destroyed so that he would be rendered blind, deaf, dumb, and imbecile He could then be handed over to the spiritual arm to save his soul We do not suppose that Mr Oldfield intends this argument as anything but a *reductio ad absurdum*, and as for the plea that the death penalty is irrevocable it is surely just as irrevocable to convert a man into a helpless imbecile paralytic The hideous farce of solemnly pronouncing a death sentence in such cases as infanticide by young mothers which everybody, including the judge, knows perfectly well will never be carried out should most certainly be put a stop to

JOURNALS AND MAGAZINES

The Quarterly Journal of Microscopical Science Edited by E RAY LANKESTER, M A, LL D, F R S, with the coöperation of ADAM SEDGWICK M A, F R S, W F R WELDON, M A, F R S, and SYDNEY J HICKSON, M A, F R S With Lithographic Plates and Engravings on Wood London J & A Churchill New series, No 175, Vol XLIV Pt 3 May, 1901 Price 10s —The first article in this number is by Gilman A Drew, professor of biology in the University of Maine, Orono, Me, upon the Life History of Nucula Delphinodonta (Mighels) This is a minute mollusc belonging to the Arcidæ, a family of the unionidæ of the order asiphoniata It is only about, four millimetres in length and as it lives below low tide mark it is not very well known to collectors These molluscs live well in aquaria The development of this animal is carefully described from the first division of the ovum and the thrusting forth of the polar bodies to the adult stage The illustrations are numerous and they enable the text to be easily followed. The second article is by W G Ridewood, D Sc., F L S, lecturer on biology at the medical school of St Mary's Hospital, London on the Structure of the Hairs of Mylodon Listai and other South African Edentata The hairs of the great ground sloth have no definite medulla, agreeing in this respect with cholæpus They are destitute of the extra-cortical layer which characterises the hairs of bradypus and have not the fluted surface of the hairs of cholæpus A plate contains figures showing the structure of the hairs The third article is by Edwin S Goodrich, M A, Fellow of Merton College, Oxford, and is on the Structure and Affinities of Saccocirrus, with three plates Saccocirrus is a polychæte worm The fourth article is by George H F Nuttall, M A, M D, University lecturer in bacteriology and preventive medicine, Cambridge, on the question of Priority with regard to Certain Discoveries upon the Ætiology of Malarial Diseases The fifth article is by H M Bernard, M A Cantab, on the Rods and Cones in the Frog and in some other Amphibia, with a plate showing the structure of their parts The last article is by Sydney J Hickson, F R S, Beyer professor of biology in the Owens College, Manchester, and is on Staining with Brazilin

Analytical Records

FROM

THE LANCET LABORATORY.

(1) ELIXIR BROMYL, AND (2) MERCURAMINE

(SQUIRE AND SONS, 413 OXFORD-STREET, LONDON W)

ELIXIR BROMYL is a red syrupy fluid with aromatic taste containing bromine in organic combination The bromine is readily set free on adding nitric acid to the preparation Each fluid drachm contains 10 grains of the organic bromide hexamethylenetetramine-bromethylate, which is obtained by adding ethyl bromide to an alcoholic solution of hexamethylenetetramine, this base being the product of formol acting upon ammonia The dose of the salt is exactly the same as that of the metallic bromides It is being used as a sedative and in epilepsy It is said that this organic compound of bromine possesses all the therapeutic properties of the metallic bromides while secondary effects are not induced, nor does bromism ' result from its administration Mercuramine is a solution of an interesting organic compound of mercury and presents the same germicidal power as a 1 in 50 solution of mercuric chloride It does not, however, coagulate albumin and has thus a decidedly increased penetrative action It is particularly suitable for disinfecting the hands as it does not produce the irritating effect on the skin of corrosive sublimate It is a clear, colourless fluid with an alkaline reaction Hydrochloric acid gave a white crystalline precipitate soluble on heating Potassium iodide gave a yellow precipitate which on heating turned into a light yellow oil The salt is described as the ethylenediamine citrate of mercury Both preparations serve to exemplify the advantages of combining well known drugs like bromine and mercury with an organic rather than an inorganic molecule Organic iodine and silver compounds, again, are further examples of the value of a similar association

DIAZYME ESSENCE

(FAIRCHILD BROTHERS AND FOSTER NEW YORK AND LONDON)

According to our experiments diazyme is a dilute alcoholic solution of the starch converting enzyme combined with aromatics It is quite pleasant to take and has a powerful digestive action It is a clear limpid fluid of a light sherry colour In spite of the presence of alcohol the enzyme present proved to have a rapid digestive action upon starch jelly The preparation is both a digestive and stimulant

NUTRINE BREAD

(NICHOLAS HUTTER AND SON 74, GOLDHAWK ROAD, SHEPHERD'S BUSH, LONDON, W)

This was a brown loaf free from irritating particles. It was of satisfactory uniform texture with good nutty flavour The bread keeps well and moist for a considerable time A mixture of wheats is selected, the choice being calculated to make the bread highly nutritious and digestible Our analysis gave the following results moisture, 47 80 per cent, total proteids, 6 30 per cent, starch, &c, 44 56 per cent, and mineral matter, 1·34 per cent. Not the least important feature in this analysis is the excellent proportion of the normal mineral salts of cereals Bread is too often lacking in regard to these mineral ingredients in which the phosphates predominate. It is important that there should be mineral as well as purely organic food in bread.

TABLOIDS OF ERGOTIN AND STRYCHNINE.

(BURROUGHS, WELLCOME, AND CO., SNOW-HILL-BUILDINGS, LONDON, E.C.)

This combination in the tabloid form is of obvious value, especially having regard to the fact that the drugs selected are of exceptional purity. Each tabloid contains three grains of extract of ergot (ergotin), B.P., associated with one-thirtieth of a grain of sulphate of strychnine.

PIMELUM OINTMENT BASIS.

(BRADY AND MARTIN, NORTHUMBERLAND-ROAD, NEWCASTLE-ON-TYNE.)

Pimelum is a new and excellent basis for ointments. It is of satisfactory consistence, is spread readily, and is an undoubted aid to absorption and penetration. According to our examination it is free from fatty acids and it therefore cannot become rancid. We failed to saponify the basis, so that we may conclude that it is a so-called mineral fat. A great number of ointments of the B.P. strength are made with pimelum base. To mention a few there are pimelum with boric acid, with resorcin and sulphur, with ichthyol, and lastly pimelum with Lassar's paste (for eczema)—a mixture of zinc oxide starch and salicylic acid. The last is known as pimelum amyli compositas and is prepared in two colours, white or pink. Pimelum is an excellent excipient which will keep indefinitely, physically and chemically, under all variations of climate. By itself pimelum is a soothing and emollient unguent.

ALBARGIN.

(MEISTER LUCIUS AND BRUNING, LIMITED, 51, ST. MARY AXE, LONDON, E C.)

Proteid silver compounds have been largely employed of late with advantage in diseases of the urethral canal in place of the ordinary silver salts It is claimed that albargin, the newest member of the proteid silver series, is a distinct improvement on previous silver albumin compounds. Albargin is a compound of silver nitrate with gelatose containing 15 per cent of the metal. It is stated to be free from the irritating tendency of other preparations, though it contains, as will be seen, a much larger proportion of silver than other organic compounds, and accordingly less concentrated and more easily flowing solutions may be employed. Flowing readily, it easily penetrates all parts of the urethral tract. It is easily diffusible According to our examination albargin is a light brown sparkling powder, very soluble in water, giving a neutral solution ; the proteid and the silver could be readily separated. The proteid molecule in albargin is said to be less complex than is the case in other silver albumin preparations. Gelatose, which is combined with the silver in this interesting preparation, is a product of dissociation of gelatin.

ROYAL V.O.V. SCOTCH WHISKY.

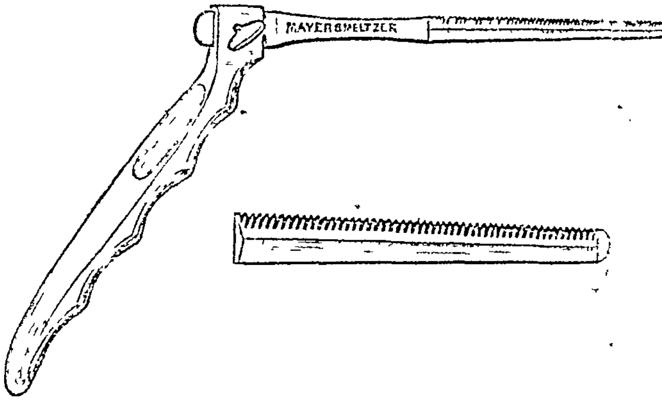
(MACFARLANE AND CO., LADY-LANE, PAISLEY.)

The results of analysis of this spirit were as follows: extractives, 0·20 per cent ; mineral matter. *nil;* acidity reckoned as acetic acid, 0·03 per cent. ; absolute alcohol by weight 39·80 per cent , by volume 47·13 per cent , equal to proof spirit 82·59 per cent. We could find no trace of crude products in the whisky and the test for aldehyde, which includes, of course, furfural, was attended with negative results. All this is in favour of the statement that the whisky is 10 years old It possesses practically no acidity, and having regard to its age the low amount of extractives is remarkable. It is a very pure spirit, somewhat marked in colour, with a good though mild malt flavour.

New Inventions.

A NEW NASAL SAW.

THOSE who have occasion to remove septal irregularities with a saw must be frequently annoyed by the slipping, jamming, or bending of the instrument. To obviate this nasal saws in general use have been made of thicker steel, but in so doing the cutting qualities of the instrument have been markedly impaired. To overcome these difficulties I have had a saw made for me the handle of which fits well to the palm of the hand, and owing to the fact that the handle forms with the blade almost a right angle an uninterrupted view of the operation is permitted. The blades are made with a bevelled edge, so that no matter what the thickness of the blade may be the cutting edge is quite sharp. Two blades are supplied which fit into the same handle. They are applied with the plane surface next the septum ; the one used to cut downward on the right side may by being reversed be used to cut up on the left, and *vice versâ.* The instrument has been thoroughly tried by the staff of the Central London Throat and Ear Hospital and has given every satisfaction Messrs. Meyer and Meltzer of Great Portland-street, W., are the makers.



PERRY G. GOLDSMITH, M.D., C.M. Toronto,
Registrar, Central London Throat and Ear Hospital

DURHAM UNIVERSITY MEDICAL GRADUATES' ASSOCIATION.

THE annual meeting of this association was held at the rooms of the Medical Society of London on June 27th, when the following officers were appointed for the year 1901–1902 :—President : Dr. Frederick S. Palmer. Vice-Presidents : Dr W. D. Arnison and Dr. Frederick Spicer. Members of the Council : Dr. Mitchell Bird, Dr. Charles Blair, Dr. Percy Jakins, Dr. T. Beattie, Dr. R. A. Bolam, Dr. E. W. Diver, Dr. J. W. Hembrough, Dr. Charles W. Chapman, Dr. W. G Richardson, Dr. John Eyre, Dr. J. T. James, and Dr. A. Cox. Honorary treasurer : Dr. Selby W. Plummer. Honorary secretaries : Dr. H. Brunton Angus and Dr. T. Outterson Wood.

In the evening the members and guests to the number of 77 dined together at the Café Royal, Dr. Frederick S. Palmer, the President of the association, being in the chair. After the usual patriotic toasts had been proposed by the President he gave the toast of "The University of Durham," and Dr. Selby Plummer, a member of the Senate of the University, replied. Sir James Crichton Browne proposed in eloquent terms "Success to the University of Durham Medical Graduates' Association," recalling his connexion with the medical college where he was formerly lecturer on mental diseases, and Dr. H. Brunton Angus, the northern secretary, replied, congratulating the association upon its success, the number of members now reaching close upon 400. "The Health of the President" was proposed by Mr. Christopher Heath, "The Health of the Visitors" by Dr. Frederick Spicer, Sir R Douglas Powell, Bart., K.C.V.O., replying, and the President proposed "The Health of the Honorary Secretary for the South" (Dr. T. Outterson Wood) Excellent music was given under the direction of Mr. Arthur E. Godfrey, and a most enjoyable and successful evening was spent.

THE LANCET.

LONDON SATURDAY, JULY 6, 1901

The Army Medical Service.

IN our issue of last week we observed in reference to the anticipated inquiry into the subject of the reorganisation of the Army Medical Service that the sooner this inquiry was undertaken the better for all concerned and that the promulgation of the names of those who were to constitute the committee was anxiously anticipated. By one of those *coincidences which not uncommonly happen in the ordinary* course of affairs the Secretary of State for War was at about the time that we went to press announcing from his place in Parliament the composition of the committee in question

We can do little more now than give the impressions conveyed to our minds by a perusal of Mr BRODRICK'S statement and, pending further information, make such few comments as occur to us at the moment Mr BRODRICK said that he had received a number of suggestions and representations from various quarters and that a committee of experts had been appointed to consider a scheme which he (Mr BRODRICK) had drawn up for the future organisation of the Army Medical Service From this it would appear that it is not intended to frame any scheme upon the lines of the suggestions and recommendations of the committee after it has duly investigated and considered the subject, but that a scheme of proposals will be at once submitted for their consideration and report It may be that this plan of procedure has been adopted on business principles and with the practical end in view of giving a definite aim to the committee's proceedings We have no particular fault to find with Mr BRODRICK'S deprecation of hurry in the performance of the task assigned to the committee, on the contrary, we quite agree with him that where the object is to put the Army Medical Service on a permanently good footing the more thoroughly and carefully the matter is considered the better

The committee will consist of the following members —Mr *HOWARD H* TOOTH, *C M G M D* Cantab, F R C P Lond, St Bartholomew's Hospital, Mr GEORGE H MAKINS C B F R C S Eng, St Thomas's Hospital, Mr ALFRED D FRIPP C B, F R C S Eng, Guy's Hospital, Sir F TREVES K C V O C B, F R C S Eng, London Hospital, Mr ALEXANDER OGSTON, M D Aberd, Scotland, Lieutenant Colonel A. H KEOGH R.A M C, C B, M D R U I, Ireland, Mr E C PERRY, M D Cantab, F R C P Lond, Senate of London University Surgeon General W R HOOPER I M S, C S I President of the Medical Board, India Office, and two officers who will be named by the Commander in Chief to represent the Army The secretary will be Major H E R. JAMES, R A M C, F R C S Eng Mr BRODRICK in announcing the names of the members of the committee added that he proposed to take the chair himself If this is to be regarded as an indication of the importance which the Government attach to the inquiry and, as we hope and believe as an earnest of the desire on Mr BRODRICK'S part to carry out the inquiry to a successful conclusion the medical service and the profession generally are to be congratulated We have no desire to approach or *to deal with the matter in any spirit of fault finding* or carping criticism but we feel bound to remark that the constitution of the committee is unsatisfactory in one very important respect The name of an army medical officer of high administrative rank and experience, with a knowledge of military organisation and the requirements of field medical service is conspicuous by its absence We think that this omission is much to be regretted and that it should be remedied It is accentuated rather than otherwise by the fact that two purely military officers it is presumed and not military medical officers *are to be named by the Commander in Chief to represent the* army on the committee We sincerely trust that the committee will be empowered to call any witnesses whom they may desire to examine

There can be no doubt that the names of the civil medical members of the committee are those of men of high scientific attainments and standing in their profession who are well acquainted with the requirements of the medical and surgical sides of civil hospital work. We may assume that the great and pressing object which the Government has in view at the present time is to ascertain what inducements are needed to make the army an attractive career to medical men and to supply the ranks of a medical service which is fast emptying itself with a class of men of a high average standard of medical qualifications together with a good sprinkling of men possessing the best professional attainments The names of the members of the profession in civil life appointed to serve on the committee are a sufficient guarantee that the requisite information on these points will be forthcoming

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Dr. Metchnikoff on the Flora of the Human Body.

WE are now paying the penalty for the advantage which our ancestors enjoyed in the possession of long intestines inhabited by a rich microbic flora This, stated briefly, was the text of Dr ÉLIE METCHNIKOFF'S Wilde Lecture which was delivered before the Manchester Literary and Philosophical Society and which has recently been published in its memoirs and proceedings It is the more interesting that *doubts* should now be thrown on the utility of the bacterial flora of the present human intestine, because it is only recently that other workers in the same field of science have adduced fragments of evidence which suggest that in many unsuspected instances these humble organisms fulfil a distinctly useful role in this and other departments of the animal economy For instance, our long cherished belief that the bacterial flora of the buccal cavity is only operative for harm receives a rude shock in the recent pronouncement that the presence of micro organisms is essential to evoke in the salivary secretions that ptyalising function which heretofore they were supposed to possess in their own right Isolated instances of this kind—and there are many of them—do not in any way militate against the lecturer's fundamental contention that as far as man is concerned *in his present stage of evolution* not only are the bacterial inhabitants of the intestine a distinct disadvantage to him, but, further, that the large intestine itself, the cæcum, and the vermiform appendix are morphological anachronisms, and directly responsible for certain pathological consequences which curtail life and may compass its end.

During the earlier and simpler stages of our ancestral history the possession of a voluminous intestine was no doubt necessitated by the nature of the food and was the expression of a responsive adaptation to the requirements of the environment. For the same reason saprophytic parasites were welcomed in the organism for the disintegration of cellulose. The advance of civilisation and the evolution of intellect and brain have entirely altered the conditions. For instance, the culinary art and the principles of modern gastronomics have modified the use of teeth for the attrition of food, and, further, the stomach and large portions of the intestine can be removed by the surgeon without apparent detriment to the physiological processes of digestion and absorption. Taking these facts into consideration, perhaps Dr. METCHNIKOFF is justified in hazarding the suggestion that the large intestine, the cæcum, and the appendix are in process of slow involution. Although, unfortunately, we possess no morphological evidence in proof of this contention, there is no reason to suppose that the developmental behaviour of these structures should disobey the fundamental biological law that functionless organs tend to disappear. Comparative pathology teaches us that organs in process of involution are specially vulnerable to disease and readily become the seat of parasitic invasion, and it is suggestive, to say the least, that cancer of the rectum and appendicitis are to all appearances greatly on the increase. The slow operation of natural causes to bring about the atrophy of useless organs in civilised man can hardly be accelerated by surgical interference or medical skill. The removal of the prepuce among Semitic people for hundreds of generations has not by one millimetre shortened the length of this apparently useless appendage. Nay, rather by interfering with the operation of natural selection and the elimination of those in whom the prepuce has tended to assume proportions actually dangerous to health, the practice of circumcision must have operated in the reverse direction.

Dr. METCHNIKOFF is of the opinion that medicine will ultimately cope more successfully with noxious microbes and their effects, and that the progress of surgery will enable us to remove by operation parts or organs propitious to the growth of a microbic flora. The consummation of this desirable end will be of the greatest advantage to the individual, but for the reasons previously stated it will tend to perpetuate in the race undesirable characteristics and functionless organs. The incubation of micro-organisms within the large intestine inevitably leads to the absorption into the system of considerable quantities of toxic substances, fatty acids, aromatic bodies, and other products of putrefaction. These, according to Dr. METCHNIKOFF, are the exciting causes, direct and indirect, of fibrosis, the so-called functional neuroses, and early decay. The toxic character of the urine in such cases is due to the elimination by the kidneys of the noxious bodies generated in other areas of the body, such as the bowel and skin; but the pathological consequences of parasitic invasion are not confined to the absorption of poisons, for it occasionally happens that the micro-organisms actually make their way into the living tissues and disintegrate the still vital material of which they are composed. As the tissues become gradually devitalised by the toxic action of absorbed poison the task of the bacterial flora becomes progressively easier—indeed, as HUEPPE has strenuously contended, this gradual training of purely saprophytic function may be a stage in the evolution of advanced parasitism. It is impossible to read the Wilde Lecture for 1901 without being struck by many of the suggestive theories which Dr. METCHNIKOFF put before his audience at Manchester, but we take it that the time is not yet ripe for the acceptance by the majority of medical men of many of his advanced biological tenets.

An Examination of the Abbé Diffraction Theory of the Microscope.

A VERY interesting paper on the above subject was read by Mr. J. W. GORDON at a meeting of the Royal Microscopical Society on June 19th. The Abbé theory has been so widely accepted and the experimental inquiries which have been made to test it have been in such complete harmony with it that most microscopists have thought that its truth scarcely admits of a doubt. But the accepted theories of to-day become the fallacies of to-morrow as knowledge accumulates and fresh light is thrown upon a subject. Mr. GORDON showed in his paper, not only that there are many facts which are inconsistent with the Abbé theory, but that the main facts which were supposed to demonstrate the theory may be explained in an entirely different manner. The Abbé theory, briefly stated, is that there is a wide difference between macroscopic and microscopic vision. In vision with the naked eye or with a lens free from spherical or chromatic aberration we obtain geometrically correct pictures produced in accordance with the laws of refraction. These dioptric images truly represent the appearance which the objects themselves would present were they enlarged to the same scale and viewed under similar illumination. We are therefore justified in drawing the same conclusions with regard to the structure of the objects which they picture as we should draw from the direct vision of actual objects having the same dimensions. This is not the case in the microscopic vision of minute objects and ABBÉ assumed that the images of minute objects are not delineated microscopically by means of the ordinary laws of refraction; they are not dioptrical results, but depend entirely on the laws of diffraction. HELMHOLTZ and ABBÉ concluded that no amount of magnifying power can separate dioptrically two lines, markings, or apertures of any kind, not more than $\frac{1}{2500}$th of an inch apart. ABBÉ assumed that the visual separation of more closely approximated lines or other markings is entirely the result of diffraction, the objective receiving and transmitting not only the ordinary dioptric rays but the inflected rays the course of which has been altered on their way through the object by some peculiarity in the disposition of its particles. These rays when acted upon by the objective produce diffraction spectra. If the markings are so closely approximated as to produce a wide dispersion of the interference spectra only a part of them may fall within the range of the objective and the re-combination of these may produce a diffraction image differing more or less completely from the real structure. Mr. GORDON first dealt with the theory on theoretical grounds and summarised his results as follows: "The calculation upon which the theory rests is itself based upon two fundamental errors—one as to the position of the real diffraction images in the principal focal plane of the microscope, the other as to the phase relation between the direct and the diffracted rays. The theory itself, when extended to determine the number of bright lines seen in the real image of a diffraction grating, their position in the picture, and their individual appearance, breaks down entirely and yields only conclusions which are wholly at variance with the facts."

He next dealt with the phenomena which most writers have regarded as sufficient proof of the accuracy of ABBÉ'S conclusions. For the purpose of demonstrating the Abbé theory a grating ruled alternately with long and short lines is employed, the lines being traced with a diamond point on a film of silver of extreme tenuity deposited on a thin glass cover. It is easy to demonstrate that these lines form diffraction spectra, but the experiments of ABBÉ are employed to show the change *which may take place in the appearance of an object* by shutting off a certain number of the diffraction spectra. This is accomplished by using diaphragms with one or more slits placed immediately behind the objective, so that certain diffraction spectra are allowed to pass and others are excluded. Mr. GORDON contended that the pattern of the image formed in the microscope of the diffraction plate does not in any way depend upon the particular diffraction spectra which contribute rays to its formation and that the features of this image are affected by diffraction arising in the diaphragms themselves. In support of this view he showed that the Abbé phenomena may be exhibited by objects which are incapable of producing any diffraction spectra at all. For this purpose a self-luminous object was employed. This was obtained with a ruled glass plate with a number of lines traced at a distance of $\frac{1}{100}$th of an inch apart in a film of soot. The lines had the same proportional diameter, one to seven, relatively to their dark interspaces that the lines of the coarser ruling in the Abbé diffraction plate have to their intervening spaces. This glass plate is arranged at a suitable distance behind the substage condenser and its image is focussed upon the stage of the microscope side by side with the ruling on the Abbé diffraction plate. By a little management the aerial image of the carbon film may be made to assume the exact dimensions of the Abbé ruling, so that there are two objects in the field visibly alike but differing in the important particular that the one can and the other cannot be made to yield diffraction spectra. Mr. GORDON showed that all the various experiments which can be made with the Abbé film can be repeated with the two objects simultaneously and that in all cases it will be found that there is no difference between the behaviour of the one and that of the other. When the one is blurred the other is blurred; when the ruling appears doubled in the one it appears doubled in the other; when it appears trebled in the one it appears trebled in the other. Whatever results the diffraction plate can be made to yield this ghostly grating with no diffracted rays to be manipulated contrives to yield also There were very many theoretical considerations which Mr. GORDON has not confirmed by experiment, but it is evident that the subject is one on which a great deal of useful work may be done, especially with the view of improving the resolving power of objectives.

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"By Accident."

THE interpretation of the Workmen's Compensation Acts concerns His Majesty's judges rather than ourselves, but medical practitioners have already obviously so much responsibility imposed upon them in connexion with these Acts that we watch jealously any decisions likely to increase that responsibility. The case of PERRY v. BAKER, heard before His Honour Judge STONOR recently, illustrated the effect of sundry decisions of the Court of Appeal to which we need not refer in detail. The man PERRY injured himself in lifting a heavy oak seat that he was making for his employers in order to examine it underneath. The medical evidence for the applicant on this point was, according to the judge's note, that the exertion of lifting the bench strained or otherwise injured the applicant in the muscles of the back and probably otherwise, that he had also received considerable shock, and that his recovery was extremely doubtful. A question was raised as to the state of his health which does not seem to have affected the result. Judge STONOR intimated that to his unaided intelligence, which by the way is that of a judge of over 35 years' standing, this would have seemed an accident which would entitle the applicant to recover compensation. According, however, to decided cases there must be the presence of a fortuitous element to turn a normal condition of affairs into a catastrophe and to cause the injury to constitute an accident, and by the light of the same cases the injury which the man PERRY did to himself was not the result of anything fortuitous or unexpected. In illustration of this we may mention that a man, who had strained himself by over-exertion much as PERRY did, was once held entitled to recover because the planks which he was lifting were frozen together, so that the exertion required was greater than it would otherwise have been, and this, it was thought, imported an unexpected and fortuitous element into his case. We have not space to follow the Lords Justices in the splitting of hairs necessary for the interpretation of one of the worst drafted Acts of Parliament on the statute-book or to criticise the learned county-court judge whom we assume to have decided correctly according to precedent. It seems to us, however, that when the employer was made liable for "injury by accident arising out of, and in the course of, the workman's employment," an apparent limitation was introduced which would have been absent had the words "by accident" been omitted, and to which the interpretations referred to have given an effect that was perhaps not originally intended. The words, for example, may have been merely intended to exclude such "injury" as lead poisoning or illness contracted owing to insanitary conditions. As matters now stand, however, they eliminate injury in the ordinary sense of the term if it occurs in certain ways, and the precise way in which the injury has been received thus becomes frequently the point upon which the case of each party hinges, while the medical witness, who has quite enough responsibility already in forming and enunciating his opinion as to the extent and the probable duration of the injury, is at once liable to be drawn into opinions and discussions as to whether there was an "accident" and how the "accident" took place—a matter on which he can only speculate, though perhaps from a slightly better point of view than other witnesses. He speculates, moreover, knowing that on his opinion may depend the livelihood of a poor man who in any case will be a cripple for life. Can it be wondered at that in such instances "expert evidence" becomes more uncertain and contradictory than it should be, and that it also often becomes the subject of unfavourable remark and undeserved generalities? We have not commented on the case before us from the point of view of justice or common sense. Had we done so we should have pointed out that the Act and decisions taken together seem to put a premium on negligence and to leave zeal and hard work at a discount. The workman who is injured through his own carelessness not amounting to serious and wilful misconduct, or through the carelessness of some fellow-workman whose conduct he regards with natural indifference, is to be compensated. The man who works too hard may injure himself without chance of compensation. At present the best advice that can be given to the working man is that he should not attempt too much, especially in the way of weight-lifting and other violent exertion. It is quite easy for a man to injure himself by doing that which he has already done frequently with apparent impunity, but such injury is not caused by an accident within the meaning of the Act.

Annotations.

"Ne quid nimis."

THE LONDON SCHOOL BOARD AND MEDICAL CERTIFICATES.

That remarkable body, the London School Board, has again been showing its want of common sense. Some little time ago a summons was taken out at the South-Western Police-court against William Stannet by one of its officials for neglecting to send his child to school. The mother of the child produced a certificate from Dr. J. Myles stating that the child was unable to attend school on account of her suffering from valvular disease of the heart. The complainant, in the usual manner of school board officials, objected to this certificate and the magistrate granted an adjournment to allow of the child being examined by Mr. F. C. Kempster on behalf of the board. The certificate given by Mr. Kempster practically agreed with that of Dr. Myles, but also it is reported as having contained the assertion that "the child would be just as well in school as nursing a baby at home." On June 29th Mr. Garrett adjudicated on the case, and the official suggested that the child should be made to attend school under a magistrate's order. Dr. Myles said that he had known the child for 12 months; she had been very seriously ill but was now better. If the mother took his advice she would refuse to send the child to school until after the summer holidays. Mr. Garrett thereupon refused to make an order and administered a rebuke to one of the school board visitors for making an observation about the medical man who had given evidence. The London School Board never seems to learn wisdom. Why could it not be satisfied with Dr. Myles's certificate? This was not a case in which the child was simply stated on medical authority to be unfit to attend school. An explicit diagnosis was given, a diagnosis of one of the most serious diseases to which humanity is liable. Mr. Kempster's diagnosis coincided, and with all due deference to him we take leave to doubt that nursing a baby is as deleterious in a case of heart disease as going to school, unless, indeed, the child walked about the room carrying the baby. But the case is very characteristic of the policy of the School Board as regards medical men. If a medical man is on the side of the board he is worthy of every credit; if not he is never believed. The board had best stick to its last fad of teaching children the violin, which, if extravagant, is not likely to result in death.

A FINE PERFORMANCE.

The endurance and self-sacrifice of medical officers and of stretcher-bearers in South Africa have been the object of much well-deserved praise, and naturally the opportunity for the display of such qualities in the same way does not frequently arise in ordinary civil life. When such an opportunity does arise, however, it is a fine thing that the call should be willingly and promptly answered. Such was conspicuously the case on a recent occasion in Gloucestershire which is narrated to the *Standard* by a correspondent who adds that "we hear of so many brave acts during war that it is well to see that brave and kind ones occur also in peace." All praise is due to the members of the Sharpness ambulance corps, who at a moment's notice went some miles to the help of a man whom a medical practitioner had pronounced to be in need of surgical aid not practicable where he was. They bore the patient, a heavy man, a mile to a steam tug, took him 16 miles on a canal, and then bore him one and a half miles to his destination—a nursing home. They then had an 18-mile journey which landed them home at 3 A.M., and they refused any remuneration for their time and trouble. Such exertions would be admirable even if made in the course of duty, but when the only duty responded to is the general one lying on all men to succour the sick, voluntary efforts of this degree are worthy of the sincerest admiration.

THE HOUSING OF THE POOR AT BATH.

The medical officer of health of the Bath Urban Sanitary Authority has just issued a report on the housing of the working classes in that district. Dr. W. H. Symons therein points out the fallacy of judging overcrowding by general statistics. Thus, the density of population for the 33 largest towns is equal to 33·8 persons per acre, while for the 67 other large towns, including Bath, the average in 1900 was 13·8 per acre. In London the density of population is 59 to the acre, but at Whitechapel it amounts to 208, while at Lewisham it is only 10 per acre. So also at Bath the census of 1901 gives the population as 14·8 per acre, but while it amounts to only 7·4 persons in the parish of Bathwick, it exceeds 77 persons per acre in the central parishes. The real point is to ascertain whether there is at least 300 cubic feet per person in bedrooms and 400 cubic feet in rooms where work is done during the day. Even this is a very low average and every effort should be made to raise it to 500 cubic feet per person. Dr. Symons very appropriately remarks that when the water-supply is accidentally polluted the results are soon apparent. The ratepayers and bread-winners are stricken down and steps are at once taken to stop the pollution. Then he adds: "The effects of polluted air—air contaminated with sewage or waste products from the lungs—are more insidious, less easily noticed but not less fatal." Of those who die between the ages of 15 and 35 years probably more than half would have lived to be much older if they had been able to obtain a sufficient supply of fresh air. In this respect, however, the town of Bath should be exceptionally fortunate. Unlike the great industrial centres, social and economic causes have combined to relieve the pressure on space. Thus in 1851 there were 11,647 persons living in 1349 houses in the centre of the city. Now on precisely the same ground there are only 7577 persons living in 1342 houses. Practically the houses are the same, but their inhabitants have decreased in the proportion of 35 per cent. and there are only a few cases of overcrowding. For the remainder of the city, comprising 1935 houses there has been a decrease in the last 50 years of 346 inhabitants, and taking the city as a whole the population has fallen from 4423 to 4077. On the other hand, the population of the suburban parishes, where there is plenty of room and not the same risk of overcrowding, has increased from 7557 to 20,074. In spite, however, of these most favourable circumstances, according to the Registrar-General's return for 1891 there were 4·11 per cent. of the population of Bath living in overcrowded tenements. It is true that the average of overcrowding for England in town and country was then set down at 11·23 per cent. One of the difficulties at Bath is that much of the lowest class property belongs to landlords who themselves are so very poor that they cannot afford to make the necessary repairs. Also there are certain districts subject to floods. Some improvements have been effected. Model dwellings have been constructed and these were described in our special report on the Sanitary Condition of Bath, which was published in THE LANCET of Oct. 14th, 1899, p. 1061. At the same time we there gave an account of some of the sanitary defects still subsisting. Since then a loan was approved by the Local Government Board (in December, 1899) for £10,500. With this money the level of some of the ground subject to floods has been raised and 16 model tenements have been built thereon. Another scheme by which 189 persons are affected has been sanctioned, but though some of the insanitary houses have been demolished no new structures have as yet been erected. The great difficulty in Bath, as elsewhere, is to re-house the class of tenants who overcrowd insanitary areas. At Bath there are several hundred families who cannot afford to pay more than 2*s.* 6*d.* a week rent, and therefore the model dwellings which are built in the place of the ancient rookeries attract a higher class of tenants. Thus the last census showed that there were at Bath 170 three-roomed tenements each containing six inhabitants, 70 tenements had each seven inhabitants, 53 had eight inhabitants, 23 had nine inhabitants; eight had 10 inhabitants, and two had 11 inhabitants. Then there were 3000 persons living as families of three or more persons in tenements of only one or two rooms. The Local Government Board will not sanction one-room tenements. Dr. Symons himself thinks that three rooms are the least that can be allowed for decent family life; yet it does not seem possible to provide three rooms for 2*s.* 6*d.* per week. Here there is evidently a deadlock and the report before us does not suggest a solution.

A NEW "SPORT"

WE know not how the term "sport" as distinguished from cruelty is to be defined unless it is by reference to that sense of common justice which demands a fair chance for the hunted animal and protects the inoffensive and defenceless. It is in accordance with this feeling that the bull-ring has died out with our ancestors. But the heads of Hydra are not soon disposed of. Petty forms of cruelty arise wherever there exists a morbid spirit of destructiveness unchecked by any love of nature or regard for the lower creation. According to a contemporary a club has been formed in the New Forest and probably others elsewhere, for the purpose of squirrel-shooting. Everyone who delights in the beauty of woodland life and scenery must greatly regret the introduction of a so-called sport which is at once as cruel as it is useless and wanton. The comparative tameness of the squirrel renders it in many cases an easy prey. Its body is of little value to anyone. Its disappearance would remove one of the most beautiful attractions of rural nature. We join with our contemporary in expressing the strongest disapproval of these shooting clubs, and we would call upon local authorities throughout the country to prohibit their formation. If steps are not soon taken to enforce the various Acts available for the protection of wild life, and further to extend that protection, we shall find that many birds and beasts once common in this country will have to be catalogued as "rare" and some probably as "extinct."

AN EXTRAORDINARY CASE OF THE LOSS OF SENSE OF PERSONAL IDENTITY.

ON Wednesday, June 5th, a young lady who had suddenly lost her memory and sense of identity while cycling at Tunbridge Wells a few days before was discovered and restored to her parents at New Cross. Her mind was now a perfect blank and she did not recollect anything, not even her name. In a paper read before the Section of Nervous and Mental Diseases on June 6th, at the annual meeting of the American Medical Association, Dr. Edward E. Mayer of Pittsburg reports the following case illustrative of a similar disorder of mind. A young man born in Pennsylvania in 1860 was riding in a railway train in 1884, when it was wrecked. He felt himself hurled through the air and then lost consciousness and remembered nothing. On regaining consciousness it turned out that he had lost all recollection or knowledge of anything that occurred for a period of five years before the accident, and no one could be found who was able to give any information about him. Twelve years ago, in 1889, he first arrived at Pittsburg and met his present wife, and two years later married her. He was never able to give her any information regarding his previous life, although he had not forgotten his name. In 1892, shortly before the birth of his eldest child, he wandered away one Sunday afternoon and did not return until Monday evening and could not then give any account of his absence. As he was a total abstainer this conduct was regarded as peculiar. About a year later, in 1893, he disappeared for several days, and during his absence he sent a postal card to his wife, telling her that the memory of his mother had suddenly returned to him and that he had gone to pay her a visit. He returned home a day or two later. The man's occupation before he met with the railway accident was that of a carpenter, but after his marriage he was employed at different times as a farmer, sawyer, and painter. About this time he complained of symptoms which led his medical adviser to suspect abscess of the liver. One day in February, 1901, while suffering intensely from abdominal pain, he fell down on the floor and lay unconscious for several hours. When he regained consciousness the memory of the last 17 years of his life (1884–1901) was apparently entirely obliterated. The only consciousness preserved was that of his life previously to the railway accident. He insisted that he was 24 years old (whereas he was 41) and that he had neither wife nor children. The surroundings among which he had lived for the past 12 years were apparently strange to him, and it required much persuasion to induce him to believe the story of the true state of affairs. The symptoms of hepatic abscess now also disappeared. He tried to resume his long-forgotten work as a carpenter, but his hand had lost its cunning and he was obliged to begin as an apprentice. On March 8th last he disappeared for 12 hours and upon his return home he stated that he had walked about 30 miles in the country—his condition presumably being one of sub-conscious automatism, probably of epileptic origin. The following day he went out to buy some groceries but did not return home and no word or trace of him had been received since by his wife. This case, apart from its psychological interest, has many features of resemblance to a case of epilepsy recorded in these columns[1] and possesses considerable medico-legal importance in regard to the responsibility for deeds committed during the condition of mental automatism peculiar to such cases.

TEA INTOXICATION WITH SPINAL SYMPTOMS.

A paper dealing with an obscure and little known group of spinal symptoms arising from the abuse of tea was read by Dr. Alfred Gordon at the June meeting of the Philadelphia Neurological Society. He presented a patient, a woman, aged 31 years, who seven years previously had had an operation performed for some condition of the uterus. Since then she had contracted the habit of drinking tea to excess, sometimes 15 cups a day. Three months previously her present illness began with symptoms of fatigue and unsteadiness in walking. The knee-jerks were increased, sensation was altered, and hyperæsthesia was present in the lower extremities. The pupils were unequal and there was nystagmus. Romberg's symptom was present. Recently she had suffered from "spells of unconsciousness" lasting for a few moments. There was a feeling of weariness in the legs and the clinical picture was that of hysteria and of lateral sclerosis. Cases of this kind, says Dr. Gordon, are rare, and the possibility of contamination of the tea with lead in minute quantities should be borne in mind. In the discussion following the above communication Dr. D. J. McCarthy said that he had seen a case where the patient was accustomed to take as much as 10 cups of tea a day. In that case the symptoms pointed to sclerosis of the spinal cord.

AN ANTI-VACCINATION BILL.

We observe among the private members' Bills that are before the House of Commons one which purports to amend the Vaccination Acts and which exemplifies the tendency of the would-be legislator to follow up any newly made alteration in the law with a proposal that seeks to "go one better," and that in doing so would threaten serious mischief if the introduction of a Bill by a private member were to imply in any considerable number of cases the production of a new Act of Parliament. As illustrations of our meaning we might cite an attempt of the present year to limit the working day of the miner to eight hours from bank to bank—that is, to reckon his time in the mine on his way to his work as well as his time actually working—and other Bills which have sought to forbid the employer, already made responsible for injuries done to a workman by the negligence of his fellows, from setting up in answer to an action for compensation contributory negligence, or wilful misconduct on the part of the injured workman or "any other defence" (*sic*) to an action for compensation. The Bill to which we now call attention follows up the clause in the recent Vaccination Act which brought into being the conscientious objector by seeking to enact that "no parent or person having the custody of a child shall be compelled or ordered to vaccinate such child by any justice, court, or other, having authority hitherto, to so compel or order." The particular portion of the operative section which we have quoted seems a little obscure in its drafting, but its intention is tolerably clear and its defects may be in part due to the excitement of the reformer when confronted with compulsory vaccination. It is a matter of regret to many that want of time or the facilities afforded by the rules and customs of the House of Commons frequently hinder or arrest useful legislation introduced by private members. On other occasions no one can deny that such rules and customs are capable of use as well as of abuse and that the suppression and silent obliteration of Bills may be quite as beneficial as the discussion of them.

BACTERIOLOGY AND THE FOOD AND DRUGS ACT.

There can be little doubt that those who were responsible for the framing of the Food and Drugs Act never intended or even foresaw that its clauses could apply to bacterial contamination and such contamination, be it remarked, is for a bacteriologist rather than a chemist or analyst to discover. The question opens a very wide field of inquiry and action, but already, as we pointed out in a leading article last week, it has been held that milk contaminated with pathogenic bacteria is prejudicial to the purchaser within the meaning of the Food and Drugs Act. We wonder how many public analysts are qualified to detect pathogenic bacteria in milk or other articles of consumption. We imagine but very few, and therefore this ruling sooner or later is bound to have a disturbing influence on the machinery of the Act. We note that the Institute of Chemistry has already established an examination in biological chemistry with special reference to the chemistry and bacteriology of foods, water, sewage, and effluents, and the practical applications of biological chemistry to industries. Our own view is that the public analyst can hardly be expected to undertake the very intricate work of bacteriological investigation, and such, in our opinion, should be referred at his instance to a bacteriologist. But we recognise the desirability of public analysts being made familiar with this work and its details. In the same way it is important, we think, that the public analyst should have a more intimate knowledge of drugs and therapeutics than he has hitherto been shown to possess, and here again the Institute of Chemistry has designed an examination with the view of certifying that he possesses such a knowledge; of course on no grounds should the possession of such a certificate be regarded as in the smallest sense a medical qualification.

THE ASSOCIATION OF PUBLIC VACCINATORS.

The second annual dinner of the Association of Public Vaccinators was held on June 28th, at the Hotel Great Central, Marylebone-road, N.W., at the close of the annual general meeting. A large number of members, including representatives from Lancashire, Gloucestershire, and the eastern counties, assembled under the presidency of Mr. E. Climson Greenwood, president of the association. After dinner some capital musical entertainment was provided in addition to that which arose from the various speeches. Most of the speakers alluded in glowing terms to the excellence of the glycerinated calf-lymph now supplied by the Government, and Dr. S. Monckton Copeman, responding for the Local Government Board, explained that the dissatisfaction which was caused at first was due to the large initial demand, a demand far larger than had been anticipated, as a result of the new Vaccination Act. Mr. R. Macartney utilised the duty which had been entrusted to him of proposing the toast of "The Association of Public Vaccinators" to state very clearly the defects in the status of public vaccinators under the present Act. Dr. A. E. Cope in responding to this toast was able to give a very satisfactory account of the condition and prospects of the association. The "conscientious objector" was naturally the object of many remarks, and some quaint anecdotes were forthcoming which tended to show that it was quite possible to be an objector without being conscientious Inefficient vaccination and the 'one mark' man also figured prominently in the speeches of members of the association. There can be no doubt of the value of such an association as that of the public vaccinators, and we were surprised to find how small a percentage of public vaccinators have as yet availed themselves of the privilege open to them all of becoming members of the association. To have such an organisation through which to exchange views and to discuss new points arising in connexion with work common to all its members must be of great service and moreover the position of the public vaccinator is not yet so well defined or so suitably arranged that any means may be neglected by which to ensure his obtaining the consideration and facilities that his merits as well as the public welfare most decidedly demand. The secretaries of the association are Mr V A. Jaynes and Dr A E Cope and we strongly recommend public vaccinators who have not yet joined to become members of the association

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[1] The Lancet, July 29th, 1899, p. 290, A Case of Pure Psychical Epilepsy.

PICTURES IN BACTERIA COLOURS

WHEN Mr Opie was asked what he mixed his colours with he replied perhaps not very courteously 'With brains Sir His meaning was of course perfectly clear Brains indeed do elaborate colours but Mr Opie could hardly have foreseen that the human brain would have worked out a method depending upon the production of colour by micro organisms For the most part the permanent pigments of the artist have a mineral composition although of course the study of organic chemistry has made available thousands of pigments derived from coal tar Organic colourings also—and very beautiful colourings they are—may be the product of certain species of bacteria Hence they are called chromogenic bacteria Bacteria are known which when placed in a suitable environment will produce almost all shades of colour In other words they evolve products which absorb part of the components of white light and return the residual component or components which may be a tint having more or less the purity of a primary colour of the spectrum Thus by cultivating various chromogenic organisms each on its proper patch on the canvas a picture with all the colouring that the colourman's art can produce may be obtained Sunset effects might in this way be produced by the micrococcus prodigiosus grown, say on a background of boiled potatoes This organism produces bright red spots and was doubtless responsible for the death by violence of many a victim who in bygone days was charged with having brought about the blood red spots that were occasionally found developed on various articles of food The same organism doubtless led to the occasionally reported miracle of 'the bleeding Host Again doubtless excellent seascapes could be produced by the selection of organisms producing yellow and blue colours respectively, a blend of colour suitable perhaps also for a moonlight scene and the purple-producing bacteria might be enlisted for the presentation of dawn A field of corn might possibly be faithfully coloured by growing the micrococcus aurantiacus on a suitable medium or for the same purpose the sarcinæ might be used which produce rich yellow colours although no sarcinæ producing blue violet or green colouring matters are as yet known A great variety of tints may be noted in certain cheeses and under certain circumstances, in the Stilton cheese in particular the tints of pink, red brown and green being respectively evolved *It is well known that the intense blue of* natural indigo is a product of the active life of bacteria In the province of Bengal alone the value of the output of indigo per annum is or was, something like two million of pounds sterling and it is astonishing to think that such a wealth of produce is gained by the labours of a microscopic organism now recognised as a distinct species and known as the bacillus indigogenus There is no telling what marvellous results the study of chromogenic organisms may lead to and it is not impossible that a picture will some day be produced in which the colours portrayed on the canvas will be the products of bacteria provided with a suitable pabulum

THE GOVERNMENT AND THE WATER-SUPPLY OF LONDON

MR LONG, the President of the Local Government Board was present on Wednesday night at a complimentary dinner given to Mr H S Samuel M.P, by his constituents in the east of London and he took occasion to make a most important pronouncement upon the London water question Mr Long definitely pledged the Government to introduce next session a Bill dealing with the matter and expressed confidence that the measure for which his department would be responsible would solve this difficult problem in an equitable and final manner We sincerely trust that Mr Long is not over sanguine for complete success will be difficult to obtain and failure will have far reaching consequences It is well known that the present Government does not favour the pretensions of the London County Council to be constituted the sole authority over the water supply of *London and Mr Long, while complimenting the great* municipal body upon its energy definitely foreshadowed the fact that the Government scheme would give the London County Council no predominant position Something of the nature of the measure which the Government will place before the country may be gathered from Mr Long's adjuration to the metropolis the suburban fringe and the immediate vicinity affected to consider the advisability of a give and take attitude He asks the residential neighbourhoods which loosely girdle London though in many cases outside the geographical limits of the County of London not to be too insistent upon what they conceive to be their uttermost rights in the matter of their water He would have them remember that proximity to the metropolis brings them incalculable advantages and he begs them to consider these in the nature of a *quid pro quo* His speech as far as it went indicates the intention of the Government to approach this difficult matter in a statesmanlike manner More than this we cannot now say

THE SPEED AND CONTROL OF MOTOR-CARS

THE series of accidents which have occurred in this country and in other countries during the past week is calculated to bring the motor car into disrepute and we counsel all interested in any way in motor-cars to do their utmost to suppress furious driving All motor car drivers should remember *that motor cars cannot be let loose* upon the streets like so many railway trains Present arrangements will not admit of it Until motor cars have a track of their own they must be placed under the strictest possible control in regard to speed and the rule of the road With motor cars coming round sharp corners at high speed pedestrians need almost a new sense The "pip pip is as a rule under these circumstances not a timely warning and people are likely to be run over before even they can realise that a motor-car is turning the corner It would be well enough if it were possible that certain tracks in our busy thoroughfares could be allotted to the motor car but that is not possible and therefore in the interests of the safety of the public this method of travelling must be kept within bounds The temptation to attain a high speed is we fear very strong when a driver knows that he is in possession of potentialities which neither overstrain nor exhaust his "petrol steed." It is difficult to enforce one set of rules for the country road and another set for the high streets of the towns, but, as we have said, such rules are necessary in order to protect the public. It cannot be gainsaid that the motor-car is by many people viewed with terror and alarm inspired through the fault of motor-car drivers themselves. The latter forget that a series of hundreds of explosions in order to gain motion is a new feature on the road as is the speed at which the motor-car is able to travel. We do not doubt that in due time the noise will be got rid of, but that achievement may likely enough prove a new danger. The temptation to increase speed will be more than ever. We could wish for some invention by means of which the speed of a motor-car could be automatically kept within legal bounds. Surely in these days of extraordinary engineering skill it would be possible to devise an arrangement attached to the axle of the motor-car which would check the speed of the car as soon as it rose to a certain and a dangerous point. The attachment of such an arrangement to a motor-car could be made compulsory and anyone found without such a method of control on his car could be fined. We have no wish to interfere with any advance in means of locomotion, but this advance must not be made at the expense of the public safety.

THE EFFECTS OF BURIAL AFTER AN EXPLOSION.

IN the *Deutsche Militärärztliche Zeitschrift* for May, p. 225, Dr. Herhold relates the cases of five men who were engulfed in the ruins of a powder magazine which exploded at Paoting-fou on Nov. 30th, 1900. Four out of the five victims were more or less completely buried in the débris, while the fifth was thrown violently to the ground, losing consciousness for a few minutes and subsequently exhibiting delirious symptoms during several days, with total amnesia regarding the events which immediately preceded the explosion. The body of one of the buried men was not recovered for between 50 and 60 minutes. The man had then been dead for some time, but one of his companions in misfortune declared that he felt him stirring beneath him for 10 or 15 minutes after they were engulfed. At the necropsy the lungs were found to be intensely congested with sanguineous effusion into the pleural cavities, and there were also blood-clots in the right side of the heart. The rescue party succeeded in freeing the head of another of the victims after about 25 minutes, but 15 minutes more elapsed before the whole of his body was brought to the surface. He was a man of very great chest capacity, and said that he had been able to breathe quite freely until his comrades by their trampling overhead occluded the air crevices. When exposed his skin was deeply cyanosed and for some little time he remained semi-delirious. Another of the men was rescued after he had been completely buried during at least 20 minutes. At first he, too, was able to draw his breath with comparative freedom, but gradually the supply of air seemed to be shut off, until finally the act of respiration amounted to the most intense agony. In conclusion, Dr. Herhold lays stress upon the great importance in similar cases of preserving the patency of all channels through which the air can possibly reach the buried persons. The utmost promptitude in attempting to rescue them is, of course, essential, but misdirected efforts are worse than useless. Whenever practicable it would be well to commence proceedings by an excavation at the side of the spot where the victims are believed to be lying. A short horizontal tunnel can then be driven with a minimum risk of interfering with the air-supply. Should the exact position of the buried individuals be known it ought to be possible to insert ventilating tubes for their relief, but all indiscriminate explorations of this nature are fraught with danger. In cases where access in the desired direction is only attainable from above it may often be possible to avoid trampling on loose detritus by utilising planks or beams resting on trestles, blocks of wood, large stones, or any other supports that may be available.

MENTAL DISORDERS FOLLOWING INFLUENZA.

IT is now a well-recognised fact that mental disorders are more frequent after influenza than after any of the other zymotic diseases. In the April number of the *Journal of Mental Science* Dr. George A. Rorie, medical superintendent of the Cumberland and Westmorland Asylum, gives an account of insanity following influenza, with statistics of 68 cases. An increase in the admissions of patients suffering from melancholia during or after epidemics of influenza has been reported from several of the asylums of this country—*e.g.*, Hanwell, Birmingham, Nottingham, and Edinburgh. On examining the statistics of admissions into the Cumberland and Westmorland Asylum Dr. Rorie finds a similar increase in admissions of melancholic and suicidal patients during the general epidemics of influenza. "The increase in the admission of melancholic patients is specially marked in the years 1891, 1893, and 1896, while there is a marked increase in the admission of suicidal cases during the years 1890, 1893, and 1895." During the period from 1890 to 1900 68 cases of insanity, in which influenza was the chief predisposing or exciting cause, were admitted to the Cumberland and Westmorland Asylum. Besides these, says Dr. Rorie, there were other numerous cases, some of which were partly due to influenza, but these have not been included in the paper which takes account only of those wholly due to influenza. Of the 68 cases there were 34 males and 34 females. Taking the males it was found that the average age on admission was 43·8 years. Six were between the ages of 61 and 70 years, and 10 were between the ages of 21 and 30 years. Among the females the average age was 49·5 years, which is rather older than the males. The greatest number were between the ages of 41 and 50 years. The question as to the exact time of the appearance of mental symptoms after an attack of influenza was difficult to answer. In some cases it seemed to follow directly on the attack of influenza or at an interval of a few days, in other cases weeks or months seemed to have intervened. In many cases the patient's friends stated that the patient had never been the same mentally after an attack. These results concur with those published 10 years ago by Dr. Leledy in his work on "Influenza and Mental Disorder." Most commonly an interval of from one to three months would elapse between the attack of influenza and the commencement of melancholia, mania, or other form of mental disorder. A notable feature was the large proportion of suicidal cases in both mania and melancholia. Thus of a total of 34 male patients 17 were suicidal, 16 of these being cases of melancholia and one of mania. Of the 34 female patients there were 19 suicidal cases, of which 14 had melancholia and five mania. The type of melancholia varied a good deal: in some cases it was simple melancholia with listlessness and loss of appetite, in others there was a certain amount of mental confusion and impairment of memory, with a frequent tendency to stupor, especially in the female cases. In some cases the patients were resistive, had delusions of persecution or poisoning, and refused to take food Hallucinations were noted in five females and three males; these were usually of hearing, but hallucinations of sight and feeling were also met with. The cases of acute mania among the men were all at a considerable period after the attack of influenza; among the females, on the other hand, two out of four cases of acute mania followed soon, if not directly, after the attack. One of the male patients aged 42 years, rapidly developed symptoms of general paralysis after influenza and died seven months after admission. Dr Rorie concludes that mania is the least favourable form of insanity following influenza as regards prognosis. In patients already insane the effect of an attack of influenza led to little change in the majority of cases but two cases of delusional insanity under Dr Rorie's care became markedly worse giving freer utterance to delusions of persecution and one case of melancholia became distinctly more depressed.

MILK UNDER THE FOOD AND DRUGS ACT

A MILK SELLER was summoned recently before Mr Marsham at the instance of the Holborn Borough Council for selling milk from which 8·6 per cent of the fat had been abstracted, and she was ordered to pay a fine. Upon this a member of the firm from which the milk had been originally purchased asked that the second sample reserved might be sent to the Commissioners of Inland Revenue for analysis and in this request the defendant joined. The milk however as might have been expected under the circumstance had during the time that had elapsed since it left the cow undergone natural processes which rendered its analysis for the determination of the question before the court impossible to conduct satisfactorily. The precaution of adding a few drops of a preservative—of course not in sufficient bulk to influence the analysis—had not been taken. Mr Marsham accordingly said that he had no alternative but to dismiss the summons as the defendant had a right to have the milk analysed at the Government laboratory. This unsatisfactory termination of the case is due to the 21st Section of the Food and Drugs Act of 1899 which enacts that "the justices or court referred to in Section 22 of the Sale of Food and Drugs Act, 1875 shall on the request of either party under that section cause an article of food or drug to be sent to the Commissioners of Inland Revenue for analysis and may if they think fit do so without any such request." The section of the Act of 1875 referred to said "The justices may in their discretion cause any article of food or drug to be analysed by the Government analyst," a very different provision and one which we should have thought adequately protected both parties without offering to the defendant in certain cases a simple method of escape dependent only on the question of whether the article of food which he was selling was of a perishable nature or not. We are not aware of any tendency on the part of analysts acting for local authorities to make mistakes or unduly to emphasise the case against local defendants by making incorrect analyses or of any magic attaching to analysis in a Government laboratory. Admittedly differences of opinion may arise in obscure and difficult analyses and a witness called by one side may draw inferences differing from those drawn by one called by the other side. On such an occasion a third opinion is obviously useful whereas it is not wanted when a defendant has cast no doubt upon the evidence brought against him. But it seems to us that unless the precaution of adding a minute quantity of a preservative be taken most prosecutions connected with the sale of milk, and some with regard to other articles of diet will in hot weather at all events, be futile. Possibly, however the magistrate can be asked and will be willing in all cases to send the second sample to the Government analyst directly it is taken and before the case is heard.

OUR readers will regret to hear of the serious illness of Mr Jordan Lloyd. On Tuesday evening June 25th Mr Jordan Lloyd presented symptoms of acute appendicitis, and as they grew more severe an operation was decided upon on the following Thursday morning. The operation was performed by his colleague Mr Bennett May when a perforated and gangrenous appendix was removed. We are glad to say that during the anxious week that has elapsed since the operation Mr Jordan Lloyd's progress towards recovery has been steady.

DR GLOVER informs us that it is his intention to offer himself for re election as one of the Direct Representatives for England and Wales. It is understood that Mr Victor Horsley will resign his seat and that he and Mr G Brown will also seek re election. Mr Horsley at his original by election stated that he would resign at the same time as his colleagues tenure of office terminated that the expense of two elections might be obviated.

THE quarterly meeting of the Society for the Study of Inebriety will be held at 11, Chandos street, Cavendish square, W, on Tuesday July 9th at 4 P M when a paper will be communicated by Dr T N Kelynack and Mr W Kirkby F L S on Arsenical Poisoning from Beer Drinking in its Relation to the Study of Inebriety. The President Dr Wynn Westcott will be in the chair. Visitors are cordially invited.

DR J LORRAIN SMITH has been appointed a member of the Commission to inquire into the present condition of the higher, general and technical education available in Ireland outside Trinity College Dublin and to report as to what reforms if any are desirable in order to render that education adequate to the needs of the Irish people.

HIS MAJESTY THE KING has been graciously pleased to continue the privilege of the Royal Patronage to the National Sanatorium for Consumption and Diseases of the Chest at Bournemouth of which charity her late Majesty Queen Victoria had been a patron since the year 1869.

WE understand that the Committee appointed by Mr Brodrick to consider the War Office scheme for the re organisation of the Army Medical Service will hold its first meeting to day (Friday).

THE Madrid *Correspondencia* of June 26th states that 12 cases of plague and four deaths have occurred at Oporto.

ROYAL NAVAL HOSPITAL, HASLAR

THE session of instruction at the Royal Naval Hospital Haslar terminated on June 26th when the 14 surgeons under instruction who had obtained their commissions after the competitive examinations in London some months previously received appointments to His Majesty's ships on the determination of their seniority by the sum total of the marks obtained in London and at Haslar. The following prizes were awarded—viz the gold medal to Surgeon A J Wernet and the microscope and the silver medal and books to Surgeon E Cox. The Director General of the Medical Department of the Royal Navy Sir Henry Norbury K.C.B., in distributing the prizes complimented all the officers highly on the very favourable report which he had received from the inspector general and the officers of the professorial staff as to the great interest which they had shown in the subjects which formed the course as well as on the general zeal and ability that they had evinced during the time they had been under instruction.

Surgeons in Order of Seniority

Name	Marks	Name	Marks
1 E Cox	6659	8 T F O'Keeff	4631
2 J MacDonald	6165	9 F J Ellis	447
3 A La T Darley	[illegible]	10 D [illegible] Lowndes	[illegible]
4 A J Wernet	5631	11 G C D Ross	[illegible]
5 C E C Stanford	[illegible]	12 P F Alderson	4042
6 A R Thomas	[illegible]	13 H C Woollyatt	[illegible]
7 W F Ruttledge	4523	14 J Thornhill	[illegible]

ARMY MEDICAL SCHOOL, NETLEY.

THE eighty-second session of the Army Medical School, Netley, was brought to a close on June 29th, when the prizes were distributed and an address was delivered by the Right Honourable the Earl of NORTHBROOK, G.C.S.I., in the presence of a distinguished company which included Surgeon-General A. F. Preston (acting Director-General, Army Medical Service), Surgeon-General R. Harvey, C.B., D.S.O. (Director-General, I.M.S.), Surgeon-General Sir Joseph Fayrer, Bart., K.C.S.I., Surgeon-General W. R. Hooper, C.S.I. (President of the Medical Board, India Office), Sir Alfred Lethbridge, K.C.S.I., Colonel H. Cayley, and the military staff of the Royal Victoria Hospital.

The proceedings were opened by Colonel K. MACLEOD, who read a satisfactory report on the work of the session of the school and announced the following awards: Herbert prize of £20, in memory of the late Right Honourable Sidney Herbert, awarded at the end of each course of instruction to the surgeon-on-probation who has evinced the highest proficiency in the special subjects taught in the school: G. E. Charles, I.M.S. Martin Memorial gold medal, to commemorate the late Sir Ranald Martin, C.B., given to the surgeon-on-probation who takes the highest place in military medicine: G. E. Charles, I.M.S. The Professor of Medicine called attention to the names of Surgeons-on-Probation A. G. McKendrick, N. E. H. Scott, and F. W. Sumner as having particularly distinguished themselves in military and tropical medicine. The Parkes Memorial bronze medal given to the surgeon-on-probation who takes the highest place in hygiene, part of a memorial to commemorate the great services of the late Professor E. A. Parkes, F.R.S. : G. E. Charles, I.M.S. Second prize in hygiene, a book presented by Mrs. de Chaumont in memory of her husband, the late Professor F. de Chaumont, F.R.S. : Surgeon-on-Probation W. C. Stevenson, R.A.M.C. The following surgeon-on-probation was mentioned as having particularly distinguished himself in military hygiene: O. St. J. Moses, I.M.S. The Montefiore prizes, founded by the late Mr. Nathaniel Montefiore — First prize, medal with cheque for £21: O. St. J. Moses, I.M.S. ; second prize, a revolver: G. E. Charles, I.M.S. The Professor of Military Surgery named the following surgeons-on-probation as deserving of honourable mention for their knowledge of military surgery: J. W. Little, I.M.S., and J. O. Barnes, I.M.S. Prize in Pathology, books presented by Sir Joseph Fayrer, Bart., K.C.S.I. : F. W. Sumner, I.M.S. ; while the names of the following officers were mentioned as worthy of special mention as pathologists: G. E. Charles, I.M.S., and W. D. Ritchie. I.M.S. Maclean prize, books presented in memory of Surgeon-General Maclean, C.B. : A. G. McKendrick, I.M.S., who obtained the highest marks in chemical and ward work. Colonel Macleod said that he had much pleasure in announcing that a new prize, consisting of a bronze medal and £5, had been established by Mrs. W. Marshall Webb in memory of her husband, the late Surgeon-Major-General William Marshall Webb. The subject of competition would be Hospital Administration, which was selected by the Senate, to whom the choice was entrusted by Mrs. Webb, as one of peculiar importance and of special fitness in view of the fact that the late Surgeon-Major-General Webb held the office of assistant professor of military medicine in the school. The prize would be open for competition next session. Colonel Macleod then invited Lord Northbrook to distribute the prizes.

Lord NORTHBROOK, on handing the prizes to the successful competitors, said a kindly word to each and then gave an address which lasted some 20 minutes. He commenced it by offering his congratulations to the prize-winners and said that in his own experience he had observed that many men who had distinguished themselves as prize-winners at the universities had gone on to most distinguished careers in after life, but while this was so many of those who had risen to high positions, especially in politics, had not been prize-winners and had only really commenced to educate themselves after their so-called college training was over. He hoped that the present success of the prize-winners at Netley was but an earnest of greater success in the future. Speaking specially of the Indian Medical Service, he reminded the young officers of the great field of work open to them, not only in their own profession but in that of political life in India and in other departments of the public service outside their own professional calling. He said that he would like to mention four names of men which occurred to him, all of whom had done excellent work for India. The first was that of the late Dr. Bellew, who did such excellent work as a frontier political officer when he went on the famous mission to Kandahar with Sir Harry Lumsden and who was selected by Lord Lytton as the man most fit for the post of chief political officer with the army of Kabul. Surgeon-General Bellew was a centre of influence all along the frontier and Lord Northbrook repeated the remark made long ago by a prominent Indian politician that "Dr. Bellew's moral force among the natives of the frontier was equal at times to the physical force of three battalions of infantry." The second name was that of Sir George Robertson who conducted the defence of Chitral and who was so well known for his work as a frontier political officer. He then referred to Colonel Cayley who after doing good work in India held a professorship in the Army Medical School and since his retirement had been through the African war as the head of the Scotch Red Cross Hospital. The fourth name was that of Lieutenant-Colonel E. Lawrie, I.M.S., of Hyderabad, who had distinguished himself in connexion with the Chloroform Commission. In speaking of the prizes gained in the school, Lord Northbrook said that the one named after Sidney Herbert, under whom he had served as Under-Secretary of State for War about the time when he had been removed to the House of Lords as Lord Herbert of Lea, commemorated a great Secretary of State, and one of the value of whose work he was personally well aware as the introducer of the improvements into the army after the Crimean war with the assistance of Miss Florence Nightingale. He quoted this lady's letter to Lord Salisbury urging the benefit of the expenditure of treasure in trying to prevent the waste of life from disease in campaigns by perfecting, as far as possible, the medical arrangements. Lord Northbrook said that he noticed that most of the prizes were in memory of distinguished professors of the school. There was, in his opinion, no better way of commemorating their work. He was especially glad to hear of the new prize which had been established by Mrs. Webb in memory of her husband, the late Surgeon-Major-General William Marshall Webb who had formerly been an assistant professor of medicine in the school. He was, he said, old enough to remember the Crimean war and the fault-finding which was general all over the country with the bad administration of the army. Such complaints, if true, had to be suffered for. At the time of the Crimean war they were true and they ended in the fall of the Ministry and in Lord Aberdeen being turned out of office. During the present war complaints had been made about the administration of the army in South Africa, complaints as to the transport and supplies, and specially as to the administration of the medical service. The latter had been inquired into and found creditable. At first all sorts of complaints were made, but now the public were satisfied and they ought to congratulate themselves on all that had been accomplished. A Royal Commission had inquired into the working of the Royal Army Medical Corps in South Africa and found that it had been satisfactory, though it had pointed out certain defects. Referring to the report of the Commission he quoted the concluding paragraph, which he specially drew attention to: "And all witnesses of experience in other wars are practically unanimous in the view that, taking it all in all, in no campaign have the sick and wounded been so well looked after as they have been in this," and he asked the pertinent question—To whom is the credit due? He said that the Secretaries of State as a rule were only a short time in office, and that unless they were exceptional men like Lord Cardwell, though they might do conscientious work they left no particular record of their day. The credit of the success was due to the patient attenders to details who had worked quietly for years and to the military authorities. In this connexion he mentioned H.R.H. the Duke of Cambridge, Lord Wolseley, Sir Redvers Buller (the Adjutant-General), General Brackenbury, and especially Sir Coleridge Grove and the late Director-General of the Army Medical Service, Surgeon-General J. Jameson, the last-named of whom made a success by means of the bond of sympathy which existed between himself and the officers serving under him and the great civil profession of medicine without which what had been accomplished would have been impossible Coming to the personal part of the medical arrangements of the South African campaign he reminded his audience that when the war broke out two army corps were sent to South Africa and that the Director General of the Army Medical Service, owing to the undermanning of the Royal Army Medical Corps, could only with difficulty provide a sufficient number of medical officers to accompany them but later it was found that more army corps were required and a total force of 250 000 men had to be provided with medical aid The question was how the great want was to be supplied It was met, said Lord Northbrook, "by the patriotism of the people Men had come forward from the universities and schools, the medical officers of the auxiliary forces had volunteered, men had given up their lucrative private practices, the colonies had supplied medical men, private hospitals had been organised, and the St John Ambulance Association, of which the late Lord Wantage had been so prominent a member, had given its invaluable help in the nation s difficulty" The result had been that at the time of the publication of the Blue book, the medical staff in South Africa consisted of 479 officers of the Royal Army Medical Corps, of nine consulting surgeons and physicians of 385 civil surgeons, and 431 nurses, and, said Lord Northbrook, "I do not think that these were the maximum numbers, for in a speech not long ago Mr Brodrick spoke of 700 admirable recruits which the medical profession had furnished" He extolled the way in which the professional work had been done in South Africa and said that in spite of difficulties which were considered incredible, the pluck perseverance, and capacity of the Royal Army Medical Corps had carried them through "No class of officers had had greater difficulties to contend with, yet none had achieved greater success" The Royal Commission had endorsed this verdict and the truth of it was recognised by impartial witnesses Than this verdict no higher praise could be given. Individual members of the corps had won well merited rewards, for of the greatest distinction which could be won by a soldier, the Victoria Cross no less than four had been awarded to officers of the Corps—Lieutenant-Colonel W Babtie, Captain E T Inkson, Captain W H S Nickerson, and Lieutenant H E M Douglas—besides promotions and other honours They must, however, look to the future The Royal Commission had recommended that an inquiry should be made into the medical arrangements of the army Lord Northbrook said that he did not dare to offer an opinion on the questions involved, for he had no right to offer one, but it was right that Mr Brodrick should carry out the intentions expressed and he hoped that the anticipations of the Secretary for War would be realised Speaking at the dinner to the South African civil surgeons Mr Brodrick had said that "they had an organisation on which might be founded not merely something which was effective, but something which, as their experience was most recent entitled them to [illegible] army which would place [illegible] peoples" Lord North[illegible] organisation of the corps he had two observations to make—one was that the staff of the Royal Army Medical Corps should be permanently increased, and the other was that its members should have opportunities granted them of keeping themselves up to the highest standard of professional knowledge The great growth of medical science had necessitated specialists and in the future special work and specialists would certainly increase He saw no reason why the Royal Army Medical Corps should not have its own specialists—officers who had been afforded opportunities of studying under the best men and who themselves would become experts, such opportunities would ensure efficiency and attract some of the best men from the school of the corps The second observation was that he hoped the committee s inquiry would extend to the working of the transport and the financial departments and to the working of the War Office itself in relation to medical matters Referring to the teaching which the young officers had received at Netley he spoke of the advantage they had enjoyed in listening to Colonel Stevenson than whom no one could inform them better of all the changes which had occurred in wounds due to the alteration in weapons While, however the care of wounded men was of the greatest consequence the records of this South African campaign had but endorsed the experience of former wars that disease worked more havoc than the bullet He congratulated them on having had the opportunity of studying under Dr Wright, of whose work he had himself some knowledge, for as a member of the Indian Plague Committee he had visited his laboratory, and he considered him to be a man who worked on the sound grounds of experimentalism. He had the confident hope that the progress of science would lead to increased prophylaxis whether by inoculation or otherwise Lord Northbrook concluded by recalling the scene in the Royal Victoria Hospital when their late beloved Queen near the end of her great career shed the light of her presence in the wards of the hospital and on the suffering soldiers there whom she had loved so well No one of them would ever forget the late Queen s sympathy, and he knew the King would take the same kindly interest in the hospital and in his soldiers

Sir **JOSEPH FAYRER** subsequently addressed a few words of congratulation to the young officers and thanked Lord Northbrook for his address

The proceedings were brought to a close by Colonel **CHARLTON** principal medical officer at Netley Hospital, who wished the young officers God speed, and expressed the hope that they would in years to come look back on pleasant days spent at Netley

The following lists show the positions of the young officers recommended for commissions in the respective services —

Royal Army Medical Corps

Surgeons-on probation successful at both the London and Netley examinations

		Combined marks			Combined marks
1	Lambelle F W	5289	4	Beatty, M O	3947
2	Cahill L J S	4703	5	Welland J R	3686
*3	Stevenson W C	4165	6	Long H W	3335

* Gained the De Chaumont prize

Surgeons-on probation recommended for commissions in the Royal Army Medical Corps

		Netley marks			Netley marks
1	Ritchie T F	2105	6	Rogers, H	1636
2	Sampey A W	1786	7	Harvey W J S	1608
3	Potter, T J	1778	8	Davis, W	1570
4	Williamson A J	1751	9	Hastings J C	1426
5	Aylen, E V	1681	10	O'Donoghue, D	1399

Indian Medical Service

Surgeons-on probation who were successful at both the London and Netley examinations

		Combined marks			Combined marks
*1	Charles G E	6168	15	Foster H B	4630
†2	Mckendrick A G	5959	16	Butt, G B	4544
‡3	Moses O St J	5672	17	Kerans G C L	4507
4	Little J W	5413	18	McConaghy C B	4438
§5	Sumner F W	5285	19	Illius H W	4395
6	Nutt H R	5234	20	Browne E W	4390
7	Barnes, J A	5073	21	Christian J D	4216
8	Ritchie W D	5014	22	Murphy, A	4161
9	Scott, N E H	4914	23	Thompson F T	4124
10	Fleming J K S	4873	24	Brassey L P	3881
11	Hepper, E C	4819	25	Marr, D F	3843
12	Southon C E	4803	26	Bose S	3761
13	Fowler, G	4685	27	O Neill P L	3547
14	Husband J	4680			

* Gained the Herbert Prize of £20 the Martin Memorial medal the [illegible]

COMPLIMENTARY DINNER TO SURGEON-GENERAL JAMESON, C B

MR. G **LENTHAL CHEATLE**, one of the honorary secretaries, has sent to us the following list of names to be added to those which we published in our issue of June 15th, p 1708 as those of members of the medical profession and others who have signified their wish to do honour to the late Director General of the Army Medical Service —The Right Hon. Lord Halliburton, Colonel Sir Howard Vincent, M P, Sir Hugh Beevor Bart, Sir John Turley, Sir Samuel Wilks Bart, Dr James Little Regius Professor of Physic, University of Dublin Dr Ball, Regius Professor of Surgery, Trinity College, Dublin, and Mr Thomas Bryant, Mr Pearce Gould, Mr H H Clutton, Surgeon General R. Harvey C B, D S O, Surgeon General W R. Hooper, C S I, and Mr A D Fripp C B C V O There is no need for us to wish the occasion success—success is already assured, and the dinner promises to afford remarkable witness to the appreciation in which Surgeon General Jameson and his services to his country are held by the members of his profession.

THE MIDWIVES BILL.

LORD BALFOUR OF BURLEIGH, in moving the adoption of the report at the eighth annual general meeting of the Association for Promoting Compulsory Registration of Midwives, held at 47. Cadogan-square, London, S.W., on June 26th, said :—

I have no right to attend this meeting as a member of the Government, and you will please remember that I am here only in my private and unofficial capacity. The objects of this association came first under my notice before I became a member of Her late Majesty's Government. I never can forget the first beginning of the persuasion which was exercised upon me to bring this somewhat difficult and unpleasant subject before the House of Lords. I did so because when I looked into the case for the Bill I found it was so strong that it would have been a dereliction of duty if I had not done everything in my power to help on the cause. As to the use of deputations I may say that during six years of my official life I have had to deal with many deputations and I have not got a very profound belief in the utility of deputations. Perhaps that is because I see too much from the inside of the working of these matters. I have never in the whole course of my experience ever had to do with a case which on its pure merits, apart from all other considerations, seems to me to present such an overwhelming need for legislation. I myself think that many deputations know that they ought not to be granted what they ask for and a considerable proportion feel that it would not be good for them if they got what they demanded. That being my view of the ordinary case as presented by deputation I wish you to notice that the cause of your association is the one outstanding exception which justifies the most persistent and the most continual agitation until you are successful, and I agree with what Mr. Johnstone has told you that you have a very strong case indeed. You have greatly strengthened your position since the days when I first came into the association and you are, I think, assured, if you will only go on on the same lines, of a certain and not far distant triumph. One thing I am certain of is that you need not fear public discussion. The more the matter is discussed the greater will be the conviction of the extreme strength of your case Your cause is that of the majority of the wives of the working men and of the more humble portions of the population of this country. The case against you is that of those who are interested in maintaining the existing state of affairs. I consider that those who have been midwives and who practise under that name are entitled to fair consideration. A large majority are competent and their interests must be considered, otherwise it would be unjust to those who are honestly endeavouring to make a living and who in the main are doing their very best. The fact, however, that there are grave and far-reaching abuses under the present condition of affairs makes it clear that no private interest ought to be allowed to stand in the way of reform. I would rather not speak of the other class who are interested in this proposed measure because I think you have dealt with it—I mean the professional opposition to your Bill. I consider that where it is not merely selfish it is foolish, because you do not want—and I think this is a point to be emphasised—you do not want to do anything to undermine professional etiquette or to attack the proper medical standing of professional men. I have always pointed out that the medical profession being beyond all others a humane and unselfish profession its first anxiety is to do the best for a patient at the earliest possible time for the saving of life. If, therefore, medical men are assisted by skilled midwives they would be more certain of having early information that danger exists than if the patients are attended by unskilled women ignorant of danger or possibly too selfish to trouble or perhaps afraid of allowing anything to be known. I believe it to be a necessity that in the classes concerned the attendance in these cases must be furnished by women for women. What you want to provide for is that minority of cases where danger can be foreseen and thus avoided; often it is a question merely of hours. I believe that in these circumstances the elementary training which your association seeks to secure for these attendants would make it more certain that the medical man would have the note of warning sounded in his ears and thus early intelligence would be furnished to those who can best remedy the danger. I was recently at the College for the Blind at Norwood and the director of the institution told me that on admission every child—and there are always some hundreds there—is examined by a skilled oculist. Experience over a long series of years leads this gentleman to say with certainty that about 72 or 73 per cent. of those who pass through the College need not have been sent there if they had enjoyed the benefit of proper care in their early years. I do not say that all these people by this early attention could have been made into really seeing people in the ordinary acceptation of the term, but they would have had the power of perception of light from darkness and of movement from absolute rest. I do not say that 70 per cent of the cases of blindness are caused by improper care at birth, but certainly a large proportion are. I believe it amounts to about 30 per cent. Now, that fact of itself is most startling and I believe it to be an undoubted fact and one that might well be included in the pamphlets of the association. You should keep this Bill out of the morass of Government measures and go on as you have been doing. You should endeavour to get a discussion on the earliest possible Wednesday next session and then strive to take off as much of the opposition to it as you can. Thereupon pressure can be brought to bear in the proper quarters on those who manage these things so as to give you a chance. I can only assure you that if opportunity offers for the consideration of the possibility of giving this most serious and necessary legislation a helping hand from the inside you may, so far as my duty allows it, always count upon me. There are, however, limitations, and you must remember that if I cannot do all that I would like to do it is certainly not from want of interest, and I can assure you that I wish your association the earliest possible success.

ANNUAL DINNER OF THE EPIDEMIOLOGICAL SOCIETY OF LONDON.

THE dinner to celebrate the fifty-first anniversary of the foundation of this society was held on June 28th at the Grand Hotel, Trafalgar-square, W.C., Dr. Patrick Manson, C.M.G., F.R.S., the President of the society, occupying the chair. The guests of the society were Sir William S. Church, Bart., President of the Royal College of Physicians of London; Sir Montague Ommanney, K.C.M.G., Permanent Under Secretary for the Colonies; and Professor T. Clifford Allbutt, F.R S. Among others present were Dr. W. A. Bond, Dr. G. S. Buchanan, Dr. H. T. Bulstrode (honorary secretary), Dr. W. H. L. Copeland, Dr. A. D. Cowburn, Major A. M. Davies, R.A.M.C., Dr. J. R. Delmege, Dr. W. E. Fletcher, Sir Francis Lovell, C.M.G., Dr. Bruce Low, Dr. Hector Mackenzie, Mr. Shirley Murphy, Mr. W. C. C. Pakes, Dr. Franklin Parsons, Mr. F. G. Parsons, Dr. E. C. Seaton, Dr. Arthur Shadwell, Dr. W. R. Smith, and Dr. B. A. Whitelegge.

Sir William Church, in proposing the toast of "The Imperial Forces," dwelt upon the heroism of our troops of all grades at Ladysmith, Graspan, and other places. The behaviour of our soldiers under most trying climatic conditions clearly demonstrated that there were no indications of degeneration —Major A. M. Davies, R.A.M.C., in replying for the army, referred to some of the difficulties with which the Army Medical Service had recently been confronted in South Africa. It was impossible to wage war without some inconvenience and hardship, and obviously when a hospital intended to provide for at most 500 men was called upon to deal with double or treble that number, the elasticity of the administrative machinery was liable to become somewhat strained.—Dr. W. R. Smith, who replied for the auxiliary forces, pleaded for a more careful study of the causes and behaviour of disease in modern warfare and for the necessity of the presence of independent and skilled epidemiologists from the beginning of a campaign.—Dr. Whitelegge, His Majesty's Chief Inspector of Factories, who proposed "The Visitors," drew attention to the manner in which fresh infectious processes were daily being brought to light, and he added that quite recently his colleague. Dr. T. M. Legge of the Home Office, had discovered a new infection connected with the fish-curing industry. There was still much to be done in studying the diseases and drawbacks connected with industrial occupations.—Sir Montague Ommanney, in replying [illegible] he efforts [illegible] Our vast [illegible] umerable [illegible] onditions which obtained in some of our Crown colonies were such as to sap continuously the "energy of initiation." No one, he assured them, felt a keener interest in the importance of improving the condition of our more unhealthy colonies than Mr. Chamberlain, and he felt sure that the Colonial Office would continue to extend a helping hand to epidemiological research.—Professor Clifford Allbutt thought that in the near future preventive medicine would take a very leading place in the medical profession, and it was probable that the profession as a whole would occupy a more definite relation to the State than was the case at the present moment. He welcomed, with other speakers, the great change which had come over the administration of the Colonial Office in the direction of encouraging original research.—Dr. Patrick Manson, in proposing the toast of "The Epidemiological Society of London," pointed out that the work that the society performed was of a quiet and unostentatious character, but he trusted that such work was not without its value. The science of epidemiology was, he thought, in an extremely flourishing condition and its energy had received cordial support from the Colonial Office. He regarded it as almost providential that at the present time when there was so much work to be done and when apparently the psychological moment had arrived they had at the Colonial Office Mr. Chamberlain and at the Royal Society Lord Lister. Epidemiology had in the past been somewhat warped from the fact that man had for a long time regarded the infectious diseases as his own prerogative, but they had now to recognise the important fact that they shared many diseases with the lower animals, and it was only when this fact was accorded its proper value that the natural history of infectious disease would be properly comprehended. Dr. Manson drew attention to the large number of scientific expeditions which had recently left our shores, and he added that the Epidemiological Society was now assisting in the despatch of an *expedition to the Pacific Islands* to study some of the problems connected with malaria. The Mercers' Company had made a liberal contribution towards the funds, and he trusted that if the generous example set by the Liverpool merchants in assisting the Liverpool School of Tropical Medicine were followed by some of our wealthy London merchants the expedition in question would be able to start at the end of the year.—Sir Francis Lovell, proposed "The Chairman," whose name was, he added, regarded in the colonies as "synonymous with malaria."—Dr. Bulstrode, who replied to the toast of "The Officers of the Society," reminded his hearers of the remark made by Professor Haffkine at a recent dinner to the effect that inasmuch as the opportunities of the British empire for the prosecution of epidemiological research were altogether unique, the world of science had a right to expect that the English Government would make proper use of such opportunities.

PLAGUE IN EGYPT.

Two further reports issued by the Director-General of the Egyptian Sanitary Department have been forwarded to us. They run as follows:—

"Since my report addressed to your Excellency on June 9th we have received no information of any towns other than Zagazig and Minieh being infected with plague.

The total number of cases of plague reported from these two places during the week was 18, 17 from Zagazig and one from Minieh; 14 of these were admitted to hospital and four were found dead outside hospital. In addition five deaths took place among the patients in the Government hospital. No notice of any European being attacked by the disease has been received during the week.

The town of Zagazig is no doubt somewhat seriously infected, and from inquiries that have been made by Major Garner it would appear that for some time previously to the discovery of the first cases many of the inhabitants of the different quarters of the town had noticed rats in a dazed condition and dying; this mortality among the rats was first remarked at the time of a heavy rainfall in May, the date of which was May 14th.

The staff at Zagazig has been largely increased during the week, and the general cleansing and disinfection of the whole town is being carried out rapidly."

During the week ending June 23rd 25 cases of plague have been reported throughout Egypt, among which eight deaths have occurred—six in hospital and two out of hospital. Of these 25 cases 19 have occurred at Zagazig, two at Alexandria, one at Minieh, two at Kafr El-Mansura (a small suburb of Minieh), and one at Port Said. Of the deaths four occurred in hospital at Zagazig; two patients were found dead out of hospital in the same town, one died in hospital at Minieh, and one in hospital at Port Said.

During the last few days there has been a marked improvement in Zagazig, and I trust that this will be maintained, indeed I have every reason to think that it will be. Only one case followed by death has occurred in the town of Minieh itself; the other two cases shown as coming from Minieh, as is mentioned above, occurred in a small Kafr close to Minieh Every house in this Kafr has been thoroughly disinfected and limewashed and I do not anticipate any further extension of the disease there.

The case found at Port Said occurred in the person of a young Greek who for some time had been out of employment and had lived in a dirty underground cellar. This single case, occurring after so many months of immunity at Port Said, was possibly due to rat infection.

The mortality among the cases treated in hospital is not high and reports reach me that most of the cases remaining under treatment in hospital are progressing favourably.

Suspicious cases have been reported from several different places during the week; each case has been carefully examined and not one of them has proved to be a case of plague."

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 33 of the largest English towns 6377 births and 3247 deaths were registered during the week ending June 29th The annual rate of mortality in these towns, which had been 14·5 and 15·0 per 1000 in the two preceding weeks, declined again last week to 14·8 per 1000. In London the death-rate was 13·9 per 1000, while it averaged 15·4 in the 32 large provincial towns. The lowest death-rates in these towns were 8·5 in Cardiff, 9·3 in Croydon, 9·8 in Leicester, and 10·1 in Bristol: the highest rates were 17·8 in Oldham, 19·1 in Newcastle, 20·2 in Liverpool, and 21·7 in Preston. The 3247 deaths in these towns included 399 which were referred to the principal zymotic diseases last week, against 357 and 356 in the two preceding weeks; of these, 114 resulted from measles, 83 from diarrhœal diseases, 81 from whooping-cough, 53 from diphtheria, 46 from scarlet fever, 21 from "fever" (principally enteric), and one from small-pox. No death from any of these diseases was registered last week in Huddersfield; in the other towns they caused the lowest death-rates in Brighton, Plymouth, Cardiff, and Oldham, and the highest rates in Wolverhampton, Birkenhead, Salford, Blackburn, Bradford, and Sheffield The greatest mortality from measles occurred in West Ham, Wolverhampton, Birmingham, Birkenhead, Hull, and Gateshead; from scarlet fever in Preston; from whooping-cough in Swansea, Wolverhampton, and Bradford; and from diarrhœal diseases in Liverpool, Bolton, Blackburn, and Sheffield. The mortality from "fever" showed no marked excess in any of the large towns The 53 deaths from diphtheria included 18 in London, eight in Sheffield, five in Bristol, and three in Manchester One fatal case of small-pox was registered in London, but not one in any other of the 33 towns; four small-pox patients were admitted into the Metropolitan Asylums Hospitals during the week ending July 29th, and five remained under treatment on Saturday last. The number of scarlet fever patients in these hospitals and in the London Fever Hospital at the end of the week was 2821, against numbers increasing from 1522 to 2707 on the nine preceding Saturdays; 408 new cases were admitted during the week, against 314, 323, and 368 at the end of the three preceding weeks The deaths referred to diseases of the respiratory organs in London, which had declined from 240 to 150 in the four preceding weeks, further decreased last week to 171, and were 42 below the corrected average. The causes of 45, or 1·4 per cent., of the deaths in the 33 towns were not certified, either by a registered medical practitioner or by a coroner

All the causes of death were duly certified in Bristol, Salford, Bolton, Newcastle, and in 12 other smaller towns; the largest proportions of uncertified deaths were registered in Liverpool, Manchester, Preston, and Sunderland.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 16·9 and 18·6 per 1000 in the two preceding weeks, declined again to 17·3 per 1000 during the week ending June 29th, but showed an excess of 2·5 per 1000 over the mean rate during the same period in the 33 large English towns. Among these Scotch towns the death-rates ranged from 9·5 in Perth and 10·0 in Leith to 18·6 in Glasgow and 19·0 in Dundee. The 552 deaths in these towns included 30 which were referred to whooping-cough, 25 to measles, 24 to diarrhœa, four to diphtheria, two to scarlet fever, and one to small-pox, but not one to "fever." In all, 86 deaths resulted from these principal zymotic diseases last week, against 75 and 97 in the two preceding weeks. These 86 deaths were equal to an annual rate of 2·7 per 1000, which was 0·7 per 1000 above the zymotic death-rate during the same period in the 33 large English towns. The fatal cases of whooping-cough, which had been 32 and 44 in the two preceding weeks, declined again last week to 30, of which 14 occurred in Glasgow, seven in Edinburgh, five in Dundee, and two in Paisley. The deaths from measles, which had been 17 and 25 in the two preceding weeks, were again 25 last week, and included 15 in Glasgow, four in Dundee, two in Leith, and two in Greenock. The fatal cases of diarrhœa, which had been 18, 17, and 13 in the three preceding weeks, rose again last week to 24, of which 11 were registered in Glasgow, four in Edinburgh, three in Dundee, three in Paisley, and two in Greenock. The deaths from diphtheria, which had been three in each of the two preceding weeks, increased to four last week, and all occurred in Glasgow, where the two fatal cases of scarlet fever and the death from small-pox were also registered. The deaths referred to diseases of the respiratory organs in these towns, which had been 101 and 92 in the two preceding weeks, rose again last week to 95, but were slightly below the number in the corresponding period of last year. The causes of 27, or nearly 5 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The annual rate of mortality in Dublin, which had been 19·6 and 20·2 per 1000 in the two preceding weeks, declined again to 18·2 during the week ending June 29th. During the 13 weeks ending on that date the death-rate averaged 24·7 per 1000, the rates during the same period being 14·7 in London and 20·8 in Edinburgh. The 131 deaths of persons belonging to Dublin registered during the week under notice were 14 less than the number in the preceding week, and included five which were referred to the principal zymotic diseases, against eight and 10 in the two preceding weeks; of these two resulted from whooping-cough, one from scarlet fever, one from diphtheria, and one from "fever." These five deaths were equal to an annual rate of 0·7 per 1000, the zymotic death-rate during the same period being 1·5 in London and 2·0 in Edinburgh. The fatal cases of whooping-cough, which had been five, three, and three in the three preceding weeks, declined last week to two. The 131 deaths in Dublin last week included 24 of children under one year of age and 41 of persons aged upwards of 60 years; the deaths both of infants and of elderly persons slightly exceeded the numbers recorded in the preceding week. Four inquest cases and one death from violence were registered; and 47, or more than one-third, of the deaths occurred in public institutions. The causes of three, or more than 2 per cent., of the deaths in Dublin last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE

THE following appointments are notified:—Surgeons: A. J. Wernet, and H. C. Woodyatt to the *Pembroke*; D. V. Lowndes and A. R. Thomas to the *Wildfire*; C. E. C. Stamford, E. F. Ellis, and P F. Alderson to the *Duke of Wellington*; T. F. O'Keefe, G. C. C. Ross, and J. Thornhill to the *Vivid*; M. Cameron to the *Harrier*; and R. D. Jameson to the *Northampton* for the *Cleopatra*.

ROYAL ARMY MEDICAL CORPS.

Captain H. A. Hinge has joined at Aldershot for duty. Lieutenant-Colonel G. Coutts has been posted to the Western District. Lieutenant-Colonel W. Finlay, retired list, has been appointed to the medical charge of the troops at Jersey.

SOUTH AFRICAN WAR NOTES.

The following officers are on passage home:—Major H. T. Knaggs, R.A.M.C., and Civil-Surgeon E. C. Taylor.

The following officers have been discharged from hospital to duty:—Lieutenant-Colonel R. H. Nicholson, R.A.M.C., Lieutenant-Colonel W. P. Squire, R.A.M.C., Lieutenant G. G. Delap, R.A.M.C., Civil-Surgeon Glasse, and Civil-Surgeon John Alexander Black.

The wounded and sick who have passed through the Victoria Hospital in Rhodesia have, in token of their gratitude for the care bestowed upon them, subscribed £43 for a piano, to be presented to the hospital, for the use of the nurses.

Civil-Surgeon Wilbond is reported out of danger (June 28th).

The *Times* publishes the following:— "'In Arduis Fidelis' writes from No. 10 General Hospital, Norval's Point, under date May 15th: 'The Volunteer R.A.M.C., who have been out here 15 and 16 months doing constant work without any rest at all, are still in South Africa, and they cannot get the slightest attention paid to their repeated question as to the probable date of their return.'"

AFFAIRS IN SOUTH AFRICA.

The information from the seat of war in South Africa continues, and it seems likely to continue for some time yet, to be of much the same nature as it has been. The recrudescence of activity on the part of the Boers, however disappointing, does not appear likely to prove very important; their raiding attacks are, as a rule, futile as regards any advantage to themselves, and their chronic losses in the way of cattle, food, forage, and munitions of war must be "totalling up" to a very large aggregate. Fortunately, this country has command of the seaboard, and, costly as the process is proving, the supplies for the British are practically unlimited. We are not going into the question of the "concentration camps." Everybody regrets the sickness, the misery, and the suffering which these have entailed. But if the Boer families, forsaken by their natural protectors in order to fight against us, had been left to their fate they would have perished miserably on the veldt. As it was, every Boer farm formed also a little arsenal and commissariat depôt and a source of secret information to be used against us. No other course seemed to be open to us than to move the Boer families into camps. Their numbers, their ignorance and neglect of all sanitary precautions, and the raids made by the Boers on the railway which was the source of their and our own supplies, made the undertaking of accommodating, feeding, and providing for so large a number of people a very formidable one and full of difficulties. Would any other nation have made the attempt to succour and to do the best for them?

THE REORGANISATION OF THE ARMY MEDICAL SERVICE.

The committee of experts to consider a scheme which has been drawn up by Mr. Brodrick for the future organisation of the Army Medical Service will consist of the following members:—Dr. Howard H. Tooth, C.M.G., representing St. Bartholomew's Hospital; Mr. George H. Makins, C.B., St. Thomas's Hospital; Mr. Alfred D. Fripp, C.B., Guy's Hospital; Sir F. Treves, K.C.V.O., C.B., London Hospital; Dr. Alexander Ogston, Scotland; Lieutenant-Colonel A. H. Keogh, C.B., R.A.M.C., Ireland; Dr. E. C. Perry, Senate of London University; Surgeon-General W. R. Hooper, C.S.I., I.M.S., President of the Medical Board, India Office; and two officers to represent the army, who will be named by the Commander-in-Chief. The secretary will be Major H. E. R. James, R.A.M.C., F.R.C.S. Eng., and Mr. Brodrick will take the chair of the committee.

We understand that the hospital ship *Maine*, which is to be fitted out for further service under the Admiralty, will have a merchant crew with a naval medical staff.

Correspondence.

"Audi alteram partem"

"UNBOILED v BOILED MILK."

To the Editors of THE LANCET

SIRS,—Will you allow me to reply *briefly to Dr Clement* Dukes's letter which appeared in THE LANCET of June 29th on the subject of boiled and unboiled milk? Dr Clement Dukes is a great authority on pediatrics and the question he raises is a very important one in prophylactic hygiene

During the last 10 years in Paris we have been studying the nutritive value of sterilised milk in making large distributions of milk—from 50 to 150 litres a day—in special consultations called *gouttes de lait* (drops of milk), young *infants being brought to be inspected by the* doctor once or twice a week They are weighed, their weight is noted on a card, and the mothers receive advice as to the giving of milk, *its dilution (if required), and the* different quantities to give [illegible] and its weight. In these [illegible] ground of experience and [illegible] infants, some, following M [illegible] they sterilise in Paris with Soxhlet's system, others, like myself at the Dispensaire de Belleville, use milk sterilised at 115° C, by industrial proceedings in large establishments in Normandy This milk *is brought to Paris in bottles* of half a litre and less, and can be kept several days until it is used without its sterilisation being effected

In these conditions we have given this milk to a number of *infants* carefully looked after and we have noted neither rickets nor infantile scurvy with either method of sterilisation adopted by us In five years I have had about 200,000 litres of industrially sterilised milk distributed to over 1000 *infants and I have never observed a single case of Barlow's* disease Ricket [illegible] children whom [illegible] sterilised milk. [illegible] are anæmia with paleness of the teguments and habitual constipation, but it is difficult to fix what share of this is due to the artificial feeding and what to unhealthy dwelling conditions in the poorer classes, for these troubles are more common in winter than in summer. Infantile scurvy is very rare in France Ten cases have been collected and published in [illegible] of these can be [illegible] So it [illegible] an its ste[illegible] milks artificially made up in special laboratories by the method of Morgan Rotch seem to us most dangerous food to give to young infants even if well sterilised But simply to sterilise natural milk, even at 115 C, does not in my opinion, make it lose its nutritive qualities as Dr Clement Dukes seems to think. We have brought up a large number of healthy [illegible] with sterilised milk The tra[illegible] as perfect as in the case [illegible] are nevertheless very satisfactory in general.

In early infancy the presence of pathogenic germs, tuberculous, typhic, diphtheritic bacilli *is not alone to* be feared The possibility of these infections is more to be considered in schools, colleges, &c, than in our infants' department Saprophytes of all kinds that pollute milk and *make it ferment in a very complicated way in altering* either the lactose or the casein, &c., are particularly dangerous for the digestive organs of very young children We see this only [illegible] summer months when the rate [illegible] or 300 a week; the children of the poorer classes receive milk purchased at the lowest possible price at the nearest dairy or from sellers who go from door to door It is generally fermented often adulterated, water is added, &c. Fraud is practised on milk more than on any other product, and can be but with difficulty repressed in *large towns. That is why in Paris* I give the *preference* to industrially sterilised milk that reaches us in hermetically closed bottles sealed with paraffined corks which cannot be tampered with. In large centres of population where the carriage of milk is slow and complicated, the milk passing through so many hands before reaching the consumer, we must first of all manage to give our infants a *pure*, unfermented, unsophisticated milk, and the simplest way to procure this is to have recourse to a good industrial brand of milk sterilised in the country, just as one orders a well-known brand of champagne which one knows to deserve its reputation In this way we generally preserve infants from summer diarrhœa, and when cases do occur they are almost always benign

In the country, when one can obtain good fresh milk, being certain of the honesty of the provider and of the healthy condition of his cows, there is no fear of pathogenic germs, and if the milk is *newly drawn there can be no fermentation*, in these conditions it can safely be given to young infants But if we reflect we come to the conclusion that unless one has a farm and cows of one's own and under personal supervision it is not safe to give one's confidence (and that not for a day but for a whole year and more) to any dealer who may have his shortcomings

The boiling and sterilisation of milk are but a *pis aller* it is true, but neither has the inconveniences or the dangers *attributed* to it, which *one would* be *more* justified in attributing to food mixtures and modified milks The milk problem is an extremely complicated question and one which we can only hope to elucidate by long *and patient researches and* with a suitable *field of observation* at our disposal The same milk that will be poisonous for very young infants may not, or may scarcely, affect children from five or six to 12 years of age, who already resemble *adults in a certain degree At that age the gastro-intestinal* ferments have probably a greater bactericidal power than in newly-born children whose gastro intestinal functions are as superactive as they are unstable The results of our experience in Paris in our "drops of milk" forces us to adopt sterilised milk as an absolute necessity if we wish to preserve infants from serious gastro intestinal disorders and thus to diminish the rate of infantile mortality

I am, Sirs, yours faithfully,

DR G VARIOT,

Médecin de l Hôpital des Enfants Malades, Paris

July 2nd, 1901

To the Editors of THE LANCET

SIRS,—I cannot believe that Dr Clement Dukes can have inspected many farm dairies or he would never advocate the use of unboiled milk, whatever is lost in the nutritive value of the milk by boiling The risk to children is far too great, and until some stringent laws are passed and enforced requiring that every dairy farm shall be conducted under definite approved sanitary rules and officially inspected I think the profession should advise that all milk used as food for infants should be first boiled or sterilised I believe that THE LANCET has more than once advocated this course I quite agree with Dr Dukes that if you are absolutely certain of the supply of milk raw milk is far better than boiled milk as a food for children, but I cannot agree with him from very ample practical experience "that the nutritive value of milk is very largely diminished by boiling" It is, as I have already agreed, diminished but not *very largely* I have seen many cases of very weakly children reared on milk which has always been sterilised under my direction and the results have been very good Of course, I am speaking about London Dr Dukes from his remarks concerning his practical experience, is speaking about the Rugby district where I have always heard there is an excellent supply of pure milk, and doubtless Dr Dukes's ever-watchful eye has *made* the dairy-keepers very careful as to their sanitary arrangements for many a mile round But for the profession to advise the use of raw milk for children in London and other large towns, with the risk of its being contaminated by *the bacillus* tuberculosis the bacillus typhosus, the bacillus diphtheriæ, or the bacillus coli communis, I confess in my opinion would be nearly criminal whatever is lost in the nutritive value We can supply the deficiency

I am, Sirs, yours faithfully,

THOMAS DUTTON, M D Durh

Manchester-square W June 28th 1901

To the Editors of THE LANCET

SIRS,—Feeling strongly that the conclusion arrived at by Dr Dukes, and expressed in his letter which appears in THE LANCET of June 29th p 1859, would, if uncontradicted, do an immense amount of harm, and as also the "facts" he relies on are not "facts" in the opinion of many well qualified to judge, I venture to ask you to insert this letter

If there is any one "fact" in the whole province of medicine which has become accepted on the experience of many years and in every part country more than any other, it is the "fact" that milk is capable of carrying and disseminating disease. This has been proved up to the hilt in the investigation of numberless epidemics by the most eminent men in our profession, and the attention which has been called to the subject by them has resulted in an enormous saving of life and suffering.

Dr. Dukes asks the profession to cast away its universal experience in favour of the experience of one man accustomed only to the care of the boys in a very high-class country school in which the hygienic and other surroundings are perfect and the boys themselves of the strongest physique. I would wish to point also that this dangerous and retrograde view is advanced in the face of the recent experience at Glasgow and other large towns, where the mortality of the children has largely decreased by the sale of sterilised milk by the municipalities. Dr. Dukes's statement that "the nutritive value of milk is largely reduced by boiling" is entirely unproved, and "that this is true also of sterilised milk" is entirely the reverse of the fact. The nutritive value of milk is entirely unchanged either by boiling in a water-jacket, as in the ordinary milk-boilers now almost universally used, or by sterilisation by heat.

Of course, burnt milk heated carelessly in a plain saucepan is not only unpleasant but is innutritious, but this is no reason why people should be asked to give up a harmless precaution which has been proved over and over again to be most valuable in preventing infectious disease when it is absolutely impossible to know the source of the milk-supply or to keep such source, even if known, under supervision. I have myself traced three cases of enteric fever to the consumption of unboiled milk at country railway stations, and in one epidemic of scarlet fever to my knowledge every house attacked received its milk-supply from one dairy, and at that dairy it was found that the cows were milked by a man who had three cases of scarlet fever in his cottage.

I am, Sirs, yours faithfully,
ALBERT BENTHALL, F.R.C.P. Edin.
Cockspur-street, Pall-Mall, June 29th, 1901.

To the Editors of THE LANCET.

SIRS,—Dr. Clement Dukes has raised a question of the greatest practical importance and his authority lends especial weight to his opinion. As one whose duties include the advising of diet for a large number of infants and young children in a crowded district in London and who invariably orders milk to be boiled I should like to ask: 1. Whether the gradual exposure of milk to a temperature of 212° F.—i.e., short of its own boiling-point—injures its nutritive properties materially? 2. Whether Dr. Dukes's happy experience of freedom from epidemic disease at the school for which he acts may not be due in large part to the power of inspection and control of the milk-supply which is possible in such an institution? 3. Whether, in dealing with a crowded urban community where the milk-supply is various and cannot be efficiently controlled, boiling the milk or heating it to near boiling-point does not still offer the least of two evils and save more lives by the prevention of tubercle and of the acute specific fevers than are lost by the injury to the nutritive value of the milk?

I am, Sirs, yours faithfully,
Finsbury-square, E.C., June 28th, 1901. R. HINGSTON FOX.

To the Editors of THE LANCET.

SIRS,—It is refreshing to find such men as Dr. Vivian Poore and Dr. Clement Dukes protesting against the habitual use of boiled milk, for it is high time an outcry should be raised against such a detrimental practice. For myself I have persistently denounced the boiling and sterilising of milk and can only say I have never had cause to regret having done so. If cows really spread tuberculous disease to the extent which some medical men assert then I would say, since there has been no inspection of cows till of late years it is a wonder there is a single family in Great Britain free from this disease. Years ago it was said that consumption had greatly diminished in the fen country owing to increased drainage, but how did the decline take place if it was daily being disseminated by the ingestion of tuberculous milk? If tuberculous disease has increased so much of late years, then such prophylactics as purer air (provided as it has been by open spaces and diminished overcrowding), better food, and better clothing have proved more or less failures, and, moreover, little can be said for the open-air treatment of consumption, since even the cows have been fed upon fresher and more natural food, and also less confined in close, pent-up sheds. What we really want is, as Dr. Clement Dukes says, more complete and efficient inspection all the way round.

I am, Sirs, yours faithfully,
Bexhill. F. P. ATKINSON.

To the Editors of THE LANCET.

SIRS,—Dr. Clement Dukes has raised a very important question in his letter on this subject in THE LANCET of June 29th, p. 1859, and I am glad he has done so because, doubtless in common with many others, I have had growing doubts as to the wisdom of advising parents to use sterilised milk—doubts which have partly arisen from experiencing some of the evil results to which Dr. Dukes alludes. I do not write with any idea of combating what he has said, but only in the hope that the subject may not be allowed to drop without the discussion it merits. Perhaps the question is mainly of importance as affecting the feeding of infants. Dr. Dukes's position is that in protecting them from certain possible dangers we are subjecting them to other positive evils. The main danger from which the profession has been anxious to protect them in advising the boiling of milk is tuberculosis, for it is the one most constantly present, and apart from this our advice to parents would possibly have been to boil milk only during the prevalence of epidemics of scarlet fever, diphtheria, &c. That this danger of tuberculosis is very generally present is shown by various investigations which have been made—e.g., one made by the late Professor Kanthack and Dr. Sladen into the milk supplied to the various colleges of Cambridge, in which they found tubercle bacilli present in more than 50 per cent. of the different supplies.

On the other hand, the question arises whether, though sterilised milk has been very largely used during the last few years, the cases of evil resulting therefrom have been really numerous; or, in other words, whether the danger which results from boiling milk, though undoubtedly a possible one, is as certain or general as, I gather, Dr. Dukes believes, or sufficiently so to make us cease to advise the boiling of milk. But even supposing that it is, a further question arises, and that is whether we may not avoid this danger in some other way than by ceasing to sterilise milk—as, for instance, by an addition to the milk after boiling which shall make up for the deleterious change, whatever it is, which the boiling has caused. And this is surely a field for profitable research; for at present, so far as my knowledge goes, it is uncertain what this change is. The danger to seamen arising from the absence of fresh food has been met otherwise than by doing away with preserved food.

Though, as I have said, the question is chiefly of importance in infant feeding, it is also worth considering whether the same danger threatens older children, in whose diet milk takes a subsidiary place; or whether, when they are of an age to take a mixed diet with plenty of other fresh food we may not protect them from the dangers of contaminated milk without substituting dangers in other directions.

I am, Sirs, yours faithfully,
Cambridge, June 29th, 1901. ARNOLD C. INGLE.

To the Editors of THE LANCET.

SIRS,—I have only just read Dr. Clement Dukes's letter on boiled milk, and so strongly do I feel on the matter that I feel it a genuine duty to our infant and invalid population to add whatever small weight of influence I may possess into the same scale with Dr. Dukes. My out-patient department at the London Hospital consists to a very considerable extent of babies, and it is simply heartrending to see the numbers of such helpless creatures who are made peevish, fretful, and even seriously ill by the pernicious effects of boiled milk on their nutrition. I heartily and absolutely agree with Dr Dukes that it is in more stringent precautions against th *entrance* of evil-minded microbes that we must find our bes safeguards against the spread of infection by milk, and no in the destruction of them after they have gained entranc by processes which most certainly reduce by a large percentage the nutritive qualities of the article.

I am, Sirs, yours faithfully,
FRED J. SMITH,
July 3rd, 1901. Physician to the London Hospital.

To the Editors of THE LANCET.

SIRS,—May I ask Dr. Clement Dukes to give more fully his grounds for the statements made in his letter to you las week: (1) that the nutritive value of milk is largely diminished by boiling; and (2) that this is also true of sterilised milk? In regard to the case he quotes he does not say whether the "anti-scorbutic food" which caused the child's recovery from scurvy consisted *solely* of unboiled milk or whether anything else, which might have been at any rate partially responsible for the recovery, was included. Again, the absence of tuberculous disease from infection by a milk-supply, which is probably from a carefully selected source, in the boys of a "large public school" where hygienic conditions are so good and outdoor life so universal, is no very strong argument against its transmission to the less fortunately circumstanced children of our large towns.

I am, Sirs, yours faithfully,

June 23th, 1901. M.B., CH.B.

THE CONTAMINATION OF POST-OFFICES.

To the Editors of THE LANCET.

SIRS,—As Parliamentary secretary to the Postal Telegraph Clerks' Association I shall be grateful if you can give me a little space for the purpose of explaining the motives which prompted the members of my organisation to ask Sir W. Foster to take charge of our clause in the new Factory Bill. We have no desire to attack the medical department of the Post Office, but we are anxious to secure sanitary conditions in the telegraph offices The tone of the annotation in THE LANCET of June 29th seemed to convey the impression that you concurred in the view that improvement was necessary, but that the present system of inspection is sufficient to meet the needs of the case. But the question that arises is, Has the present system succeeded? Let the Inter-Departmental Committee (Tweedmouth) answer. It made inquiries at 182 offices and as a result admitted that 69 were in an insanitary condition. Defective ventilation, bad drains, and urinals and water-closets near dining-rooms were the main charges against the Post Office and they were admitted. If the system was satisfactory how came it that a committee of inquiry such as this could report, "Much still requires to be accomplished before the post-office buildings of the country will be placed in a univers[illegible]"

Two [illegible] gation [illegible] London, had complained of insanitary conditions for a long period, but they appealed to deaf ears. When, however, the Tweedmouth Committee visited the building and Dr. W. H. Corfield was asked to make a special report the building was condemned as "overcrowded, incommodious, and insanitary." The staff of the Chief Telegraph Office also complained of insanitation, unsafe exits, and overcrowded dining-rooms. Again the official reports denied the existence of the grievances. After much stir in the public press, many questions in Parliament, and a personal inspection by the Duke of Norfolk, it was found that most of the charges were [illegible] great outlay were made.

[illegible] laid down several "canons" [illegible] Among others were: a due amount of cubic air-space; that all outside doors should open into porches or other like arrangement and never directly into the rooms where the staff are at work; that heating should be by hot-water pipes or hot air; that lavatory accommod[illegible] they should never [illegible] other room; and t[illegible] the work of a post-office the walls, &c., of all offices should be more frequently washed and cleansed than at present is considered necessary.

My association collects facts regarding telegraph offices only, but Sir W. Foster and Sir C. Dilke have been supplied with 50 foolscap sheets of typewriting containing details of cases in offices throughout the kingdom where practically nothing has been done to give effect to these "canons." I am aware that the fault is said to rest with the Office of Works, and it was stated in 1897 that it should be "held to be imperative on the Office of Works to carry out all the demands concerning any local insanitary condition made by the *medical* officers through the correct departmental channel." Mr. Balfour assured the House of Commons on June 7th that every one of the Tweedmouth recommendations had been carried out, and if he is right then the Office of Works naturally obeys this "imperative" injunction.

But telegraph clerks cannot penetrate into the official secrets. We know that insanitation exists and we want it remedied. *At present we have but two methods:* (1) *by* means of a petition; and (2) by drawing Parliamentary attention to the case. Both are cumbersome and unsatisfactory and are a source of constant friction between the supervisory officials and the ordinary staff. We also know that new post-office buildings are not constructed with a view towards studying the health of the workers. Only last year Dr. Ransom of Nottingham suggested that insurance companies before insuring the lives of post-office employés should insist upon some reform, and his remarks were based upon his knowledge of the unsatisfactory condition of the new Nottingham post-office. I cannot trespass further upon your valuable space. But I wish to say this: what telegraphists desire is that the sanitation of the offices in which they work should be placed on a proper footing. It is too much to hope that the English Government will attempt to follow the example of the French administration, but as we have so often failed to secure reform by appealing to the authorities we must now help ourselves.

The Factory Bill gives us the opportunity and we *shall* try our utmost to secure some concession. Failing that, on each occasion the vote for Government buildings is taken in the Commons we shall make a fight. The only difficulty that exists is that a post-office is neither a factory nor a shop and the Government may escape by means of a legal quibble.

I am, Sirs, yours faithfully,

S. W. BELDERSON.

Grantham-road, London, S.W., June 29th, 1901.

"LEGISLATION AGAINST NATIONAL INTEMPERANCE."

To the Editors of THE LANCET.

SIRS,—Dr. Archdall Reid seems to me to be much too dogmatic in his statements. In discussing a question which is so far from being decided as that of the heredity of acquired characters I think that it is the part of a wise man to state his conclusions as probably or apparently true, rather *than to make positive statements which may be upset by fresh* evidence as soon as they have been made. Dr. Reid says that there is no more reason for supposing that muscle or liver or any other of the somatic cells are concerned in reproduction than for supposing that germ cells are concerned in the production of motion or of bile. The argument does not touch the problem. The question is not whether somatic cells are concerned in reproduction, but whether changes in the somatic cells may affect the powers of development or, to use a convenient term, the determinants, of the reproductive cells. Now, it seems to me that if one says that there is no more reason for supposing that the somatic cells can affect the properties of the germ cells than for supposing that the germ cells can affect the properties of the somatic cells, it may be replied, "Just so, but there is very obvious evidence that the germ cells, or at any rate the reproductive organs, can affect most profoundly the development of the somatic cells." I refer, of course, to the well-known but most remarkable effects of castration. If the somatic cells were absolutely independent of the germ cells, I fail to see why the antlers should not develop normally in a castrated stag or why the larynx should remain in the puerile condition in a castrated man

With regard to alcohol, I could scarcely venture to discuss the evidence in detail, but *Dr Reid's arguments do not seem* to me convincing. The idea of alcohol causing extinction by injuring the germs seems to me again beside the question. The almost universal use of alcohol in the majority of human races proves that in moderation it does not necessarily produce evil effects. The *excessive* consumption of alcohol is known to produce neurotic degeneration in the individual. My own conclusion is that excessive indulgence in any person necessarily causes an inordinate appetite or craving for alcohol, and that this craving, with the neurosis underlying it, is often strongly inherited. To my mind the neurosis is an acquired character and the inheritance beyond doubt. I know of instances from my own observation. *When the craving is indulged the* nervous degeneration becomes greater in successive generations, resulting in *insanity, paralysis, idiocy, or cerebral* defect of some kind. Dr Archdall Reid, if he wishes to convince his opponents, should prove that the children of habitual drunkards are normally developed both mentally and physically.

Another consideration of great importance which is generally overlooked is the following. Intemperate habits are very often acquired, or developed, rather late in life, after the victims of them have produced all their children. The children cannot in such cases inherit any of the effects of such habits on the constitution. It is the general experience of breeders of animals that the offspring inherit characters more strongly when the parents are more mature, that is to say, characters which continue to develop until an advanced period of life, e.g., the peculiarities of the carrier pigeon. The mental powers in man are an example of the same kind. They continue to develop long after the time at which most men beget their children, and there is some reason to believe that younger sons generally inherit more brain-power as well as less property. There is also some reason to believe that children produced of aged parents are, in a sense, born old. Such facts, if they are facts, cannot be explained on the assumption that the germ-cells are independent of the history of the soma, and in investigating the inheritance of degeneration due to alcoholism the duration of the alcoholism in the parents *before* the generation of the children must be ascertained. I am, Sirs, yours faithfully,

June 21st, 1901. J. T. CUNNINGHAM.

To the Editors of THE LANCET.

SIRS,—To judge by Dr. Andrew Wilson's letter in THE LANCET of June 29th, p. 1861, I do not seem to have made my position as "clear" as he asserts. I am sure I do not know whether "the germ-plasm is utterly independent of the body-plasm," or "whether the great divergence between germ and soma contended for by Galton (?) and Weismann is a reality." I know absolutely nothing about all that, and, notwithstanding the vast flood of mystical chatter indulged in by various eminent biologists, I am equally sure that nobody else knows more. But I do positively know (1) that a child (for instance) is derived from a single cell of each parent and (2) that the soma (i.e., the other cells) of each man acquires millions of traits. It seems to me incredible that each of these millions of acquirements can so affect the germ that every particular acquirement tends to be reproduced by the child. In other words, the assumption that the offspring of the germ cell tend to reproduce the acquirements of the other cells seems to me as improbable as the assumption that the offspring of Brown tend to reproduce the acquirements of Jones and Robinson. I know, moreover, that for 20 years search has been made for indubitable instances of transmission without success. When, therefore, the transmission is alleged I ask for proof. Dr. Wilson, in reply, refers me to the works of Darwin, Herbert Spencer, Eimer, and others—to this gentleman and that. He adopts an impossible method of controversy. I cannot review the works of Spencer, for instance, in the correspondence columns of THE LANCET. I am prepared, however, to make Dr. Wilson a reasonable offer. Let him describe (giving the necessary details) any instance of transmission alleged by the gentlemen he has named and I will undertake to demonstrate the fallacy. Indeed, so strong do I feel my position to be that I willingly grant him the whole literature of the subject to delve in.

The last sentence of his letter is characteristic. In effect he asserts that nobody has proved that acquired traits are *not* transmitted. I quite agree, and I may add that nobody will ever prove it, but only because no one can prove a negative. Suppose, for instance, I stated that at three minutes past midnight on Nov. 10th, 1900, a dragon sat and curled his whiskers on the cross of St. Paul's could anyone disprove the assertion? Could Dr. Wilson? Certainly not. He would merely say that my assertion was incredible and ask *me* for evidence. I ask him for evidence. The onus of proof rests with him.—I am, Sirs, yours faithfully,

Southsea, July 1st, 1901. G. ARCHDALL REID.

"PUERPERAL FEVER TREATED WITH ANTI-STREPTOCOCCIC SERUM."

To the Editors of THE LANCET.

SIRS,—In THE LANCET of June 29th, p. 1824, I read notes of a case which appears under the heading: "A Case of Puerperal Fever treated with Anti-streptococcic Serum; Death." I think this heading is distinctly misleading. From May 1st the patient is passing through an intensely septic process with repeated rigors, delirium, incontinence of urine (which was albuminous), and thrombosis of both legs and left arm. The patient's condition became so critical that strychnine and brandy were necessary on *May 18th. Then,* on *May 19th, anti-streptococcic serum was used for the first time.* I think that it would have been wise to have stated that the serum was first employed on the nineteenth day after the manifestation of septicæmia. Moreover, one would like to know whether: (1) the case had been proved to be one of pure streptococcic infection by bacteriological and microscopical examination; and (2) what was the nature of the nurse's infection? My personal experience of anti-streptococcic serum is that if it be used early and in sufficient dosage in suitable cases—i.e., in cases proved to be of streptococcic origin—it is as valuable a therapeutic agent as anti-diphtheritic serum.

I am, Sirs, yours faithfully,

Bedford, June 30th, 1901. S. J. ROSS.

ALFRED HUGHES MEMORIAL AT KING'S COLLEGE, LONDON.

To the Editors of THE LANCET.

SIRS,—A movement has been set on foot to establish a memorial to the late Professor Hughes at King's College. It has been felt that his memory should be perpetuated in London as well as in Wales, for the last years of his life were spent with characteristic energy among London students. His anatomical collection has, in accordance with his expressed wish, been presented to King's College by Mrs. Hughes and will bear his name. It is hoped that the fund now being collected will enable us to erect a memorial tablet in the anatomical museum or college chapel and also to found a scholarship or medal in anatomy to be awarded annually and to be named after our late colleague. With this object in view a large number of circulars have been posted to members of the medical profession, prominent anatomists, and others. Already a considerable number of subscriptions have been sent in. These include £5 from Lord Lister, £5 from the Hon. W. F. D. Smith, M.P. (treasurer of King's College), £2 2*s.* from the Archbishop of York, and a number of others, principally from members of the Council, the staff, and the students of King's College. The object of this letter is to make the fund still more widely known. There are doubtless many of Professor Hughes's friends and old students whom it is difficult to reach in other ways who would like to show their appreciation of his worth by sending donations to the fund. A full list of subscribers will be published later. Contributions should be sent to me.

I am, Sirs, yours faithfully,

W. D. HALLIBURTON.

King's College, Strand, June 30th, 1901.

THE TREATMENT OF DYSENTERY AT SPA BY CHALYBEATE WATERS, &c.

To the Editors of THE LANCET.

SIRS,—I think the following case of sufficient importance at the present juncture to warrant publication. Captain ——, aged 27 years, good antecedents, consulted me at Spa on June 9th, having been invalided home from the Cape after dysentery. He had a relapse on the way home, and when first seen was passing from eight to ten bloody stools per diem, with inability to leave his hotel without previously taking 10 drops of chlorodyne, &c. I put him on a course of our iron water and douches and an internal antiseptic treatment. The result has been most satisfactory. In 16 days he has put on eight pounds weight and is now, since eight days, passing formed stools without blood and has ceased using chlorodyne. I am, Sirs, yours faithfully,

DR. A. CAFFERATA.

Avenue du Marteau, Spa, June 28th, 1901.

EQUINE VARIOLA—HORSE POX.

To the Editors of THE LANCET.

SIRS,—During the last few weeks I have had five or six cases of the above disease in the human being accidentally inoculated from the horse, but as I do not remember ever seeing any note of similar cases I thought it might be of interest to record it. The subjects have all been stable lads employed at racing stables, and the disease has generally been inoculated into the hand or arm while drenching or balling a horse. In one case, however, the upper eyelid was the seat of inoculation. The phenomena have been far more acute and of shorter duration than in *vaccinia.*

I am informed that several years ago a number of cases were seen here in which the symptoms were so acute that the disease was at *first diagnosed as anthrax*

I am, Sirs, yours faithfully,

Newmarket, July 2nd, 1901 ERNEST CROMPTON, M R C S

"SIMULATION OF BERI-BERI"

To the Editors of THE LANCET

SIRS,—*Apropos* of your annotation on simulation of beri-beri in THE LANCET of May 25th, p 1483, this method of producing an œdema of the feet is well known to Indian prisoners I remember such an "outbreak" some years ago when it was found that the œdema was produced by a needle-and-thread soaked in lime —I am, Sirs, yours faithfully,

Bengal, June 9th, 1901 W J B

THE DIFFERENCE BETWEEN THE GENERAL MEDICAL COUNCIL AND THE CONJOINT BOARD.

To the Editors of THE LANCET

SIRS,—Having been forced to take great interest in the preliminary scientific education of medical students during the last two years my experiences and conclusions may interest your readers

First, the experiences In the autumn of 1899 I applied at the offices of the General Medical Council for information as to where the first year of studentship might be passed, and was given the list of schools recognised by the Conjoint Board as being a reliable guide In January, 1900, my eldest son, who had entered at one of these schools, was told when he applied to register that the list of the Conjoint Board was no longer recognised by the Council *and that his case must be considered specially* Eventually, after a period of suspense, his time was recognised. In July, 1900, I [illegible] General Medical Council for a [illegible] as another son had matriculated [illegible] him to lodgings in London when he was barely 17 The Registrar wrote· "The question of the approval of these institutions is still under consideration, each case is meanwhile considered on its merits" The question remained under consideration for the whole of 1900, no doubt to the great inconvenience of many others besides myself and my son I fixed on a public school recognised by the Conjoint Board which had four boys in its "science sixth," who had passed the Preliminary Scientific London, and others preparing for it, and I inquired of the Registrar whether my second son's time would be recognised if it was spent there His answer was to the effect that the Council objected to that class of school, but at the same time he recommended a university college in the same town at which my son would have none of the great advantages of school life—e g, games, supervision, &c Eventually I had to enter him at a London hospital (paying £50) to enable him to register, and send him to an unrecognised school besides, as I wanted him to pass [illegible] unnecessary delay If you [illegible]onished to find how many of the London hospitals cannot be relied upon to pass their candidates for that examination Some are safe on the zoological side but cannot teach students the necessary chemistry and physics; with others it is the opposite, and probably there are some that can teach both, but the unrecognised school does best.

My conclusions are that the General Medical Council has not given due consideration to the convenience of medical students and their guardians Full notice of these alterations should have been made public and sent to the schools concerned (Two of the schools learned the news from me nine months after their tacit recognition by the Council had ceased) The year and a half of suspense has probably been a great inconvenience to many and there should be strong grounds to excuse it The final decision is likely to be very detrimental to students in future Firstly, by preventing the youth of 16 or 17 years of age who is anxious to press forward in the medical profession from spending the usual final year at school where he learns much that is good for him as monitor, leader in games, and such like to say nothing of the great physical advantages which school has over life in London lodgings These deprivations I regard as positively cruel towards the student and injurious to our profession, which depends on the good qualities of its members for the position which it holds *If the rising generation of medical* practitioners be forced into cheap lodgings in big cities at an early age we may safely foretell retrogression Secondly, in many cases the youth will have to forego a good system of education for an inferior one

The Conjoint Board may have been too free with its recognitions, but certainly the Council has not been free enough Surely all schools which can pass students for the Preliminary Scientific, London, regularly might be recognised by the Council, or, better still, students who pass the preliminary scientific or first professional examination of any licensing body might be accredited with having done the period of studentship allotted to preparation for it by medical schools Why should a system of protection through registration be afforded to the recognised medical schools and a few others when their education in elementary science is not always the best There is a general opinion that the great argument in favour of the five years' curriculum was that medical students had not enough practical work in their courses and that part of the fifth year at least was to be devoted to assisting physicians, surgeons, or general practitioners in hospital or outside Now that it is instituted we find students forced to spend at least a year at preliminary subjects and the same old want of real experience facing the newly-fledged licentiate though he has spent more time and more money in getting qualified than his father did (for all the hospitals have raised their fees) May the memory that, unlike his father, he spent much time and energy in hunting for the ovaries of earth-worms and the lymphatic hearts of frogs console him in his trouble over failure to put his first good private patient on a satisfactory diet. Is this elaborate training in elementary science really advisable? It is possible to give students too much of a good thing I am, Sirs, yours faithfully,

June 28th, 1901 MEDICUS ET PATER

BIRMINGHAM

(FROM OUR OWN CORRESPONDENT)

Birmingham and Midland Counties Branch of the British Medical Association

THE annual meeting of the Birmingham and Midland Counties Branch of the British Medical Association was held on June 13th at the Medical Institute The report of the council stated that the last year had been one of exceptional interest and activity In addition to the ordinary meetings two special meetings of the branch had been held, and the attendance had reached the high average of 65 per meeting, the extremes being 38 and 109 There had also been six special council meetings *One of the* special branch meetings and the greater part of one ordinary meeting were devoted to a discussion on the Coventry Provident Dispensary, and a resolution was passed expressing the opinion that no professional recognition should be given to the medical staff of that institution by members of the branch Forty new members had been elected during the session, and the present membership of the branch was 443 The report of the pathological and clinical section, and the report of the ethical committee were received, both of which evinced signs of much valuable work during the session The financial report showed a balance of £23 4*s* Various votes of thanks were passed Dr Malins was elected president and Mr J T. J Morrison and Dr T Stacey Wilson were elected honorary secretaries The members, with a distinguished representation of the City Council, the University and friends, dined together subsequently, the proceedings being characterised by enthusiasm and good feeling throughout

The University of Birmingham

The different faculties have had a busy time recently in conducting examinations for degrees of the new University The medical faculty has been exceptionally occupied by the large number of candidates Forty-one qualified medical men availed themselves of the opportunity of taking the final examination for the degrees of M B and Ch B, having been past students of the school Some 27 of these were successful The first degree congregation of the University is to be held in the Town Hall on July 6th when the Chancellor of the University, the Right Hon Joseph Chamberlain will confer degrees upon the candidates for graduation. The council of the University has confirmed a recommendation of the Senate: "That at the forthcoming degree congregation every member of the Senate be admitted to a Master's degree, professors in the faculties of arts to receive the M.A. degree, and professors in the faculties of science and medicine the M.Sc. degree." The appropriate academicals being worn by the staff of the University and by the candidates an imposing array will be presented at the ceremony which is expected to be largely attended. An important letter from the Chancellor of the University was presented to the City Council on June 18th, in which Mr. Chamberlain recited the value of the University and the necessity of spending large sums on buildings, machinery, and equipment. He alluded to the liberality of many contributors and munificent gifts from strangers which had resulted in a subscription list of more than £400,000, and then made an appeal to the authorities of the city in the first place and also to those of the neighbouring counties to make a grant in aid of maintenance from the funds which the legislature has placed at their disposal or which they are authorised to raise by rates. Precedents are given from other towns. It is shown that a rate of a halfpenny in the pound would provide an annual contribution of £5000, which would justify the council in proceeding immediately with the new departments. The council of the city is already represented by five of its members upon the governing body of the University—a sufficient guarantee of the disposal of such contributions. The proposal was referred by the City Council without discussion to the General Purposes Committee with instructions to report.

The Housing Question.

At a meeting of the City Council held on June 18th a recommendation of the Health Committee was brought forward with regard to a plan to build 621 workmen's dwellings upon land purchased for that purpose last year at Bordesley Green. An amendment was carried by two votes, after considerable and lengthened discussion, that the scheme should be referred to a special Housing Committee to be appointed in November next. The chairman of the Health Committee therefore withdrew the motion. A motion to instruct the General Purposes Committee to hold an investigation as to any lack of efficiency in the sanitary administration of the city in recent years was also rejected. Much attention is being given by various ladies to the question of the hour in this direction. Ministers of religion preached special "slum" sermons on June 30th, and endeavours are being made to excite public interest in so important a matter.

Illness of Mr. Jordan Lloyd.

I regret to announce the illness of Mr. Jordan Lloyd which occurred somewhat suddenly and culminated in an operation for appendicitis on June 27th. This was performed by his colleague, Mr. Bennett May, and I am glad to hear that the patient is progressing satisfactorily. Mr. Jordan Lloyd's many friends will join in congratulations and hope for his speedy recovery.

Hospital Saturday Fund.

The amount paid into the bank this year, so far, amounts to £14,499 odd; last year it was £13,681. The committee hope that there will be a great many more subscribers to the fund this year.

July 2nd.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Watered Butter: Special Machinery.

CASES are not infrequently brought forward where butter has been watered, and strong opinions have been expressed *pro* and *con*. The dealers say that a certain percentage of water is necessary, but no doubt this is often fraudulently exceeded. On June 20th the proprietor of some creameries in Devonshire was fined £5 and costs at the City Police-court, Manchester, for giving a false warranty as to butter sold to a Manchester dealer. In this case the defendant pleaded guilty, and his solicitor was instructed to say that during a great rush of business the workpeople had probably been careless, and that during the last three years between 200 and 300 analyses had been made without any adulteration being found. This may, perhaps, be a feasible excuse. Such a plea, however, would not apply to a case heard at Ashton on June 26th, when a retail dealer was fined £10 and special costs amounting to £3 11s. In this case Mr. Williams, the county analyst, said that the butter contained over 23 per cent. of water, "the largest quantity, with one exception, that he had ever found in the county of Lancashire." He added also that "the water had been intentionally and fraudulently put in the butter. Special machines were sold for this purpose and in this case the butter had been warranted from the dairy in Somersetshire to the retailer." The report, which ends with the quaint remark—"much interest was evinced in the case"—does not make it clear whether the manufacturer or the retailer had exercised this misapplied ingenuity. But if "special machines are sold for this purpose," the practice of forcing an excess of water into the butter must be a common one.

Manchester Royal Infirmary.

On June 24th a recommendation from the appointments committee of the infirmary that Mr. J. V. Stock be appointed resident medical officer for one year at a salary of £150 was confirmed by the Manchester Infirmary Board. The Chairman, Sir Forbes Adam, also announced the election of Mr. J. W. Smith to the office of honorary assistant surgeon to fill the vacancy caused by the appointment of Mr. Joseph Collier as an honorary surgeon.

Review of the Lancashire St. John Ambulance Corps.

The St. John Ambulance movement may be taken as w established in Manchester, for the eleventh annual revie and demonstration of the North-east Lancashire corps the brigade was held on the Manchester Athletic Club grou on June 22nd. There was a good muster from the vario towns in the division and a large attendance of spectato The weather, unfortunately, interfered a good deal with t proceedings, but the principal competitions were successful gone through. The Manchester corps retained the Moll cup won by them last year, Preston and Blackpool comi second and third. The nursing division wore the regul tion uniform of black dresses with white aprons and cap and took part in the march-past and bandaging exhibition The inspecting officer was Colonel C. W. B. Bowdler (com missioner), and there were also present Lieutenant-Colon C. J. Trimble (deputy commissioner, No. 4 District) an Mr. J. C. Derham (assistant commissioner, No. 4 District the last of whom was in command. In his address to t brigade the inspecting officer expressed satisfaction at t manner in which the ambulance drill had been done and sai that 806 men had gone from that division to serve in Sout Africa and that "letters from the front spoke in high term of the splendid work they had been able to do there." Th showed the excellence of the training received at home.

Preservatives in Milk.

A case in which a milk-dealer of Gorton had bee summoned the previous week "for selling milk not of th nature, substance, and quality of the article demanded," wa brought up again for judgment before Mr. Yates, K.C., th stipendiary magistrate at the Manchester City Police-court, o June 25th. It was of some importance, being taken as a te case. The analysis by Mr. Williams of some of the milk i question showed that formalin had been added to the milk For the defence it was contended that it was added as a pre servative and was necessary for its carriage, also tha the analyst's certificate was insufficient as it was onl qualitative. The magistrate was of opinion that formali was so volatile that the quantity in the milk coul not be accurately ascertained, but if wrong in this opinion h was satisfied from Mr. Williams's evidence that there was a least one part in 50,000 of the milk. He thought that it was impossible to contend that (unless very carefully used by a experienced person) it was not injurious to health. It was very pungent, and had to be carefully handled to avoid injury to the hands, and it was admitted that if used in too large quantities it retarded digestion. He was glad to be able to arrive at this conclusion, as he thought it would be a very dangerous thing if an unskilled milk-dealer were allowed to mix an ingredient like formalin with a food so universally used as milk. He found that this milk was not of the nature, substance, and quality demanded, and that formalin was not necessary for its preservation during carriage. As it was a test case 40*s*. only and costs were imposed, and five guineas for extra costs.

Pollution of the Ship Canal.

At a meeting of the Mersey and Irwell Joint Committees held in Manchester on July 1st the corporations of Manchester and Salford came in for some strictures, especially the former. The Medlock is in a much worse condition at Knott Mill than when it enters the city, principally from trade waste, brewery waste, and from the storm overflows of the corporation sewers. According to the report of the chief inspector (Mr. R. A. Tatton) these are very unsatisfactory and are often found to be working not only when there is no storm, but in the driest weather. Mr. Tatton's reports on the progress of their sewage works" are to be sent to each corporation and attention is to be drawn "to the rise year by year in the amount of organic impurity in the effluent." The chairman to the Consulting Sub-Committee said that the fact that the Manchester effluents had steadily grown worse might be accounted for by the effluents from a number of manufactories in the city being received by the sewers and possibly because there was an enormous decrease in the amount of the chemicals used. He thought that the Manchester Corporation should be told that as they had been so leniently treated they should do all they could to improve their tank effluent pending the completion of the bacteria beds. Another member said that they had tried the polite method for many years and he thought that it had lost its power. Both corporations were remarkably active in undertakings where they could see their way to a profit. He contrasted the expedition with which the Manchester Corporation tramways had been got to work with the method of dealing with the Ship Canal nuisance. One of the Manchester members said that the Rivers Committee of the corporation was doing "everything within the limits of human power," &c. It cannot be pleasant for the corporation to read such statements as are repeatedly made at the meetings of the Joint Committee, but the condition of the canal is bad enough to justify very strong language. As far down as Flixton, Lymm, and even Latchford its foulness seems to be no less than it was several years ago. The nuisance is so sickening and the stink is so unspeakably abominable that mere motives of humanity should urge the corporation to efforts a little greater than those considered by Mr. Brocklehurst to have reached the limits of human power, and no doubt this could be done.

Sandlebridge Colony for Epileptics

In addition to the provision for epileptics made by the joint committee of the boards of guardians of Manchester and Chorlton private benevolence is engaged on an important undertaking at Sandlebridge, near Alderley. About 130 acres of the Sandlebridge estate have been set aside and are being laid out as a colony for the treatment of epileptic patients. There will be accommodation at the outset for 200 patients. It is probable, however, that extensions will have to be made before long, as already the applications for admission from various parts of the country and from Ireland exceed that number. The sexes will be separated, there will be playgrounds and a school for children, and workshops and laundry for adults. The grounds have been planted with fruit trees and shrubs at a cost of some thousands of pounds. A few patients are to be received f [illegible] yment will be made for the inmates [illegible] the means of their friends. This [illegible] the visits paid by Dr. J. M. Rhodes and Alderman McDougall of the [illegible] uardians to various institutions for [illegible] eptics in Germany, France, and Belgium as a deputation from the Joint Asylums Committee. As a result of their reports and recommendations an influential committee was appointed to carry out a scheme for a colony and public subscriptions to the amount of between £7000 and £8000 were raised. Mr. B. W. Levy, the legatee of the late David Lewis, whose benefactions to Liverpool and Manchester deserve the gratitude of the community, was then appealed to. After investigation this gentleman decided to purchase the Sandlebridge estate of over 500 acres out of the Lewis Trust, and to provide the buildings and equipment at a cost of something like £120,000. But this most generous gift will not be sufficient for all purposes, and the committee has to raise from the public an endowment fund of at least £20,000, in addition to a certain sum in annual subscriptions. This is an admirable opportunity for the benevolent rich. It is expected that the colony will be ready for patients in about two years. At the last meeting of the Manchester Board of Guardians Alderman McDougall corrected an idea that had got abroad that the guardians would be able to send the epileptics from the workhouse to the Sandlebridge Hospital, which was never intended, as he delicately puts it, "for the guardians' patients."

July 2nd.

WALES AND WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

Ratepayers' Associations.

THE avowed purpose of the ratepayers' associations which in recent years have been established in many towns is to keep down the rates in the particular districts concerned and they are thus in a sense antagonistic to sanitary reforms for which some expenditure is usually required. An exception is to be found at Dinas Powis, a village in the Llandaff rural district which adjoins, and is almost a suburb of, the town of Barry. The necessity for taking some action to improve the sanitary condition of the village was discussed at the last meeting of the sanitary committee of the Glamorgan County Council and a report has now been issued by the local ratepayers' association stating in considerable detail the actual conditions which are to be found. This report can hardly be pleasant reading to the district council, the members of which must feel that they have neglected the duty cast upon them by the Public Health Act, 1875, to inform themselves of the existence of any conditions which are inimical to the health of the inhabitants of their district. Information is given in the report of the association with regard to 277 of the 310 houses in the village. As there is no sewer a brook takes the overflow from 129 cesspools. In many other houses there are privy middens which are seldom emptied and in several instances the contents of cesspools and privies have to be carried through the living rooms of the houses to which they are attached. In his last annual report the medical officer of health drew the attention of the council to the condition of the village and pointed out the manner in which reforms could be effected.

Bristol Cottage Homes.

The Bristol Board of Guardians have 200 children living in 16 scattered homes and are proposing to establish at Downend a colony of cottage homes for the accommodation of 204 children. The scheme, for which plans were approved on June 28th, provides for the erection of 14 semi-detached houses each to accommodate 12 children, a convalescent home for 36 children, a large hall, and a lodge. Nine local architects had been invited to submit competitive designs and their estimates for carrying out the works indicated above varied from £14,165 to £23,380. The guardians decided to carry out the plans of the architect whose estimate was the lowest.

Bristol Hospital for Sick Children and Women.

The four days' bazaar which was recently held in Bristol for the purpose of raising funds for the Hospital for Sick Children and Women realised the sum of £3085.

Drainage of the Monmouthshire Valleys.

In THE LANCET of Feb. 2nd, 1901, p. 362, reference was made to the provision of drainage for the western valleys of Monmouthshire. The report of the engineers appointed by the urban district councils of Ebbw Vale, Nantyglo, Abertillery, Abercarn, and Risca, and by the rural district council of St. Mellons has now been presented. The aggregate population of these six districts is 93,540, showing an increase of 20,589 during the last decade. There are still many portions of the valleys unopened, and as they are also comparatively near the sea-board and are well served with railways there is every likelihood of a considerable increase in the population in the future. The engineers were practically called upon to decide whether it would be more economical for the drainage of each district to be dealt with separately, either by irrigation or upon the bacterial system, or whether there should be constructed a joint sewer to serve the combined districts, discharging the sewage without treatment into the Bristol Channel. The initial cost of separate schemes is estimated at £254,000, to which sum would have to be added the expense of pumping, amounting if capitalised to £200,000. The cost of a combined sewer is estimated at £170,000, and although there would still be [illegible] keep this would [illegible] The only main [illegible] uthshire is that which was constructed between the years 1889 and 1892 for the Rhondda valleys and Pontypridd. This sewer, which cost £170,000, is 17½ miles long and discharges into the Bristol Channel about four miles above Cardiff, taking the sewage from a population of 145,000 persons. Leading into this main outfall are two subsidiary sewers along each of the Rhondda valleys, one of which is 10 miles and the other seven miles long, and which cost in construction about £60,000. The advocates of the privy-midden system so prevalent in the north of England are constantly declaring that, however suitable water-carriage may be for residential districts, it cannot be adapted to the houses of the working classes. This is quite contrary to the experience of those Welsh colliery districts, such as Rhondda and Pontypridd, where water-carriage is completely adopted and where the blocking of drains from improper usage is not by any means a common occurrence.

Abergavenny Cottage Hospital.

On June 28th the Marquis of Abergavenny formally laid the foundation-stone of the new cottage hospital and dispensary at Abergavenny. The building is to be erected on a site of land given by the corporation of the town.

Handel Cossham Memorial Hospital.

This new hospital, which is now being erected at Kingswood, will provide accommodation for about 50 patients. Mr. Cossham bequeathed nearly £100,000 for the structure, which sum will be available for the building and its endowment. The site comprises about four acres of land and is on one of the highest points in the neighbourhood, being nearly 370 feet above sea level.

July 1st.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Sanitary Inspectors' Association.

THE annual congress of this association was held in Glasgow on June 28th. A welcome to the delegates was offered by the Lord Provost who in the course of a short address reviewed some of the features of the recent epidemic outbreaks in the city. He paid a high compliment to the medical and sanitary departments for the energetic and efficient manner in which they had met the difficulties created by the invasion first of plague and later of small-pox. Drastic measures had no doubt been required to overcome the latter epidemic, but these had now proved successful and the city was nearly free from its presence. In connexion with these matters the Lord Provost announced his firm belief in vaccination and stated that his faith in it had been strengthened by what he had seen during the recent visitation. At the same time he urged the immense importance of sanitary precautions and sanitary conditions. Vaccination even if adopted universally in the city would be no excuse for failure to apply, or if necessary to increase, the compulsory powers of the health authorities. Recent experience had shown that it was in those areas of the city where the sanitary conditions were at their worst that small-pox obtained a position which it was very difficult to attack with success, and that on the contrary personal and domestic cleanliness, though not an absolute protection to the individual, meant the establishment of conditions antagonistic to the invasion and spread of the disease. Thus the general work of the sanitary inspector became a matter of first importance in relation both to the well-being of the individual citizen and to the protection of the whole community. His lordship was cordially thanked for the welcome which he had extended on behalf of the corporation and for the address which he had delivered to the delegates. In the course of the proceedings several references were made to the recent outbreak of small-pox in the city and the generally expressed opinion was that the management of this, considering all the difficulties of the position, had been decidedly successful. In the President's address figures were quoted to show that the death-rate of Scotland had decreased in each decade since 1861. The figures in the four decades terminating in 1870, 1880, 1890, 1900, were respectively 22·05, 21·63, 19·20, 18·74 average annual deaths per 1000, this being a reduction in the death-rate of 3·31 per 1000. Taking the eight large towns the death-rate had fallen from 28·2 per 1000 in the first decade to 20·9 per 1000 i the last, a reduction of 7·3. In connexion with the Compulsor Notification Act it was shown that about 50 per cent. of th notified cases of scarlet fever were treated in their own home and that this was an influence tending to the extension an persistence of the disease. The hospital treatment of eac case cost the community about £10. If compulsory remova to hospital were insisted on the number of cases would b rapidly diminished and very soon the expense to the community would be reduced. Another question which occupied the attention of the congress was the proposal to establish a port sanitary authority for the Clyde. Bailie King, in a paper on this subject, stated that they had every reason to believe that both bubonic plague and small-pox had passed into the city through the port. Though the corporation possessed the necessary powers under the Act of 1899 they had not yet constituted a port sanitary authority. This was due partly to the difficulty of securing the coöperation of other local authorities on the banks of the Clyde, but they expected shortly to overcome this and other difficulties. They had under consideration a scheme by which a complete defence would be set up for the purpose not only of preventing the entrance to the city by the river of persons suspected to be the subjects of infectious disease, but also of detaining dirty and insanitary ships until they were properly cleansed and disinfected. For some years they had employed a special inspector to devote his attention to seamen's and emigrants' boarding-houses with good results, and it only needed the establishment of a health authority for the port to render their sanitary armament complete. After some discussion a resolution embodying this view was passed unanimously and it was decided to send copies of this to the Secretary for Scotland and the Local Government Board Other subjects considered by the congress included the ventilation of houses, the standard for milk, &c.

Reconstruction of the Glasgow Royal Infirmary.

The unfortunate controversy regarding the rebuilding scheme is not apparently to be allowed to terminate. The Glasgow Institute of Architects is not satisfied with the explanation published on behalf of the executive committee and has sent to the press a further statement of objections In this it is contended that the plans as adopted are in many vital particulars inadequate and out of date and that the [illegible] lings, more particularly of the block [illegible], is bad. This block from its height, it is repeated, will shut out the sun and air from the rest of the buildings and will dominate and destroy the effect of the cathedral. The institute further criticises the manner in which the committee proceeded in the selection of the plan of reconstruction and urges that some of the rejected designs were free from the defects of the one adopted. Of course, all this must act prejudicially on the subscription lists, of which, indeed, little has been recently heard. And apart from other disadvantages delay has meant the appearance of appeals for funds from the University, the Technical College, and the Western Infirmary, all of which have schemes concerning which controversy is silent. In any case these must necessarily be serious competitors for public favour, but under the present circumstances it will not be surprising if the Royal Infirmary fails to obtain its due measure of practical support.

Hospital Saturday in Aberdeen.

June 29th was Hospital Saturday in Aberdeen. There was a monster procession of cyclists, members of friendly societies, the fire brigade, horses, machines, &c., through some of the principal streets to Duthie Park, where a military display and sports took place. There was a large attendance of the public. On the evening of June 28th there were also cavalry sports in the park, a detachment of the Scots Greys and the band of the Black Watch being present. The weather was fine on both occasions. The financial results are not yet known.

Sanitation at Fishers' Squares, Aberdeen.

The Aberdeen Town Council has called on the owners of properties at the Fishers' Squares, Footdee, in that city, to place all cellars or outhouses on an appropriate area, to introduce water and to fit up sinks in the dwelling-houses, and to provide for each a sufficient water-closet. In cases of default the town council will execute the works at the cost of the proprietors concerned.

July 2nd.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Irish University Commission.

AT the annual meeting of the Royal University Graduates' Association held in Belfast on June 29th the following resolution was unanimously passed:—

> [illegible] Royal University Graduates' [illegible]he constitution of the Irish [illegible] grounds: first, that the Government have departed from the principle of appointing only such persons as are entirely unprejudiced on this important question and have included the names of several who have pronounced strongly biased views on one side; second, that the faculties are not represented thereon in proportion to their importance, and third, that there are on the commission certain members whose acts will form part of the subjects of inquiry and report.

At a meeting of the Higher Education Committee of the General Assembly of the Presbyterian Church in Ireland, held in Belfast on June 28th, resolutions were unanimously adopted opposing the establishment and endowment of any denominational university or college and protesting in the strongest manner against the exclusion of Trinity College, [illegible]n, as no settle- [illegible]ded as final or [illegible] University and [illegible]ointment of the [illegible] to the Government the earnest hope "that the constitution of the commission shall be such as to be a guarantee to the public that the great object aimed at shall be the advancement of education and not the promotion of any merely sectional or denominational interests." The Education Committee of the Presbyterian Church protest that as a large proportion of the members of the commission are known to be in favour of one policy (denominational education), while no recognised opponent of such a policy has found a place on the commission, any report the commission may make is discredited beforehand as likely to be partisan and one-sided.

Outbreak of Typhoid Fever in Belfast.

The medical officer of health reported to the Belfast City Council on July 1st at their monthly meeting that "there can be no doubt but that there is at present a serious outbreak of [illegible]." Between May 19th and June 15th, 1901, [illegible] of typhoid fever notified, as compared [illegible]ding month and 177 in the corresponding four weeks of last year. The outbreak first occurred in the Woodvale district which is a part situated in the higher portion of the city. It has since spread into the adjacent districts and at present is prevalent in all parts of the city. The only crumb of comfort is that whilst the number of cases has almost doubled, yet the deaths therefrom were 22 for the last four weeks, while in the preceding month they were 19; they were 29 in the corresponding month of last year. Dr. J. Fulton, dispensary medical officer of the district in which the outbreak occurred, attributed the majority of the cases to the dry weather in the month of May which had caused an accumulation of sewage in the sewers. A very animated discussion followed the presentation of the public health report in the City Council. The vice-chairman of the Public Health Committee (Dr. J. King Kerr) said that when on June 13th it was reported that 71 cases of typhoid fever had been notified during the week they had ordered their sanitary officer and medical superintendent, and with them Dr. Fulton and Dr. A. G. Robb, to supply them with a thorough and impartial report as to the cause of the outbreak and that their report was a very serious indictment of the state of affairs arising from matters connected with another public board in the city. It was, he said, a strong indictment of the Stoneyford catchment area, and they would present it when they had the fullest details. They had found no cause either in regard to sewers, houses, dams, or milk-supply for the outbreak of typhoid fever. Failing all these as causes they looked to the water-supply and they believed that the water-supply from Stoneyford catchment area was a menace to the health of the city. Councillor J. D. Williamson, M.D. R.U.I., took an entirely opposite view and said that it was not [illegible] trot out the [illegible] the sculleries [illegible] case occurred [illegible] had been ba[illegible] the "tippings" that were taking place all over the city, and on these places where the dirt was being cast houses would presently be erected without any regard whatever to the nature of the soil on which they were erected. He advised the water commissioners not to lay pipes through these impure soils as crackings of pipes might let impurities into the water. Alderman P. O'Connell, M.D. R.U.I., and Councillor A. V. Browne, L.R.C.P., L.R.C.S. Edin., also blamed the polluted subsoil. There can be no question that this continued friction between two public bodies like the corporation and the water commissioners of Belfast as to the cause of repeated outbreaks of typhoid fever in that city is a great mistake, and as a result nothing whatever is being accomplished to prevent the occurrence of the disease. The only solution is to get a skilled expert—a public health officer of experience from England—to come over and to investigate the whole question and to let the citizens know the truth and see on whose shoulders the blame for these annual epidemics rests.

July 1st.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Assistance Publique.

M. RANSON has just laid before the Municipal Council a report upon the work of the Assistance Publique in Paris. The report is a lively criticism of different abuses. First of all with regard to the nurses the report states that at the Lariboisière Hospital the principal nurses who are in charge begin their day at 5.30 A.M. and do not go off duty until 6 P.M., while five of their number keep on duty until 8 P.M., making a total day of 14½ hours which is broken only by 80 minutes which are allowed for three meals. About every seven weeks these nurses go on fatigue duty from 8 P.M. until 11 P.M.—that is to say, three hours' more work, making a total day's work of 17½ hours. If we consider that these unfortunate women must have half an hour to go to bed and as much time in the morning to dress and to perform certain indispensable toilet arrangements it can easily be seen that they have not more than five hours' sleep. It is very difficult for a young woman on whose shoulders are laid very delicate duties, for the right performance of which it is necessary that she must have all her wits about her, to avoid occasional failure in the presence of so much work. M. Ranson finally called the attention of the council to another point. He stated that three kilometres of string which had been ordered at a cost of 5 francs 85 centimes had taken six weeks to be delivered. An order form took 92 days to get from the Salpêtrière to the central depôt, although these two establishments are absolutely next door to one another. A patient who had been operated upon and for whom the surgeon had signed his ticket of dismissal had to stop in hospital for six weeks for the want of an orthopædic apparatus because the order for it had been pigeonholed all this time in the bureau of the Assistance Publique. This cost the administration four francs per day—that is to say, they had to pay 160 francs in addition to the cost of the apparatus. At the central depôt a machine for measuring cloth and costing 1500 francs had been waiting for two years for a governor, and during this time the attendants had handed out cloth in any quantity they liked. As a matter of fact, 30 per cent. of the bedding was in such a state that it would be far more preferable to destroy it than to keep it. The chief cause of this was the state of the disinfecting stoves, but the [illegible] and purifying mattresses also gav[illegible]ults. The mattresses were run thr[illegible] and were re-made in a hurry w[illegible] hair being thoroughly carded as they should be. For the workmen had to re-make the mattresses as fast as possible if they wished to make even two francs a day by them. Only 40 centimes were paid for mattresses. M. Ranson concluded by saying that the stock of linen which had almost run out would alone cost 3000 francs to renew. The Assistance Publique had hidden its deficits and had actually violated the law, because it gave out that a reserve of linen existed which did not exist. The institution would have to be re-constituted but money was wanting. The realisation of the promises of the new director is awaited to bring about a great reform.

Cerebro-spinal Fluid after the Injection of Cocaine.

At the meeting of the Society of Biology held on June 15th M. Ravaut and M. Aubourg communicated a paper in which they pointed out that after coming to the conclusion that headache after injection of cocaine into the spinal canal might be due to the presence of the cocaine in the cerebro-spinal fluid as well as to the increased tension they drew off some of the fluid some little time after the injection had been made. In this manner they managed to draw off some 20 cubic centimetres of cerebro-spinal fluid which spirted out with great force. As a rule the headache was very much diminished after this second tapping. With regard to the cerebro-spinal fluid drawn off it was generally found to be turbid. Chemical examination revealed the presence of cocaine, and microscopical examination showed that it contained a marked quantity of polynucleated cells which upon centrifugalisation made a clot upon the bottom of the tube. Sometimes the fluid clotted uniformly in the tube after it was left quite at rest. If the puncture was repeated during the following days it was found that at the end of three or four days the liquid, which had gradually become clearer, contained only lymphocytes and mononucleated cells and finally no formed elements of any kind. The fluid was found to be absolutely normal at a period varying from eight to 20 days after the first injection. Out of 21 patients only one was found to give perfectly clear cerebro-spinal fluid. It is obvious then from these observations that cocaine, however carefully sterilised, has a special influence upon the spinal membranes and brings about alterations in them which, although very fleeting in their effects, are in all points analogous to those observed in certain cases of meningitis although there is no trace of any microbe to be found in the cerebro-spinal fluid.

A Method of Detecting the Bacillus Typhosus.

M. Cambier explained at the meeting of the Academy of Sciences held on June 10th a method of detecting the bacillus typhosus. He placed a porous porcelain bougie in a large glass tube, both tube and bougie being half filled with bouillon sterilised at 110° C., and showed that when the bouillon contained within the bougie was inoculated with a pure typhoid culture, after some hours' subjection in a stove to a temperature of 37° C., that part of it in the glass immediately around the bougie, which had been originally quite limpid, presented manifest symptoms of the passage of the bacillus through the pores of the bougie. This property possessed by the bacillus typhosus of being able to traverse certain porous divisions suggested to M. Cambier the idea of making the following investigations in water. He infected a certain quantity of water within the bougie with the bacillus typhosus. The bougie was placed in a litre of bouillon at 38° C. As soon as a cloud appeared in the bouillon outside the bougie, with a delicate pipette he removed drops of the turbid fluid and inoculated with it different common substances—such as milk and potatoes, for example—which were afterwards submitted to microscopical examination and the agglutination reaction. Sometimes the passage of the bacillus typhosus was so complete that he found a pure culture of it within the bouillon. M. Cambier was able by this method to isolate the bacillus typhosus in the water of the Seine and of the Marne. His investigations are now being directed towards typhoid stools.

July 2nd.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Courts of Honour for the Army and Navy Medical Corps.

COURTS of honour are to be instituted for the medical officers of the army and navy. These gentlemen have hitherto not been under the jurisdiction of any court of honour, either military, naval, or civilian, the result being that in the event of a dispute arising between a medical officer of these services and another officer or a civilian medical man there was no means of deciding which party was in the right. The Imperial order which has been issued on this subject, after speaking in the highest terms of the merits of the army medical corps, says that His Majesty expects the courts of honour to maintain the general interests of all the members of the corps and to uphold the sentiments of duty and fidelity. The medical officers of the reserve, though under the jurisdiction of the courts, will not be entitled to act as judges. This course has been taken in their interest because they might otherwise be put to inconvenience in connexion with their practices. In cases where a charge has been brought against a medical officer of the reserve the matter must be adjudicated by the medical chamber previously to the verdict of the court of honour of the army medical corps. There will be two kinds of courts—one in each division for medical officers of the rank of staff surgeon and under and one in each army corps for the medical officers of higher rank. These courts are to be presided over by the chief medical officer of the division or of the army corps respectively, whilst the general commanding the division or the army corps is authorised to order the court to be convoked. The courts may either admonish the accused or may exclude him from the army medical corps in cases of grave ethical misdemeanour. The courts of honour for the navy medical corps will be composed in the same way, with the exception that in foreign ports where there might not be a sufficient number of medical officers to form a court the latter may in certain cases be composed of naval officers.

Rabies in Germany.

In Germany during the year 1900 there were 230 persons bitten by animals suffering, or suspected to be suffering, from rabies. This number showed a considerable decrease as compared with 1899 when 303 persons were bitten. Of the above 230 persons 187 were treated in the institution for infectious diseases in Berlin by injections of Pasteur's antirabic serum; the remainder were either treated at home by cauterisation or other methods or did not receive any medical treatment at all. It is remarkable that rabies did not develop in any instance either among the patients who received the injections or among the others, so that no case of rabies in the human subject occurred in Germany in 1900. The bites were inflicted by 162 dogs, five cats, and three cattle. Post-mortem examination showed the existence of rabies in 102 dogs, two cats, and three cattle, and of suspected rabies in 44 dogs and one cat.

The late Professor Langenbuch.

Professor Carl Langenbuch, chief surgeon to the I Hospital, died in Berlin on June 9th. He was born at K in 1846, became qualified in Berlin in 1869, and took part a military surgeon in the war of 1870–71. After having acted as an assistant to the late Professor Wilms he was appointed chief surgeon to the Lazarus Hospital, an office which he held till his death. His principal work was on the surgery of the liver, and as early as 1882 he performed total extirpation of the gall-bladder, and in 1888 made a partial resection of the liver. He described his views in a monograph entitled, "The Surgery of the Liver and Gall-bladder" which formed a part of the "German Surgery" edited Professor Bruns. He was also the author of some essays military surgery, a subject with which he was very acquainted, as he had taken part not only in the F German, but also in the Turco-Russian war. Profes Langenbuch was very much liked by the profession Berlin and his early death is in every way greatly regretted.

July 1st.

EGYPT.

(FROM OUR OWN CORRESPONDENT.)

The Plague.

THE plague this year has taken a new departure, but the present generation has become so accustomed to hearing of cases of plague in different parts of the world that there is very little public interest in its apparition. In fact, the sceptics sway public opinion in the newspapers and in so by declaring, on the one hand, that it is not plague and that the sanitary officials are quite wrong about it all, and on the other hand, they state that the plague is of no conseq because it has evidently been lying dormant in the coun since 1844 and the medical men have never discovered it until now. Anything which prevents a panic is good, so that the ignorant had better be left to their own beliefs while the intelligent can obtain daily information from the bulletins issued by Mr. Pinching, the Director-General of the Sanitary Department in Cairo. In 1899 plague spoiled the spring months of Alexandria by appearing there, but it had the courtesy not to travel away from the sea coast. The following year, in the months from May to August, it was found at Port Said, but again it showed no disposition to attack the rest of the country. On neither occasion could its first onset be traced, but it is fairly obvious that it must have come from a neighbouring country. Now for the third time it has been discovered not in Alexandria r Port Said, which seem to be free, partly because they are both unnaturally clean and whitewashed, but in three inland towns, Zagazig and Mansourah, both in the Delta, and Minieh in Upper Egypt, several miles above Cairo. The simultaneous discovery of the disease in three scattered places shows that the microbe must have been conveyed by some moveable agent, such as clothes, carpets, or furniture. One cannot quite picture a rat wending its way or being carried by train with the family goods of an ex-plague patient, but it does not require much imagination to think of the rat-fleas being conveyed in clothes or rugs, from a dirty hovel on the sea coast to an insanitary mud cabin in the interior of the country. Anyone who knows the poorer Egyptians is aware that the last thing they would think of would be to beat, to shake, or to wash the prayer carpets and matting which they carry about with them. It is noteworthy that all the places attacked were picked out by cholera as suitable homes in the epidemics of 1883 and 1896 Now that plague has arrived in our midst we have not time to stop and to think why it never came before, but the principal object of life is to work at the various spots infected to prevent anything like a place infection, for we all know what happens to a city like Bombay where all precautions were neglected for the first few months. The plague can be fought in any country so long as there are plenty of energetic workers, some money, a docile population, and a government determined to fight. At present there are enough English workers, though there is no doubt that a permanent staff of anti-plague officials should be added for the next few years to the sanitary department. There are 10,000,000 Egyptians in Egypt, but they are of no use to fight plague unless they are controlled by a handful of Englishmen, in which case they do extremely well. The average European cannot compete *with the Anglo-Saxon, whose energy, fighting-powers, tenacity*, and conscientiousness about details, are all called into play by the fascination of fighting an unseen foe whose ravages are fairly conspicuous. There is no doubt that the Englishman likes policing the world and to be turned loose into an insanitary town, and to be told to compel the inhabitants and [illegible] clean exactly suits the Anglo- [illegible] r, the natives obey his orders [illegible] more than they will do for any [illegible] eans. Major Garner and Dr. [illegible] disease in and around Zagazig and Dr. Goodman is at Minieh, while Dr. Graham superintends the work at Mansourah and other places. The various doctors in the medical school and other departments of the Egyptian Government have been told to hold themselves in readiness for employment in the provinces. There are two satisfactory things to be recorded. The various sanitary returns show that the country is in a healthier condition than usual and also that the old plague season used always to finish in an epidemic form at the end of June. In other words the plague microbe does not like excessive heat and will not now have time to take root and to destroy before the summer heat is upon us.

Cairo, June 11th.

Medical News.

THE International Association for the Advance*ment of Science, Arts, and Education* will hold its second international meeting at Glasgow, in the University and in the [illegible] Exhibition, from July 29th to Sept 27th. [illegible] as a link among universities and learned [illegible] ie of the most important functions of the [illegible], as at Paris last year, to study and to [illegible] of scientific, geographical, and other [illegible] the exhibition by means of lectures and [illegible] monstrations and visits under skilled guidance. The various national groups which coöperated last year at Paris will again be represented at Glasgow, and their lectures and conferences, &c., will include pure and applied physics and chemistry, electricity and engineering, agriculture and forestry, geography and colonisation, hygiene, Scottish history and archæology, and fine art. Much attention is also being paid to education in its many branches—*child study*, nature study, methods of science study, modern language study, manual and technical education, museums, geographical education, history and organisation of secondary education, the whole concluding with a series of conferences on "Immediately Realisable Progress in Education." The general secretary is M. Liard, Permanent Secretary of State for Higher Education, Paris, assisted by Professor Patrick Geddes.

THE BRISTOL QUEEN VICTORIA MEMORIAL FUND.—Up to the present the sum of £4665 has been received towards this fund. It is hoped that £5000 will be raised towards the national memorial and £10,000 for the further endowment of the convalescent home on Durdham Down, the opening of which was one of the last public acts of the late Queen.

THE WEATHER IN NEW YORK.—It is stated that 225 deaths and 327 cases of prostration were caused by the heat in greater New York during the 24 hours ending at 2 A.M. on July 3rd. 196 deaths are reported from other cities. During the 24 hours ending at 2 A.M. on July 2nd 87 deaths occurred in greater New York from the same cause and there were 183 cases of prostration.

PRESENTATIONS TO MEDICAL PRACTITIONERS.—At the town hall, Lochmaben, Dumfriesshire, on June 8th, Mr. Thomas Reid, M.D. Glasg., who has been for 25 years in practice in Lochmaben, was presented with a gold lever watch, a gold albert chain, and a richly-chased silver bowl on ebonised plinth. Ex-Provost Halliday presided over the company, which numbered about 150, and the presentation was made by Captain Carthew-Yorstoun, convener of the county. The inscription on the watch was as follows: "Presented to Thomas Reid, Esq., M.D., by his friends on the completion of 25 years' practice in Lochmaben, as a token of appreciation and esteem. 18th May, 1901." The silver bowl, which was the gift of the ladies, bore a similar inscription.—Mr. William Atkin Thompson, M.R.C.S. Eng., L.R.C.P. Lond., resigned the post of resident medical officer to the Weston-super-Mare Hospital and Dispensary on June 10th, and before leaving the hospital he was presented with a Swan fountain pen with engraved gold bands and an aseptic, silver-plated, all-metal hypodermic syringe in case, together with a testimonial, signed by a large number of the dispensary patients, "as a mark of their esteem and good wishes for his future career and in return for his kind attention to them"—The members of the Men's Ambulance Class of the Halifax Centre of the St. John Ambulance Association have presented their lecturer, Mr. J. Crossley Wright, M.A., M.B Cantab., with a medicine-case suitable for attachment to bicycle or motor-car. The case contained 13 phials of "tabloid" brand medicines, and sundry emergency dressings and instruments.—On June 22nd the members of the Sharpness branch of the St. John Ambulance Association presented *Mr. Walter Robert Awdry, M.B. Durh.*, M R C.S Eng., with a tennis racquet with silver shield containing a suitable inscription as a mark of appreciation for his services as honorary lecturer to the class.

THE ARMY MEDICAL SERVICE INQUIRY.—As we go to press we learn that Mr. Brodrick has announced in the House of Commons that the committee which has been recently appointed will not examine witnesses and will sit in private.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

ELECTION OF MEMBERS OF COUNCIL.

THE thirteenth election of Fellows to fill the vacancies in the Council of the College under the new regulations was held in the Library of the Royal College of Surgeons of England, Lincoln's Inn Fields, on Thursday, July 4th, between 2 and 4 P.M. The result of the voting was:—

	Votes.	Plumpers.
MR A. W. MAYO ROBSON ..	332	4
MR. W. WATSON CHEYNE ...	302	2
MR. CLEMENT LUCAS	259	60
MR. C. MANSELL MOULLIN ...	235	67
MR. J. H. MORGAN	226	32
MR. J. BLAND-SUTTON	193	25
MR. H. H. CLUTTON	145	16
MR. JORDAN LLOYD	93	4

Mr. Mayo Robson and Mr Watson Cheyne are therefore re-elected and Mr *Clement* Lucas is elected.

768 Fellows voted, 18 personally and 750 by post; 5 proxies were received too late.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The New Factory and Workshop Legislation.

THE Bill of the Government to amend the Factory and Workshop Acts has not, so far, been very much altered by the Grand Committee on Trade. In the first clause, which deals with the power of the Home Secretary to make regulations for the safety of persons employed in dangerous trades, words have been inserted which extend slightly the possible operation of these regulations. A good deal of time was spent over the clauses dealing with outwork and outworkers. As the Bill stands, the employer is required to prepare a list of outworkers and to furnish copies of it to the Home Office inspector for the district and to the district council, and Mr. Ritchie has promised to bring up at a later stage of the Bill a clause providing that where a district council neglects its duties in connexion with outwork and outworkers the Home Office inspector may step in and see to them. In the clause prohibiting outwork in places where there is infectious disease words were inserted to confine the operation of the clause to the infectious diseases "required to be notified under the law for the time being in force in relation to the notification of infectious diseases." On the clause prohibiting outwork in places injurious to health there was a long debate as to whether the administration of the clause should rest with the district council or the Home Office inspector, and Mr. Ritchie offered by way of compromise a provision to the effect that when default on the part of the district council was suspected there should be power to send a Home Office inspector to inquire. The prevailing sense of the Committee seemed to be that the local authorities would not fail in their duty in this connexion and that they might be trusted.

Isolation Hospitals Bill.

This Bill has now passed both Houses of Parliament and awaits the Royal assent. The measure is designed to encourage the establishment of isolation hospitals and to improve their character. It gives power to local authorities under the Public Health Act of 1875 who have provided isolation hospitals to transfer them to the county council and it enables the county council to make an annual contribution towards the maintenance or extension of isolation hospitals remaining in the hands of local authorities under the Public Health Act of 1875. It also provides for borrowing money and for county councils being represented on hospital committees.

HOUSE OF COMMONS.

THURSDAY, JUNE 27TH.

Roentgen Rays in the War.

SIR BENJAMIN STONE asked the Secretary of State for War whether the Army Medical Department had made any report as to the application and value of the use of Roentgen rays in the military hospitals in South Africa during the war; whether expert instruction had been given in the several hospitals in applying x rays; and whether illustrated records had been obtained for future guidance.—Mr. BRODRICK replied: No report has been made on the use of Roentgen rays in the war nor will it be made until the war is over. Instruction is given in certain hospitals at home in the method of applying the x rays, but could not be readily given in South Africa. Illustrated records have been obtained and a large number have been forwarded to the Army Medical School.

Medical Officers of Health in Scotland.

The LORD ADVOCATE, in reply to question by Mr. WEIR, said that he was informed by the Local Government Board in Scotland that since May 15th, 1894, 72 burgh local authorities had appointed medical officers of health. Except in the case of two of these burghs all the medical officers of health appointed held a public health diploma.

The Reorganisation of the Army Medical Service.

Mr. BURDETT-COUTTS asked the Secretary of State for War if he could now state what progress he had made with his scheme of reform of the Army Medical Service; when he proposed to bring it forward and what opportunity would be afforded the House of discussing it; and if he could give any information as to the composition of the committee which he proposed to appoint to advise in the matter.—Mr. BRODRICK said: In reply to this and similar questions I beg to say that I have received a number of suggestions and representations from various quarters and that a committee of experts to consider a scheme which I have drawn up for the future organisation of the army medical service will be shortly appointed. The committee will consist of the following members: Mr. Howard H. Tooth, C.M.G., M.D. Cantab., F.R.C.P. Lond., St. Bartholomew's Hospital; Mr. George H. Makins, C.B., F.R.C S. Eng., St. Thomas's Hospital; Mr. Alfred D. Fripp, C.B., F.R.C.S. Eng., Guy's Hospital; Sir F. Treves, K.C.V.O., C.B., F.R.C S. Eng., London Hospital; Mr. Alexander Ogston, M.D. Aberd., Scotland; Lieutenant-Colonel A. H. Keogh, R.A.M.C., C.B., M.D. R.U.I., Ireland; Mr. E. C. Perry, M D. Cantab., F.R.C.P. Lond., Senate of London University; Surgeon-General W. R. Hooper. I.M.S., C.S.I., President of the Medical Board, India Office; and two officers who will be named by the Commander-in-Chief to represent the army. The secretary will be Major H. E. R. James, R.A.M.C., F.R.C.S. Eng., and I propose to take the chair of the committee myself.

Dr. FARQUHARSON asked whether the committee would close its sittings before the end of the present session?—Mr. BRODRICK replied: I do not know. It is much more important that they should come to a correct conclusion than that we should hurry them in the performance of the task assigned to them.

Dr. FARQUHARSON asked whether the right hon. gentleman was aware of the great difficulty of getting candidates for the Royal Army Medical Corps, a difficulty which would amount to impossibility before long if the intentions of the Government were not made known.—Mr. BRODRICK replied: The difficulty may become accentuated, but I would rather make a temporary arrangement and put the corps permanently on a good footing than be in a hurry to arrive at a conclusion.

Dr. THOMPSON asked the right hon. gentleman whether he would not add to the committee a representative of the medical profession in Ireland.—Mr. BRODRICK: No, sir; I think it would be very undesirable to make the committee too large and I am sure that all questions connected with Ireland will be most carefully considered, there being already one representative of Ireland on the committee.

In reply to another question by Dr. THOMPSON Mr. BRODRICK said: The object of the committee is to consider a scheme for making it possible to get proper medical officers in the future and a properly organised corps, and there is no idea of taking evidence as to the grievances of members of the Royal Army Medical Corps themselves.

FRIDAY, JUNE 28TH.

The Case of Dr. Long.

When the House was in Committee of Supply on the vote for the salary of the Chief Secretary for Ireland Colonel SAUNDERSON raised the case of Dr. Long, about which there had been several questions asked. Colonel Saunderson explained that Dr. Long was a skilled medical practitioner who in 1893 went to Limerick as the agent of the Irish Church Missions, an organisation one of whose objects was the conversion of Roman Catholics to the Protestant faith. In his work as a proselytiser Dr. Long was pursuing a perfectly legal object. A large number of the poorest class of the people of Limerick attended at Dr. Long's house and received medical ministrations from him gratis, and while they were there he spoke to them on the subject of religion; but he made no bargain with them—whether they liked his religious opinions or not they got his services as a medical man. [illegible] to them certain of the priests unde[illegible]g. One of them went to his surger[illegible] he place and told them never to return. After that Dr. Long was publicly assaulted in the streets and assailed with stones, eggs, and cabbages, which was the natural result in Ireland where a man was held up to execration by the priests. He claimed from the Chief Secretary for Ireland that more police protection should be given to Dr. Long.—Mr. WYNDHAM, replying to this and other speeches on the subject, said that Dr. Long would be protected by the law in the course he was pursuing, but he could not help saying that he considered that course a most unfortunate one; it was a course which might be followed with considerable advantage in China or Peru, and even in this country, but it could not be pursued with any great public benefit in Ireland. Dr. Long went to the Roman Catholic town of Limerick as the emissary of a missionary society and opened a dispensary there. It was very wrong, of course, that that action should have led to disturbances. It was the duty of the police to protect Dr. Long and he would be protected. But he ventured to say that disturbances would occur under similar circumstances in any part of the world, and certainly in Belfast, if any of the regular orders of the priesthood were to open a mission on the same lines to the Protestants. The duty of the Government was to protect such persons, acting as they did legally, from molestation, and that duty would be performed, but he should express his opinion that such a state of affairs was most regrettable and his hope that all persons would use their best endeavours to allay any irritation that might have been aroused.

MONDAY, JULY 1ST.

A Standard for Butter.

Mr. HANBURY, President of the Board of Agriculture, announced that the committee on this subject will consist of Mr. Horace Plunkett, chairman; Professor Thorpe, principal chemist of the Government laboratories; Sir Charles Cameron, medical officer of health and public analyst of Dublin; Professor Thompson, president of the Institute of Chemistry; Major Craigie, of the Board of Agriculture; Mr. George Gibbons, a well-known agriculturist in the West of England; Mr. Kearley, M.P.; Mr. Christopher Dunne, chairman of the Cork Butter Market Trustees; and Mr. Anderson, secretary of the Irish Agricultural Society. Mr. Hanbury added that he also hoped to obtain the services of Mr. John Gilchrist, a well-known butter-maker.

TUESDAY, JULY 2ND.

Contamination of Drinking-places for Animals

Mr. LOUIS SINCLAIR introduced a Bill to prevent the contamination of public drinking-places for animals.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning at each week, for publication in the next number.*

BONNEY, W. F. VICTOR, M.D., M.S. Lond., F.R.C.S. Eng., M.R.C.P Lond., has been appointed Registrar to the Chelsea Hospital for Women.

BREW, RICHARD HUGH, L.R.C.P. Edin., has been appointed Medical Officer of Health of the Clutton Rural District, vice G. H. Whicher, resigned.

CAMPBELL, ALFRED, M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Vaccinator at Young, New South Wales.

EVERED, ARTHUR C., L.R.C.P., L.R.C.S. Edin., L.F.P. & S. Glasg., has been appointed Special Medical Officer for Plague at Albany, Western Australia.

FETHERSTONHAUGH, CHARLES, M.B., Ch.M. Dub., L.R.C.S. Irel., has been appointed Vaccinator at Corryong, Victoria.

FITZGERALD, JAMES, M.B., Ch.M. Edin., has been appointed Vaccinator at Kalangala, New Zealand.

GODFREY, PATRICK J., L.R.C.P., L.R.C.S. Edin., has been appointed Health Officer at Port Strahan; also Medical Off[illegible] Port Macquarie, Tasmania.

GOR [illegible]

GUI [illegible]

IRA [illegible] stone, resigned

HINCKS, THOMAS, M.B., C.M. Edin., has been appointed Medical Officer of Health by the Painscastle (Brecknockshire) Rural District Council.

[illegible] Lunatic Asylum, Victoria

LAI [illegible] L.R.C.P. Lond., has been [illegible] the Macclesfield General Infirmary.

[illegible] Assistant [illegible] nary.

[illegible] nted House

[illegible] Inst., has [illegible] Borough of

PENDLEBURY, HERBERT S., F.R.C.S. Eng., has been appointed Surgeon to the Royal Hospital for Women and Children, Waterloo Bridge-road.

SCOTT, D. WOLSELEY, L.R.C.P., L.R.C.S. Edin., L.F.P.&S. Glasg., has been appointed Medical Officer to the Hendre Morgern, Henllis [illegible]

[illegible] been appointed Consult- [illegible] Women and Children, Waterloo Bridge-road.

UNDERHILL, A. S., M.D., T.C.D., has been appointed Medical Officer of the West Bromwich Workhouse.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BOROUGH ASYLUM, Portsmouth.—Junior Assistant Medical Officer. Salary £120 per annum, increasing to £150, with board, lodging, and washing.

BRISTOL ROYAL INFIRMARY.—Anæsthetist and Junior House Surgeon. Also Casualty Officer. Salary at rate of £50 per annum, with board, [illegible] 290 per [illegible] urgeon. [illegible] Victoria- [illegible] at rate [illegible] -Junior [illegible] board, lodging, and washing.

BRO [illegible] Resident [illegible] £120 per [illegible] rations, and washing.

CUMBERLAND AND WESTMORLAND ASYLUM, Garlands, Carlisle.—Senior Assistant Medical Officer, unmarried. Salary £150 a year, rising to £180, with board, lodging, &c.

DAVID LEWIS NORTHERN HOSPITAL, Liverpool.—Assistant House Surgeon. Salary £70 per annum, with residence and maintenance.

DEVON COUNTY ASYLUM, Exminster, near Exeter.—Third Assistant Medical Officer. Salary £125, rising to £150, with board, lodging, &c.

DEVONSHIRE HOSPITAL, Buxton, Derbyshire.—Assistant House Surgeon. Salary £50 per annum, with furnished apartments, board, and washing.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—House Surgeon. Salary £50 per annum, with board and washing. Also Assistant House Surgeon [illegible] with board and washing.

[illegible] Officer. Salary £150 per [illegible] ing [illegible] Assistant Physician and [illegible] way, N.—House Physician [illegible] six months. Salary of the [illegible] r at the rate of £30 per annum, with board, lodging, and washing. Also Non-Resident Assistant House Surgeon for six months. Salary at the rate of £30 per annum, and luncheon and dinner.

GREENOCK INFIRMARY.—House Surgeon. Salary £60 per annum, with board and residence.

GUEST HOSPITAL, Dudley.—Assistant House Surgeon for six months. Salary £40 per annum, with residence, board, and washing.

[illegible] Medical Officer of Health. Salary [illegible]

[illegible] ssistant House Surgeon. Salary [illegible], with board and lodging.

KENT AND CANTERBURY HOSPITAL.—Assistant House Surgeon, unmarried. Salary £60 a year, with board and lodging.

KING'S COLLEGE, London.—Professor of General Pathology and Bacteriology. Also Assistant Physician (or Surgeon) for Diseases of the Throat.

LAWN HOSPITAL FOR INSANE, Lincoln.—Assistant Medical Officer. Salary £100.

LONDON COUNTY ASYLUM, Claybury, Woodford bridge, Essex.—Junior Assistant Medical Officer, unmarried. Salary £150 per annum, with board, furnished apartments, and washing.

LIVERPOOL STANLEY HOSPITAL.—Honorary Assistant Physician.

LIVERPOOL PORT SANITARY AUTHORITY.—Assistant Medical Officer of Health. Salary £300 per annum.

MANCHESTER ROYAL EYE HOSPITAL.—Junior House Surgeon. Salary £60, with residence, board, and washing.

[illegible] ond Assistant [illegible] g to £160 [illegible] Surgeon for Ophthalmic Department.

NORTH-EASTERN [illegible] ouse Physician for [illegible] with board, residence [illegible] £100 per annum.

NORTHAMPTON GENERAL INFIRMARY.—Honorary Physician.

N [illegible] DISPENSARY.—Senior Resident Surgeon. Salary [illegible] £15 every year. Also two Assistant [illegible] £160 per annum each, increasing by [illegible] apartments, attendance, light, and [illegible]

OLDHAM INFIRMARY.—Senior House Surgeon. Salary £100 per annum, with board, washing, and residence; also Junior, £75 per annum, [illegible]

OWE [illegible] ry £120 per annum. [illegible] Medical Officer, unmarried. [illegible] er annum, with furnished [illegible] urgeon. Salary at rate of [illegible] washing. [illegible] rgeon, unmarried. Salary [illegible] rd (excluding stimulants) and apartments.

ROYAL HOSPITAL FOR CHILDREN AND WOMEN, Waterloo Bridge-road, S.E.—Assistant Surgeon.

ROYAL ORTHOPÆDIC HOSPITAL, 297, Oxford street, and 15, Hanover-square, W.—Resident House Surgeon and Registrar. Salary £100 per annum, with board.

ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House Surgeon for six months. Salary at rate of £50 per annum, with rooms, board, and washing.

ROYAL SURREY COUNTY HOSPITAL, Guildford.—Assistant House Surgeon. Salary £75, with board, residence, and laundry.

ST. BARTHOLOMEW'S HOSPITAL, Rochester.—Assistant House Surgeon. Salary £100 per annum, with board, washing, &c.

ST. LEONARD, SHOREDITCH, INFIRMARY, Hoxton street, N.—Second Assistant Medical Officer. Salary £100 per annum, with rations, washing, and furnished apartments.

ST. MATTHEW, BETHNAL GREEN, INFIRMARY, Cambridge-road, N.E.—First Assistant Medical Officer, single. Salary £150 per annum, with board, lodging, and laundry.

TAUNTON AND SOMERSET HOSPITAL, Taunton.—Assistant House Surgeon for six months. Salary at the rate of £60 per annum, with board, lodging, and washing.

VICTORIA HOSPITAL FOR CHILDREN, Queen's road, Chelsea, S.W.—Surgeon and Assistant Surgeon.

WESTERN GENERAL DISPENSARY, Marylebone road.—Second House Surgeon, unmarried. Salary £80 per annum, with board, residence, and laundry.

WEST RIDING ASYLUM, Wadsley, near Sheffield.—Third Assistant Medical Officer. Salary £150, with board, &c., rising to £200. Also Fifth Assistant Medical Officer. Salary £140 per annum, with board, &c., rising to £160.

WILLESDEN URBAN DISTRICT COUNCIL ISOLATION HOSPITAL.—Medical Superintendent and Assistant Medical Officer of Health. Salary £350 per annum, with allowance of £50 per annum for residence.

Births, Marriages, and Deaths.

BIRTHS.

CROKER-FOX.—On June 23rd, at Woodbine, Anglesey, Gosport, the wife of Surgeon H. E. Croker-Fox, R.N., of a daughter.

GILES.—On June 22nd, at St. Nicholas parade, Scarborough, the wife of Leonard Giles, M.B., F.R.C.S., of a son.

HILLS.—On June 25th, at New Bridge House, Upwell, the wife of W. C. D. Hills, M.R.C.S. Eng., L.R.C.P. Lond., of a daughter.

MARRIAGES.

[illegible] the [illegible] ssy, [illegible], to [illegible] by the Rev. C. [illegible] LL.B., D.Sc., in [illegible] Mysore, son of [illegible] London, to [illegible] daughter of the [illegible] Granger of 2, Grosvenor terrace, Glasgow.

WATSON—RANKIN.—On June 27th, at St. Andrew's, Rochford, by the Rev. H. A. Watson, George Trustram Watson, M.A., M.B., B.C. Cantab., F.R.C.S. Eng., to Dorothy Nora, daughter of Hugh Rankin.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

FEES AT CORONERS' INQUESTS.

To the Editors of The Lancet.

Sirs,—Can you tell me to what fee a medical witness is entitled for giving evidence at a coroner's inquest (1) if he has made a post-mortem examination of the body, and (2) if no such examination has been made. In London one usually receives two guineas in the first case and one guinea in the second. The coroner here orders one guinea in the first case and nothing in the second, and he refers me to Section 22 of the Coroners Act, 1887. I should be glad if you would enlighten me as to whether the London or local coroner is in the right.

I am, Sirs, yours faithfully,

July 2nd, 1901. G. H. F.

*** There is no question about the fees as regards inquests on persons not dying in a public institution. If a practitioner gives evidence by a coroner's orders without making a post-mortem examination he is entitled to a fee of one guinea. If he gives evidence and in addition makes a post-mortem examination *as ordered by the coroner* he gets a fee of two guineas. But by Section 22, subsections 1 and 2, of the Coroners Act of 1887 a medical witness (1) gets no fee for making a post-mortem examination which is not ordered by the coroner, and (2) when an inquest is held on the body of any person who has died in a public institution, even if supported by endowment or voluntary subscriptions, the medical officer of such institution shall not be entitled to such fee or remuneration. If our correspondent refers to inquests on the bodies of persons dying in the hospital the coroner, even if he have ordered a post-mortem examination, is within the Act in allowing no fee at all; but apparently the coroner whom our correspondent mentions allows one guinea for the post-mortem examination on a person dying in the hospital.—Ed. L.

WHAT IS CARBONATE OF SODA?

It is a pity that some understanding cannot be arrived at as to what is really indicated by the popular names of many drugs in common use. Until such an understanding is laid down it seems to us that in many instances proceedings taken under the Food and Drugs Act will prove silly, abortive, and vexatious. Last week, for example, a druggist was charged with selling bicarbonate of soda when carbonate of soda was asked for. The indictment was that this substitution was to the prejudice of the purchaser. It was a stupid ground for a prosecution, although strictly speaking the article asked for was as a matter of fact not supplied. But pure anhydrous carbonate of soda is seldom, if ever, supplied to the public and the public never expect it, although they invariably ask for carbonate of soda. Indeed, true carbonate of soda is an alkali possessing corrosive action and might prove harmful, while it could never serve the great number of purposes to which the bicarbonate is very commonly applied. Of course, the bicarbonate of soda is one of the carbonates of soda, for there are several. It just happens to be that bicarbonate of soda is in very common request, but the public do not know the difference between it and the carbonate. Did they know and understand the difference this prosecution might have been reasonable, as it certainly would have been if sulphate of soda had been asked for and the bisulphate had been supplied.

INCOME-TAX OVERCHARGES.

To the Editors of The Lancet.

Sirs,—The Chancellor of the Exchequer, in his recent speech at the Mansion House, stated that the cost of the wars in which this country has been engaged in South Africa, China, and in East and West Africa, has, notwithstanding the fact of the heavy increase in the income-tax, and the tax on coal and sugar, rendered it necessary to raise a loan of £127,000,000 within the last two years. When it is remembered that the war expenditure is still going on with no immediate prospect of ceasing in the near future the income-tax payer cannot expect early relief in the rate now in force, and, though the Chancellor of the Exchequer was, doubtless, very much in earnest when he said he would resist the temptation, if possible, to ask for another 2*d.* next year, it is to be feared that the rate will not then be less than 1*s.* 4*d.* It is, therefore, the more necessary to bear in mind that it is possible in very many cases to obtain relief from excessive assessments, and also by way of abatements that have not already been allowed. In the matter of overcharges under Schedule D, those who paid too much for the year 1900–1901 should at once appeal against the assessment for that year, or they may be told that they are too late. Thousands of people who pay taxes for which they are not liable can now claim repayment for three years; the amount recoverable might in the case of many amount to upwards of £45. We shall be pleased to advise your readers gratuitously whether they are entitled to any repayment in respect of tax deducted from rents, interests, dividend, annuities, &c., whether paid "free of income-tax" or not, and also in respect of life assurance premiums, on their sending us full particulars of their incomes from all sources and a stamped directed envelope for reply.

We are, Sirs, yours faithfully,

The Income-tax Adjustment Agency, Limited.

Poultry, London, E.C., July 3rd, 1901.

A POINT IN ETIQUETTE.

To the Editors of The Lancet.

Sirs,—Kindly give me your advice through The Lancet on the following point of etiquette. I was engaged for a confinement some few week ago. The confinement came off recently and being engaged at another case I could not go; messenger said I should be wanted in about three-quarters of an hour, and left on the understanding that I would get down as soon as possible. On my subsequent arrival about a quarter of an hour after appointed time I found they had called in another medical man and delivery had just been completed—case said to be urgent and forceps delivery. I saw the patient and expressed my sorrow at not being able to attend and left the room and awaited the other medical man downstairs in order to see about the subsequent attendance; and this is the point on which I require your advice. When I have been called in on an emergency I have always turned the case over to the medical man who had been engaged—the patient being his—and come to some agreement or other as to fee with him. In this case, however, he told me that he did not know I had been engaged until I entered the bedroom, and said he had been asking the patient whether he should continue or not. I certainly think this is wrong, as it practically leaves me without a voice in the matter, and had I thought that he was going to act in such a manner I should have asked the patient myself, as of course I have the prior right. As it is I simply left the house and decline to have anything further to do with it. Of course, in good-class patients such a thing would not have happened, but in the above—a decent working-man class—the suggestions advanced by the accoucheur are often acted upon and the former medical man loses the family as well eventually.

I am, Sirs yours faithfully,

July 2nd, 1901. Lex.

*** The time-honoured rule is that when a practitioner is called to an urgent case he should, when the emergency is provided for, resign the case to the medical adviser in ordinary. It is very usual for the gentleman called in at the beginning to continue in attendance until the end by arrangement with the patient and the family practitioners, but it is not correct that the suggestion of so continuing should come from him.—Ed. L.

MEDICAL TESTIMONIALS.

A correspondent has forwarded us a circular most of which we reproduce below. We have suppressed all names and addresses.

"To Medical Men and Others.

"We have the permission of Dr. —— to publish the following letter:—

"The —— Cycle Co., Ltd., "——, ——, 26th April, 1901.

"Dear Sirs,—I have recently been riding one of your —— cycles with free wheel and band brake and you may be interested to hear that I consider it the best bicycle I have ever ridden. I began cycling on "bone-shakers," then used a "phantom," and then the "ordinary," and have since ridden safeties of all makes and patterns, having at present three "——" in the house. I am thus a fair judge of a machine and I wish to say that I consider —— —— gear to possess all the advantages claimed for it. Its most conspicuous feature is the absence of strain on the frame when the rider uses force, as in climbing hills and travelling against the wind. The ease with which the machine moves under these circumstances was a revelation to me. You also use a good free wheel, which is really free, and your two point band brake is without doubt the best in th market.

"I have never before written anything of the nature of a test monial, and I now write you simply to express the admiration whic your cycles demand. In my professional work I am constantl asked by ladies if they may cycle, and I often have to say to m more delicate patients that they must not go too fast nor too fa and must avoid riding up hills and against strong winds. I sha now be able to tell them that by riding a —— with free wheel an band brake they will be able to keep pace with much stronger ride without fear of fatigue or over strain.

"I am, Sirs, yours faithfully,

"—— ——, M.A., B.Sc., M.D."

In our issue of June 29th, p. 1876, we published a letter from Dr. P. Mannix and Dr. B. W. Hogarth in which they expressed the opinion that "if a man supplies us with good bicycles or motor-car we see no objection to testifying to it, even though we do belong t the medical profession." Neither do we see any objection provide that the testimonial is given as from an ordinary citizen. But w consider that for a medical man's name, qualifications, and appoint ments, together with his full address, to be distributed broadcast t all and sundry is not becoming—even though the bicycle in question is a good one.

ASBESTOS SLATE.

We have received from the manager of the Calmon Asbestos and Rubber Works, 3, Haydon-street, Minories, samples of asbestos slate identical with the material supplied for the construction of the asbestos house used by Field-Marshal Count Waldersee in China. The specimens are not only fireproof but waterproof also and the material affords some protection against the ingress of dust and insect pests. It is very strong and durable and cleanly. The asbestos house has been adopted by military authorities because, for one thing, it is easily moveable; moreover, asbestos rotection against climatic influences, being an efficient insulator gainst both heat and cold. The asbestos slates are made in metre quares either one-eighth of an inch or a quarter of an inch thick, ccording to requirements.

THE TREATMENT OF ACNE.

To the Editors of THE LANCET.

SIRS,—I should be pleased to have the experience of any of your many readers who have treated with success cases of acne vulgaris. I am a medical man of many years' standing, aged 47 years, and suffer very severely from attacks of acne; it is covering my face with scars from the oft-repeated attacks, and I have tried all the ordinary remedies, including taking a long holiday and rest, and still they appear in crops on the face, especially the forehead. Any help to a fruitful result will be gladly welcomed.

I am, Sirs, your faithfully,

June 27th, 1901. ACNE.

HOMES FOR INEBRIATES.

To the Editors of THE LANCET.

SIRS,—Can anyone give me the names or addresses of homes for inebriates where after a voluntary entry by the patient he can be detained for a definite period agreed to by the patient and to which, if he leaves, he can be brought back?

I am, Sirs, yours faithfully,

July 3rd, 1901. PHENAD.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, July 4th, 1901.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radia in Vacuo	Maximum Temp. Shade.	Min. Temp	Wet Bulb.	Dry Bulb	Remarks at 8.30 A.M.
June 28	30·15	E.	...	120	75	55	59	64	Cloudy
" 29	30 11	ENE	...	122	76	59	59	68	Fine
" 30	30·07	S.E.	0 19	112	72	57	58	60	Cloudy
July 1	29·70	S.W.	0 93	105	73	60	60	62	Overcast
" 2	29 59	E.	0·01	104	71	58	62	67	Cloudy
" 3	29·69	E.	0 15	125	75	58	59	64	Cloudy
" 4	30·02	E.	...	114	75	59	59	62	Cloudy

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (8th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M.).

TUESDAY (9th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.).

WEDNESDAY (10th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.).

THURSDAY [illegible]
(3.30 P.M [illegible]
George's [illegible]
(1.30 P.M. [illegible]
London [illegible]
logical, 2 [illegible]
St. Mark [illegible]
Golden-square (9.30 A.M.).

FRIDAY (12th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.).

SATURDAY (13th).—Royal Free (9 A.M. and 2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), University College (9.15 A.M.), Charing-cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), London Throat (2 P.M.), Throat, Golden-square (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

TUESDAY (9th).—SOCIETY FOR THE STUDY OF INEBRIETY (11, Chandos-street, Cavendish-square, W.).—4 P.M. Paper:—Dr. T. N. Kelynack and Mr. W. Kirkby: Arsenical Poisoning from Beer Drinking in its [illegible]

[illegible] OF LONDON (11, [illegible] Consultation on Cases of Clinical Interest.

TH[illegible]

FR[illegible] Browne, Dr. D. Grant, &c.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (8th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. J. Galloway: Consultation. (Skin.)

TUESDAY (9th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. W. Ewart: Consultation. (Medical.)

WEDNESDAY (10th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. J. Cantlie: Consultation. (Surgical.)

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (Brompton).—4 P.M. Dr. Acland: Cases illustrating Various Types of Pleurisy.

THURSDAY (11th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. Hutchinson: Consultation. (Surgical.)

THE HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M. Dr. Still: Abdominal Tuberculosis.

CHARING-CROSS HOSPITAL.—4 P.M. Dr. Willcocks: Medical Cases. (Post-Graduate Course.)

FRIDAY (12th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. W. Dodd: Consultation. (Eye.)

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IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports, should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether [illegible] *tion, must be* [illegible] *their writers,* [illegible]

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Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1901, which was completed with the issue of June 29th, and the Title-page to the Volume, are given in this number of THE LANCET.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1901 will be ready shortly. Bound in cloth, gilt lettered, price 18*s*., carriage extra.

Cases for binding the half-year's numbers are now ready. Cloth, gilt lettered, price 2*s*., by post 2*s*. 3*d*.

To be obtained on application to the Manager, accompanied by remittance.

During the week marked copies of the following newspapers have been received:—*Bristol Mercury, Liverpool Daily Post, Yorkshire Post, Leeds Mercury, Woolwich Herald, Reading Mercury, Windsor and Eton Express, Mining Journal, South African News, Dover Express, Hertfordshire Mercury, Yarmouth Advertiser, Surrey Advertiser, Weekly Free Press (Aberdeen), &c.*

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An Address

ON

TUMOURS OF THE BLADDER AND ENLARGED PROSTATE.

Delivered before the Hull Medical Society

BY DAVID WALLACE, C.M.G., F.R.C.S. EDIN.,
ASSISTANT SURGEON TO THE ROYAL INFIRMARY, EDINBURGH.

[AFTER some introductory remarks Mr. Wallace said:]

With the introduction of the light internal cystoscope in 1887 the surgery of the bladder became much wider in its scope and more accurate. Diagnosis and prognosis both made enormous strides because definite opinions could be arrived at much earlier in the course of an illness. Dicta which for long had been thoroughly believed were found to be inaccurate and often misleading. Especially this was so in the case of hæmaturia. A patient with hæmaturia might have no other symptom to indicate whether the blood was renal or vesical in origin and not infrequently a wrong diagnosis was made or delay in proper surgical treatment was so great that the likelihood of successful treatment was much lessened. In tumours of the bladder this was particularly the case. Frequently in such tumours a causeless, symptomless bleeding is the first indication of anything being wrong, but diagnosis was often impossible unless a cystotomy, as introduced by Sir Henry Thompson, was performed, and surgeons hesitated to do this without more evidence of the probable seat and cause of the bleeding. Further evidence is got by cystoscopy. To-day in such a case the bladder would be examined cystoscopically and either negative or positive evidence of a tumour would be found, and being got at an early period treatment would be much more satisfactory than it had been formerly. Let me illustrate this by quoting two cases.

CASE 1.—A man, aged 60 years, had a long-standing history of intermittent hæmaturia. For three years he was treated on the assumption that the blood emanated from the kidney or kidneys. He was seen and was treated by several physicians without benefit. The bleeding was occasionally very profuse, but as a rule it was moderate in quantity and was intimately mixed with the urine. There was no other symptom and careful examination of the urine made on many occasions failed to give any clue to the origin of the blood. On cystoscopic examination a large tumour attached to the right lateral wall of the bladder was seen. Suprapubic cystotomy was performed and the greater part of the tumour was removed. He made an excellent recovery. Bleeding recurred at the end of a year, but the patient lived for four years after the operation. The bleeding was at no time so profuse as it had been before operation and the patient was able to perform his business to within a few months of his death.

CASE 2.—In the case of this patient, who was 35 years of age, the first hæmorrhage had occurred one year before I saw him. It was causeless and was associated with no other symptom. There was nothing seen on careful examination of the urine. He c[illegible]ge, otherwise he [illegible]pic examination a t[illegible] on the right lateral wall. It was of about the size of a walnut. I removed the growth through a suprapubic opening and 13 months after the operation the patient was perfectly well. There was no bleeding or other symptom of recurrence.

These two cases illustrate the difference between early and late diagnosis, and probably the after-history will show the value of early treatment in the second case.

The proof of the importance of the cystoscope is partly demonstrated so far as tumours are concerned by the number of tumours of the bladder which are now treated. Previously to 1888 they were considered rare—now they are known to be of comparative frequency. I have during the last ten years seen upwards of 50 cases. Two books—Albarran's and Clado's—have been written on the subject, and Hurry Fenwick, Barling, Nitze, Guyon, and others have reported series of cases from time to time. This frequency is not, I believe, because vesical tumours are more frequent in their occurrence now than formerly, but it is because they are more often diagnosed. We are all familiar with this in other diseases. Mr. R. J. Godlee in a paper on Actinomycosis[1] refers to this point about new diseases, or increased frequency of occurrence. It is not that they are more common, but when once a disease has been pointed out we are more on the alert to discover it when a case comes before us.

Regarding the varieties of bladder tumour I may first exclude those of extension from adjacent parts, and also those which have originated in the prostate. The classification which I give and my remarks on symptoms and treatment refer to primary tumours of the bladder wall. Albarran's classification is, I think, the best: (1) epithelial tumours: *simple* papilloma and *malign* epithelioma; (2) connective tissue tumours: *simple* fibroma, *malign* sarcoma, myxoma, and fibro-myxoma; (3) tumours of special tissues: angiomata and myomata; and (4) cysts: dermoids and hydatids.

Regarding pathologically simple or malign growths it is right to say that the former may clinically prove fatal just as the latter do unless suitable treatment is carried out. They give rise to hæmorrhage, cystitis, and secondary renal affections and it is from these that patients die when the tumour is malign—not, as a rule, from secondary growths.

SYMPTOMS.

The usual first symptom, although not necessarily so, is a causeless, symptomless bleeding. It may be of bright red blood or it may be dark and intimately mixed with the urine. The patient observes it simply because the urine is coloured. There is no pain or other symptom. Sometimes, on the other hand, pain or frequency of micturition may be first noticed. The bleeding is intermittent, the urine between times being clear. It varies in amount and the quantity is no criterion of the size or nature of the growth, but sometimes the patient states that the blood comes chiefly at the end of the micturitory act and this is of importance. At a later period, cystitis being present, pus may be in the urine and then pain and frequency are complained of. The hæmorrhage may have occurred a year or two before the patient becomes so alarmed as to consult his doctor. The blood may only be present for a day or two and no recurrence of bleeding may take place for months or even for a year. One patient had bleeding for the first time seven years before I saw him and then bleeding at intervals of a year or more. As regards the size of tumours and the quantity of blood, one patient, a female, aged 60 years, had such severe hæmorrhage on several occasions that she was believed to be dying simply from loss of blood, but the tumour was not larger than a filbert, while another patient, a young man, aged 23 years, had the bladder almost filled by multiple papillomatous growths, and yet the bleeding at no time was serious. In early cases where the tumour is small bi-manual examination may give no indication of a tumour, but when the tumour is of large size, and particularly if infiltrating the wall of the bladder, it may be felt by this method of examination. Examination of the urine may be negative, and in my experience, so far as tumour cells are concerned, it usually is negative, but if cells are seen, especially large nucleated cells in groups, the diagnosis of tumour is assisted, but these cells do not necessarily enable you to tell the nature of the growth. The sound is not reliable and [illegible] The cystoscope is invalual[illegible] in many cases to give a pr[illegible] hæmorrhage be present at [illegible] but rarely does, prevent satisfactory examination. Another examination can always be made when the urine is clear or the bleeding less profuse. Strict asepsis is necessary and for the use of the cystoscope three factors are needed—a urethra of sufficient calibre, a clear medium, and a sufficient quantity of solution in the bladder—e.g., four ounces.

PROGNOSIS.

Prognosis depends upon (1) the character of the tumour; (2) its extent, site, and attachment; and (3) the presence or absence of sepsis. This leads me to speak of the nature of the attachment of the tumour. It may be (*a*) pedunculated, (*b*) sessile, or (*c*) infiltrating. The nature of the attachment is very important prognostically and yet unfortunately prognosis cannot always be reliable even if the attachment can be recognised. A tumour with a narrow pedicle may have deep attachments and may invade the mucous membrane for some distance beyond the apparent attachment. In two cases after the removal of pedunculated tumours I have seen very rapid recurrence of the growth. The determination of the likelihood of satisfactory removal is important, as if the tumour cannot probably be excised the bladder should not be opened unless it be to give relief to pain and frequency of micturition or to arrest hæmorrhage. The arrest of hæmorrhage after suprapubic cystotomy in such cases is very remarkable and rapid even when the tumour is very extensive and has been bleeding freely, as the following case shows.

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[1] THE LANCET, Jan. 5th, 1901, p. 3.

CASE 3.—The patient, whose age was 50 years, had severe and almost continuous bleeding. A large tumour was readily detected on bi-manual examination. Within 24 hours after a suprapubic cystotomy the urine was quite clear and no recurrence took place for weeks, the patient rapidly regaining strength.

TREATMENT.

Palliative measures in the form of drugs are only justifiable when diagnosis has been made and when radical treatment is impossible, but we may consider palliative operative treatment in cases where bleeding or pain and sepsis are undermining the patient's strength.

Operative treatment with a view to removal of the tumour.—The suprapubic route is that of choice wherever the tumour be situated. It gives free access and permits of operation by sight as well as by touch. I think the vertical incision as satisfactory as the transverse, and it has the advantage of weakening the abdominal wall less. If more room be needed the rectus muscle on one or both sides can be divided. Peterson's rectal bag is not required, but Trendelenburg's position is advantageous. The bladder is first distended with fluid, which I prefer to air. No doubt from its weight it causes the bladder in some cases to fall back, but Trendelenburg's posture minimises this, and with fluid distending the bladder when the finger is introduced examination of the wall is easier. Air so quickly escapes that the bladder collapses and examination is not so satisfactory. In exposing the anterior aspect of the bladder the operator should keep close to the symphysis pubis and should open below the reflexion of the peritoneum. It is well to steady the bladder with a double sharp hook, and on incising the wall to make a decided plunge in with a sharp-pointed knife. Whenever the opening is made the finger should be introduced to prevent the solution from escaping. Then the margins of the opening should be caught with Kocher's forceps.

Removal of the tumour with scissors.—The mucous membrane should be snipped around its attachment and then the attachment of the tumour to the bladder-wall should either be snipped through or twisted and torn away gradually. The bleeding, as a rule, is not great, and usually it quickly ceases with hot water injection. I have never had any difficulty with bleeding, but if there was difficulty I would catch the vessels with forceps and leave them *in situ* for 24 or 48 hours. My experience is that satisfactorily to remove the tumour when it is a sessile one is very difficult, but we have at least the satisfaction of knowing that even imperfect removal although not curative yet delays the growth very markedly and prolongs the patient's life. This was well illustrated in Case 1; the operation was performed in 1895 and the patient lived until the end of 1899. The recurrence of bleeding was first noticed one year after operation. If the tumour were favourably situated it would be wise to remove a portion of the whole thickness of the bladder wall.

I demur to any attempts to remove growths per urethram in the female or through small openings, suprapubic or perineal, in the male. Free access must be had and the operator must cut wide of the disease if he possibly can. In two cases I have operated suprapubically after recurrence, the first operation having been per urethram. Both of the suprapubic operations were successful—one eight years ago and the other three years ago—and both were cases of sessile papilloma.

After-treatment.—Primary union should not be aimed at. A tube may be put in and Cathcart's adaptation of the Sprengel pump may be applied. The bladder may thus be kept quite empty and the patient perfectly dry. At the end of 10 days the tube should be removed and the pump should be used only at night. Urine comes generally by the urethra in three weeks, but it may be necessary in the male to pass a bougie to hasten it. There is no objection to the patient sitting up in bed within a day or two after the operation—a matter of much importance in the cases of old persons. I have never had a permanent fistula result, and in only one case, that of a man accustomed to lift heavy weights, have I seen hernia follow the operation, and it was very slight. It came on in one year after the operation.

ENLARGED PROSTATE.

Enlargement of the prostate is so frequently the cause of bladder trouble, producing much discomfort and often great risk to life, that it bulks very largely in our minds as an important disease. To-night I propose to say nothing regarding the etiology or symptomatology but to discuss very shortly the methods of treatment chiefly in vogue at present for coping with the affection.

In the first place I think I may say that it is now generally recognised that to initiate a patient even temporarily into what is termed "catheter life" is a proceeding fraught with much danger and not uncommonly followed by loss of life. Secondly, I think it is also recognised that the chief risk is associated with the occurrence of sepsis, organisms being introduced at the time of catheterisation, and that such an accident may result notwithstanding every precaution which may be taken. Indeed, personally, there is no class of surgical interference which causes me more anxiety than the passage of a catheter for the first time in a case of chronic incomplete retention, as the French term it, or what we know as an over-distended bladder due to enlargement of the prostate. An endeavour should always be made thoroughly to purify our hands and instruments and the meatus and anterior urethra of the patient and to have an area of asepsis around the parts just as in an operation elsewhere when the skin is unbroken. These precautionary measures are imperative, but other questions arise—viz., what catheter should be used? should the bladder be completely emptied? and should any mildly antiseptic solution be introduced after withdrawal of the urine? I would answer these queries thus. Use a red rubber catheter by preference, but if you fail with that use a silver catheter. I advise this primarily because both can be sterilised by boiling or heat. If the bladder be over-distended markedly—i.e., probably the contractile power lost—do not evacuate all the urine at once. If the bladder be not so markedly over-distended and contractile empty it completely but introduce a few ounces of warm boric lotion or boroglycerine in water. A gum elastic catheter is not good as it cannot be purified so certainly as either of the others. French rubber are better. For lubricant a convenient substance is eucalyptus and vaseline (1 in 6) in a collapsible tube. Later—that is, after catheterisation has been used for some time, perhaps by the patient—even if sepsis occur the risk is not so great, particularly if the bladder be contractile. One disadvantage of the continuous use of the red rubber catheter is that increased pain and other symptoms being present, a stone having formed, it may be missed. I therefore in such cases always sound the patient from time to time or use a silver catheter to draw off the urine. Not infrequently I have found the aggravated symptoms to be due to a stone.

A difficulty may arise after a time in the passage of the instrument and operative interference may be necessitated. Or it may be that a patient comes before us with such symptoms that something more than catheterisation is indicated. Many procedures have been advocated, but at present I think that only three hold the field—(1) castration and modified procedures based on the same theoretical grounds, vasectomy, and angio-neurectomy; (2) drainage, suprapubic or perineal; and (3) suprapubic prostatectomy.

I need not detain you with an account of the theory of castration, and I think it will be admitted by all from the large number of successful cases which have been brought before the profession from time to time that this operation is frequently most valuable. I do not trouble you with statistics further than to say that in the most recent paper with which I am acquainted[2] a list of 159 cases is given which does not include either White's or Cabot's series. There were 13 deaths, and of 130 in which the result is stated 90 per cent. were improved after operation. Regarding vasectomy Wood gives a series of 193 cases. In 118 cases (67 per cent.) improvement occurred after operation. Statistics are proverbially untrustworthy and I give these figures merely to show that benefit accrues in certain cases after either operation. The mortality is not high, and neither operation *per se* is of any great danger, and in that particular perhaps we have a reason for the quick and somewhat general acceptance of the procedure by the profession. In all probability the benefit derived at first and occasionally very quickly is from decongestion of the prostate, but the continued improvement and return of voluntary power of micturition may be associated with a decreased size of the prostate by atrophy.

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[2] Wood, in Annals of Surgery, September, 1900.

Now, having admitted so much in favour of the operation, we may ask, Why does it sometimes fail, or why does complete recovery not ensue? I think that the explanation is due to the varying state of the prostate in different patients. Mr. Reginald Harrison classes the enlargement shortly under three heads which I may adopt: (1) enlargement mainly proceeding from blood engorgement (the prostate equal to a mass of erectile tissue); (2) the fibrotic prostate, consisting of a mass or masses of degenerated connective tissue and muscular fibre; and (3) an enlargement due to prostatic tissue resembling an adenoma. Where decongestion alone can diminish the size of the prostate sufficiently then castration should *a priori* be successful. This may apply to the first of the varieties which I have enumerated, but if either of the other two conditions be present then it is not reasonable to expect relief after castration except in so far as decongestion alone can bring it about. It is in this, then, that the great difficulty in treatment of prostatic enlargement obtains. How can the prostatic condition be judged? Rectal examination does not suffice; measurement of the length of the urethra is fallacious; indeed, I know of no plan short of cystotomy by which we can even approximately gauge the state of the prostate. The cystoscope is no doubt often valuable as an aid to diagnosis in prostatic cases, but we cannot even with this tell how much of the enlargement is due to actual increase of prostatic tissue and how much is due to vascular engorgement. We are therefore driven to this position: that in a case of prostatic enlargement requiring something more than catheterisation castration or vasectomy may give benefit but not necessarily, and if we fail to give relief by such means further treatment is required. In giving advice to a patient we are hampered by sentimental considerations which, however, have a distinct influence with the patient and his friends. No doubt this difficulty decreases in proportion to the patient's age, but I have known a patient well over 70 years of age run away from hospital when the suggestion was made that his testes should be removed. This difficulty does not militate against vasectomy so much, but in spite of Mr. Harrison's views on the subject I think we must admit that hitherto success has attended castration more frequently than it has attended vasectomy. Regarding the cases in which it may be unhesitatingly recommended I would say that it is in old men who have had relief by using a catheter for a time but in whom the difficulty of passing an instrument has become increasingly greater. In such cases congestion has probably increased and produced the greater obstruction. Castration, or it may be vasectomy, by causing decongestion may make catheterisation easier and if in addition atrophy of glandular tissue results we may have the need for catheterisation overcome. On the other hand, I am satisfied that in many cases such operations can scarcely be expected to be successful—namely, in those where the fibrotic prostate exists, or where a real tumour, though benign, of the prostate is met with. I show you three specimens removed from such cases, and very briefly I will detail the history of one of the patients.

CASE 4.—The patient, who was 58 years of age, had had for several years difficulty in, and frequency of, micturition. A double vasectomy was performed in November, 1897, but the symptoms increased rather than diminished. He could pass no urine at all naturally. The catheter was required both day and night. The left lobe of the prostate was small, but the right per rectum was very large. I performed a suprapubic cystotomy in November, 1898, and I found a very large right lobe. It was a fibro-adenoma which was easily enucleated. The patient made a good recovery and he does not now require the catheter.

No previous operation had been performed upon either of the other patients, but both had used a catheter for many months and in each hæmaturia was a prominent symptom. In both of these cases a suprapubic prostatectomy was carried out and both patients made excellent recoveries.

I do not dwell upon the advantage of this method in cases complicated by the presence of stone, but I wish to mention certain advantages which to my mind are of importance. 1. The operation immediately relieves the symptoms. 2. By resting the bladder the bleeding ceases and the patient gains much benefit from relief to pain and sleeplessness. 3. It admits of washing out the bladder very efficiently if that be needed. 4. The bladder being at rest it contracts and regains its contractile power and capability of expelling the urine.

The objections which have been urged against the method are: (1) danger to life; (2) imperfect drainage; and (3) that the prostate cannot be wholly removed. Regarding danger to life, such has not been my experience. I have only lost one case—the patient died 19 days after operation, death being due, as far as one could judge at the necropsy, to old-standing nephritis. It is necessary to judge whether when suprapubic cystotomy is performed it is right to proceed to remove the prostate at once or whether it should be done at a second operation when the patient is stronger. There is a disadvantage in delay, as the bladder contracts and operation is not so easy. Still, for the time the patient is relieved from dangerous symptoms and he regains strength.

With Cathcart's adaptation of the Sprengel pump drainage can be most satisfactorily attained. The bladder can be kept empty and the patient be kept dry. It is not necessary to remove the whole of the prostate. The chief cause of difficulty in micturition and in the passage of an instrument is as a rule either an enlarged middle lobe or a lateral lobe irregularly enlarged. Such masses can be removed.

The risk of permanent fistula after suprapubic cystotomy is because the natural canal has not been rendered patent. If the obstruction be removed fistula will not persist

Lastly, in removal of a mass of the prostate it is in many cases easy, if you cut through the mucous membrane covering it, to enucleate a mass with the finger-nail or a periosteum-detacher. The pedunculated middle lobe may have a firm attachment at one point, and this can be safely cut through, as it is fibrous and does not bleed to any extent.

[The lecture was illustrated by numerous specimens, naked-eye and microscopical, and also by instruments.]

DIAGNOSIS AND TREATMENT OF TYPHOID FEVER.[1]

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I MUST in the first place express my appreciation of, and thanks for, the honour you have conferred upon me in requesting me to open the discussion this evening upon two important aspects of a very important subject. It is not necessary to mention the endemic prevalence of the disease in large communities, nor its special fatality amongst the adult population, nor its constant epidemic prevalence under certain conditions, in order to emphasise its importance. The advances which have recently been made in our means of diagnosis, in the bacteriology and surgical treatment of some of the complications and sequelæ, in the discovery of an unexpected association with other ailments, as cholelithiasis, and I might add in the attempts to break through an irrational and stereotyped method of treatment,—these facts constitute a sufficient reason for an interchange of opinions and experiences. Unfortunately, I must at the outset apologise for limiting my remarks to certain points in the diagnosis and treatment. The subject is so extensive and affects so many branches of our profession that the reason for limitation is self-evident, and, moreover, the prime object of this evening's meeting is to obtain a discussion participated in by all. I am obliged, therefore, to leave out of consideration that part of it which deals with the differential diagnosis of the various diseases which have been, or are likely to be, mistaken for enteric fever, as well as the specific treatment of many of the complications or sequelæ which are not peculiar to this disease Taking, therefore, the diagnosis of cases of enteric fever we may divide them into two classes, according to whether it is certain or uncertain. A certain diagnosis may be arrived at either by (1) physical signs or (2) specific tests.

1. I take it that a recent acute illness commencing with lassitude, headache, chills, then epistaxis, enlargement of the spleen, a continuous pyrexia, rose spots appearing in successive crops for several days, and each lasting three or four days, with an absence of leucocytosis, and terminating

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[1] A paper read before the Manchester Medical Society on March 6th, 1901.

by a remittent temperature gradually subsiding after, say, 17 or 18 days, and accompanied by sudden profuse intestinal hæmorrhage or undoubted symptoms of intestinal perforation, or further followed by a definite relapse, such a symptom-group may be with certainty diagnosed as due to enteric fever. I am aware that no symptom is pathognomonic, but such a combination is, I think, about as certain as anything in our uncertain life well can be.

2. As regards the specific tests the isolation of Eberth's bacillus either from the stools or from the rose spots is as yet impracticable, whilst tapping of the spleen is unjustifiable. On the other hand, the serum reaction, performed under definite rules of dilution and time, may be as convincing and certain as any imaginable symptom-group. It cannot be said that the degree of dilution and the rapidity of agglutination forming the time limit, and acting as a basis for such reports as incomplete or doubtful reaction, are matters of no moment to the physician. It has, I believe, been shown that occasionally with a dilution of 1 in 10, and a time limit of one hour, blood from individuals in whom no history or suspicion of enteric fever could be obtained will produce an agglutination sufficient to warrant the report that the reaction is present. In considering a series of about 200 of the most recent cases examined, in 12 instances a doubtful reaction was reported, in all of which the evidence for the possibility of enteric fever was of the most meagre description, and I am strongly of opinion that some of these cases may be examples of the danger I have just mentioned. But unfortunately this is not the only difficulty, for after the discovery of the reaction it was soon observed that the time of its appearance and the rapidity and completeness of agglutination vary enormously. It is therefore necessary to discuss the possible difficulties in its application.

The blood-serum may retain its peculiar power for so long a time that the attack of enteric fever having passed undiagnosed the reaction is obtained and first noticed during a subsequent ailment. In addition, since the injection of typhoid vaccine has been done on a large scale it is well to keep in mind that the reaction has been obtained as long as two years after its administration. In any case one must exclude the possible previous introduction of typhoid toxins into the blood unless the agglutination occurs very rapidly and with a high degree of dilution, though failing this the most certain test is, I think, to obtain an agglutination increasing in rapidity and completeness as the disease progresses. Thus I recently obtained three reports as follows: (1) incomplete reaction on the tenth day; (2) somewhat incomplete on the seventeenth day; and (3) Widal reaction on the twenty-ninth day. The exact terms are, of course, the result of a standard set up by the manipulator, but the course undoubtedly shows a gradual change in the power of the serum, which is only consistent with the view of a progressive introduction of typhoid toxins into the system, and under such circumstances, where the disease is under observation and the change well marked, warrants with certainty the diagnosis of typhoid fever.

I have already mentioned that the time of the appearance in the serum of the power of agglutinating recent cultures of Eberth's bacillus varies greatly, but it was early discovered that the later in the attack the blood is examined the fewer are the percentage of failures, so that if it be taken at the end or during early convalescence this percentage is reduced to a minimum. I might here refer to the results of the blood examinations made during the last 12 months. Out of 214 cases a positive reaction in 149 instances was obtained at periods varying from the fourth day to the fifth or sixth week, and in this series the clinical evidence was in agreement, whilst in other 11 cases the illness was quite over. In nine instances the clinical evidence was indefinite and the serum reaction doubtful. In 22 instances the clinical evidence negatived typhoid fever and there was an absence of the Widal reaction. Of 18 cases in which the clinical course or a post-mortem examination allowed one definitely to diagnose typhoid fever, in 10 an incomplete reaction was obtained at periods varying from the eighth day to the end of the third week. In another of these cases the reaction was incomplete on the fourth day of illness, two others gave a negative reaction on the sixth and tenth days, whilst other two were incomplete and doubtful after nine and 12 days. The last case died a few days later from intestinal perforation and at the post-mortem examination there were several typhoid ulcerations in the ileum. Completing the 18 cases, there was one instance in which an incomplete reaction was obtained after 10 days and a positive after 16 days, whilst there were two cases where the reaction was negative at the end of two weeks and positive at the end of a month, but in each instance the patient was through the primary attack at the time the positive reaction was obtained.

To complete the 214 examinations, on two occasions a positive reaction was shown which referred probably to a previous illness, since one of these was proved later to have been a case of typhus fever, and in the other there was no acute fever at the time, but seven weeks before the patient had suffered from "influenza." There were also three instances in which the blood gave an incomplete reaction, but the clinical examination was against the view of an attack of typhoid fever.

Summarising the results one finds that of the 214 cases in 209 instances the clinical evidence and the blood reaction were either in agreement or not at variance. It must, however, be noted that in the 149 cases first mentioned where the reaction was positive there were a large number in which the clinical symptoms or history would not have allowed a definite conclusion, and it would be difficult to over-estimate the value of the serum reaction in recognising the existence of a previous or recent attack of enteric fever, as well as its co-existence along with symptoms of another ailment. On the other hand, one has to admit that an incomplete reaction is not unfrequently most confusing and should, I think, be appreciated at something like the value of Ehrlich's diazo-reaction—that is to say, belief or discredit must be attached to it according to the clinical manifestations. Then, again, it is found that in a fair percentage of the cases the serum reaction may remain indefinite or even negative for the first 10 days or fortnight, and that occasionally the positive result may not be obtained until towards the end or possibly after the completion of the primary attack, so that, as in the case I have cited, it is quite possible for death to take place from enteric fever without having obtained a definite Widal reaction, though the blood has been examined only a short time before. Still, if the blood be examined periodically throughout the course of the disease one has to admit that the greater danger is not that the reaction will not be obtained in a case of enteric fever, but rather that evidences of its presence will be obtained in people suffering from other ailments. In most cases this is evidently the least important or least serious of the difficulties. I think one may therefore summarise the position of the Wida reaction somewhat as follows: a negative result, say, at th end of the first week of illness indicates at most a probabilit against the diagnosis of enteric fever, whilst each succeedin negative result increases this probability, so that by the en of the attack a negative result almost amounts to a certaint against the diagnosis. In fact, in all cases in which, as convalescence from the illness is approaching, or in which, afte there has been a continuous fever of about three week duration, the serum reaction is still found negative, I shoul say that the diagnosis of enteric fever must be abandone unless the physical signs form such a symptom-group as have already referred to. I would even go further an include the occurrence of an incomplete and doubtfu reaction obtained by the serum from a case at the beginnin of convalescence, especially if the same result had bee noted during the acute stage of the illness.

Except in very unusual circumstances the diagnosis of enteric fever must always be uncertain during the first week of illness. However strong the probability may be until the presence of a well-marked Widal reaction, when the serum is tested for the first time, or the development of such signs as rose spots, intestinal hæmorrhage, &c., it is evident that without such indications the essential element for making a certain diagnosis must be considered as wanting. Of course, strong probabilities may be obtained where it is known that the individual has been exposed to infection or where other undoubted cases have arisen in the same family. I trust that I shall not be convicted of platitudinism when I lay stress on the necessity of suspecting enteric fever in any acute illness of a week or more in duration which is characterised by indefiniteness of symptoms to physical examination, and especially if the onset is gradual and is accompanied by headache, weariness, languor, feelings of chilliness, and enlargement of the spleen. In this connexion I should like to lay special importance upon the enlargement of the spleen, as in the few cases in which I have been consulted at the beginning of the attack it has seemed to me that the chief increase in bulk has already taken place before the illness is far advanced. Then, again, with the presence during the early period of Ehrlich's diazo reaction in the urine, one may in conjunction [illegible] asles, acute tuberculosis, &c., [illegible] fever, though I think the fact that this reaction can be obtained in other diseases will always militate against any reliance being placed on the test, no matter how regular may be its appearance, in the earlier stages of enteric fever.

The indefiniteness of the symptoms which characterise the early stage of the disease and which is responsible for the frequent diagnosis of influenza and bronchitis may, on the other hand, be continued even throughout the attack. A person complains of lassitude, disinclination for work, and loss of appetite. The thermometer reveals the presence of a pyrexia which may be slight and either remittent or continuous. There may or may not be abdominal symptoms and signs of bronchitis. Such a condition may last for a variable number of days, and even weeks, and be unaccompanied by more [illegible] and [illegible] mild. [illegible] more [illegible] In them also not only are the rose spots absent in a larger proportion of the cases, but even when they occur they are often smaller and more readily overlooked; and again shorter attacks with the temperature of a remittent type are more frequent, or cerebral symptoms, such as irritability, possibly with retraction of the head, somnolence, constant moaning, and even temporary strabismus, may overshadow everything else, the abdominal or respiratory symptoms being so slight that the thought of enteric fever is never entertained. In all such cases, and speaking generally in all doubtful cases, it must be admitted that the value of the serum test, with the reservations which I have already mentioned, cannot be too highly rated. Again, there is the exceedingly interesting apyrexial form of enteric fever, but here I think that unless rose spots were present in crops over a number of days, or unless the Widal reaction were found to increase in power as the disease advanced, an unquestionably positive diagnosis would not be justifiable without post-mortem evidence. Then there is the condition of typhoid septicæmia, when the exact cause can only be determined by bacteriological investigation.

Difficulties in diagnosis may arise, however, not from the indefiniteness of the symptoms, but from their special localisation when the brunt of the infection has an unusual disposition. Thus the symptoms may be clearly and solely those of meningitis, pneumonia, nephritis, cystitis, or cholecystitis until the further progress of the disease brings with it more characteristic signs, or the development of the Widal reaction or a bacteriological examination discloses the exact cause. Occasionally under these circumstances a suspicion of enteric fever may arise where a connexion with previous cases can be traced, but in the absence of such indications the true nature may never be suspected until the bacteriological investigation reveals the etiological factor, for even post mortem the distinctive signs of enteric fever may be absent.

Concluding, then, the question of the diagnosis of enteric fever I would say that clinically, despite the occasional record of rose spots in other diseases, such as the case of acute tuberculosis recorded by Fagge in his "System of Medicine," the only sign upon which absolute reliance can be placed is the appearance of rose spots on several consecutive days either during a primary attack of a continuous fever at least 17 or 18 days in duration, or during a relapse, though I think that an otherwise similar attack accompanied by temporary enlargement of the spleen or intestinal hæmorrhage, &c., would require very clear bacteriological evidence to prove its non-typhoid nature.

Treatment.—Turning now to the treatment of enteric fever I do not propose to question the advisability of confining the patient to bed from the earliest possible moment and keeping him there throughout the attack and for the first 10 days of convalescence. Nor do I think a difference can arise as to the importance of the general hygiene of the sick-room or the necessity for good nursing. Again, I shall not attempt to discuss such very questionable treatment as the use of antiseptic and even vaunted specific drugs, and my own experience has unfortunately caused me to conclude that no benefit is to be expected from the typhoid antitoxin hitherto prepared. Further, we shall probably gain nothing by considering the various remedies which have been used in the treatment of the different symptoms. On the other hand, not only is diet admittedly a most important factor, but comparatively recently attempts have been made to modify or to alter long-established rules.

Even in the most recent text-books we are taught that irrespective of the condition of the patient and his apparent fitness, and ignoring the type of his attack, we must not allow solid food, not only during the acute stage, but till his temperature has been normal for 10 days. Personally, I think it is impossible to have treated many cases without being struck with the hardships of such a rule in some and with its impracticability in others. In the first place we shall doubtless agree that so long as the tongue is dry or the patient from his mental or general condition has no inclination for, or ability to consume, anything beyond fluids, we cannot do better than keep to a rigid liquid dietary, and the advisability under these circumstances of regular administration, limited quantities, and free dilution, along with periodical inspection of the stools, is not in question. But apart from such cases I wish to maintain that each patient should be dieted according to his condition, so that it may happen that one will receive a limited supply of solid food of a specified character almost throughout the attack, whilst another may not be able to resume solid food until convalescence is far advanced. But as an attempt at construction is often more serviceable than detailed destructive criticism and since I firmly believe in maintaining a definite plan, it will, perhaps, suit our purpose better if I lay down a few rules. I should say, therefore, that (1) in every case the patient is to be put on fluids alone at first and (2) that known easily digestible food only should be allowed until at least three weeks after the termination of the attack. Personally I like very much the gradual change dictated by old-established usage, such as fish, chicken, mutton, and beef, in this rotation and allowing time to observe the effect, or want of effect, of each change. Practically, therefore, the change consists solely in altering the time at which a trial with solid food may be made from the tenth day of convalescence to any period during or after the attack when the patient's wishes and our own examination or experience convince us that the attempt may with benefit be made. A third rule which I would make is that until the end of three weeks of convalescence precautions should be taken to prevent the swallowing of large imperfectly-masticated pieces of meat, &c., and here it must be admitted that the absence of ravenous hunger, from the earlier satisfying of legitimate cravings, is itself one of the best safeguards against an inclination to bolt food. At the same time if the habit is firmly rooted I have combated it by having the meat previously minced or chopped.

The objections raised against any deviation from a fluid diet are as follows:—1. The physiological processes are so altered during the febrile state as to interfere with the proper digestion of other forms of food. In practice I think the patient's wishes can with advantage be consulted to a very large extent, and if one carefully watches the effect I think one has to admit that the presence of fever *per se* does not necessarily prevent the assimilation of various solid foods. 2. A second objection urged is that any other form of diet may irritate the ulcerated and catarrhal bowel. But here again one finds numerous foods, such as underdone or raw meat, white fish, boiled chicken, rice, &c., which are more readily digested and assimilated than the precipitated casein of cow's milk, and it is a matter of experience that in some cases with diarrhœa an improvement is best obtained by an alteration in the dietary. Of course, when speaking of any food [illegible] valescent stages it is to [illegible] paid to the cooking and [illegible] pieces of skin, cartilage, tendon, &c. 3. But perhaps the most constant objection urged is the danger of producing perforation of the bowel owing to undigested particles increasing the catarrhal state or mechanically causing a rupture as they are forced along the intestine. This fear is, I think, always uppermost in the mind of the medical practitioner treating the case, and I can affirm that it is a *bête noire* to the initiated who are under treatment. I am aware that authentic instances are on record, and I well remember the case of a youth who shortly after a Christmas dinner showed symptoms of perforation. But it must be remembered that with one or two exceptions perforation has always been found to be the result of a progressive ulceration or necrosis, and the case which I have just mentioned was no exception to this rule, since at the laparotomy the bowels were free from solid particles, so far as could be seen, and the fæces exuding from the perforation were of the usual soft yellow character, whilst there was nothing suggestive of mechanical injury. Moreover, it must be evident that such an occurrence cannot be brought in question under the rules which I have mentioned. A fourth objection to the too early administration of solid food is the possible production of a temporary fever or even of a definite relapse. I am so heretical as to doubt the existence of a febris carnis, and in this connexion I should say that as sudden and at present unexplained rises in the temperature are relatively common during early convalescence from enteric fever there is always the possibility of their relationship to food being *post* and not *propter*, and I have for some time ceased to make any alteration in the diet solely on account of the supervention of pyrexia, with the result, as I think, that the fever has immediately subsided or pursued its further course quite independently of the food given. Then as regards a relapse. This is generally admitted to be the result of a re-infection, so that it is not rational to assume a definite causal relationship where it occurs immediately after. A more likely suggestion is that since during or after an attack of enteric fever the bile may not unfrequently be crowded with the specific bacilli the administration of solid food by increasing the flow of bile may as a result increase the number of bacilli poured into the intestine and thus be instrumental in producing a relapse. Such a suggestion is, however, purely theoretical, lacking confirmation, and from our ignorance of the nature and causes of a relapse difficult to prove. I am, therefore, of opinion that the adduced objections are not a sufficient warrant for the rigid rules which have till recently fettered us. On the other hand, the increased mental satisfaction and improved bodily constitution which follow a more liberal and varied diet demand that some such alteration as I have suggested should be made. In hospitals, certainly, when dealing with a large number of patients, the change is even more essential, as it tends to do away with that deceit and the smuggling of possibly harmful foods which is only too commonly practised or attempted when the restrictions are rigidly enforced.

In conjunction with an altered dietary, a system of regular immersion in a cold, or rather a tepid, bath during the acute stage of illness is capable of greatly altering the aspect of a ward containing a number of enteric fever patients. At the present time antipyretic drugs for the reduction of temperature are advisedly discouraged, and usually one resorts to some form of hydrotherapy. Cold or tepid sponging or douching and cold or ice packs can be used under all circumstances; the essential factor, however, is that they must be regularly and thoroughly administered. But whenever possible a tepid bath of from 75° to 85° F. is to be preferred. It must be distinctly understood that beyond acting as an excellent hypnotic and stimulant in delirious or wakeful cases no immediate benefit is to be looked for, whilst to be of any real value they must be given regularly as the pyrexia again reaches a certain maximum. A short experience of their use will convince one (1) that they are potent factors in reducing temperature with the diminution of its attendant evils; (2) that the intellect keeps clearer during the disease and stupor is lessened; (3) that they exert a general tonic action on the system—the skin keeps softer and more healthy, the circulation is improved, bronchitis, hypostatic pneumonia, and broncho-pneumonia are less prominent features, whilst headache and insomnia are much relieved, the patient frequently sleeping between successive baths; (4) it will be seen that they retard emaciation and maintain the muscular strength and nutrition; and (5) that they diminish the percentage of patients who die from cardiac failure and asthenia. It has further been shown that by their use the toxicity of the urine is greatly increased. To obtain the best results it is necessary that the baths should be commenced early in the attack.

The next point which I wish to discuss is the question of surgical interference. I shall not refer to such operations as tracheotomy for obstructive laryngitis, drainage of an empyema, &c., but limit myself to the consideration of the abdominal complications. Until comparatively recently it seems to have been fairly generally held that the presence of a severe ulceration of the bowel negatived a laparotomy or operation upon the intestines during the ulcerative stage. Enteric fever has, however, benefited from our advances in surgical procedure, so that one may now say that the existence of ulceration *per se* adds very little risk, and that the chief factor to be considered is the general condition of the patient. Such complications as perforation of the intestine, of the appendix, or of the gall-bladder may and do occur in patients who at the time are not in a fit condition to stand an operation. On the other hand, in a large percentage of the cases at the time of the onset of the symptoms the patient's state is sufficiently satisfactory, but from inability to diagnose these complications until the supervention of more pronounced indications they quickly become hopeless. On this account, though experience on the part of the surgeon is very important, the most essential requirement is an improvement in our means of diagnosis. With this end in view Professor Osler, in an article in THE LANCET on Feb. 9th of this year (p. 386), summarises the various points which should be noted and carefully looked for during an attack of enteric fever, and one cannot help feeling that an accurate record on the lines suggested will furnish most valuable evidence for future guidance and will be the means of materially altering the prognosis of these complications. If one waits for vomiting, or loss of liver dulness, or alteration of the pulse, or any other symptom-group diagnostic of perforation, in a large number of instances the time for operating will have gone by, but by keeping a detailed record of the condition of the abdomen during the attack and carefully noting the onset of the slightest abdominal pain, its character, situation, or persistence, the accompaniment of a rise or fall in the temperature, and the alteration in the distension, rigidity, or mobility on respiration of the abdominal walls, I think one need not despair of yet obtaining very much greater success than has been our lot in the past.

Manchester.

THE TREATMENT OF BRONCHIECTASIS AND OF CHRONIC BRONCHIAL AFFECTIONS BY POSTURE AND BY RESPIRATORY EXERCISES.

BY WILLIAM EWART, M.D. CANTAB., F.R.C.P. LOND.,
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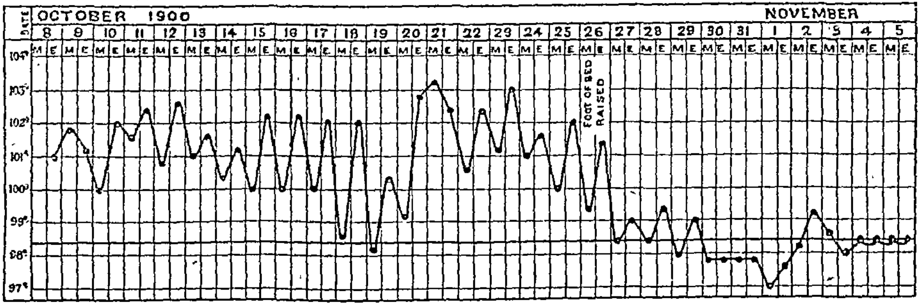
THE principle of treatment to be described has a wide range of application in obstructive affections of the respiratory tract. The symptoms produced by a pedunculated growth in the larynx or by a long uvula may be mitigated by position, though the patient is seldom aware of the relief to be obtained from posture alone. In severe chronic catarrh with tenacious expectoration or in the later stages of pulmonary excavation nothing will restrain the patient from flying up into the sitting posture and bending to the struggle as the first of an endless series of coughs ushers in the paroxysm. In phthisis this commonly ends with vomiting as the only adequate mechanism for complete expectoration. Much of all this is avoidable by suitable posture. It is, however, in bronchiectasis that the postural method has its chief application and that its most striking results are witnessed. The following cases, which were exhibited before the Medical Graduates' College and Polyclinic on June 4th, 1901, will speak for themselves.

CASE 1.—The patient, a well-developed and fairly strong girl, 20 years of age, had been subject for many years since an acute pulmonary attack to cough and expectoration which had been worse during the winters, and presented the general characteristics of bronchiectasis. She had never been under any treatment even as an out-patient until she was admitted under my care into St. George's Hospital 18 months ago, having got much worse though she was not bedridden. The complexion was, and had been, habituall slightly dusky, the subcutaneous tissues were full, the vein particularly in the hands, were lax, the finger ends wer considerably clubbed, thickened, and dusky, and the nail were much incurved. Dyspnœa on exertion had been marked symptom. The secretion had been of the typic bronchiectatic character, at times fetid for long periods, i expectoration becoming then more and more difficult an occurring with a gush. Considerable improvement resulte from general treatment in the ward and from the relativ luxury of rest and hospital treatment. The catarrh an expectoration diminished and she was ultimately provide with an automatic respiratory jacket which she wore wit comfort, and at first, she thought, with advantage. Thi did not, however, prevent a return of the symptoms in an aggravated form under the influence of winter weather. On her second admission, on Oct. 8th, 1900, she was suffering from high fever, severe cough, and expectoration. Orthopnœa and the spasms of coughing remained unrelieved in spite of ordinary treatment. The night-sweats and progressive debility caused anxiety lest the septic absorption which was apparently in progress might ultimately prove fatal. While witnessing one of the painful orthopnœic paroxysms of cough it occurred to me that common-sense principles had not been carried out in my treatment. I prevailed upon the patient to lie down, and I raised the foot of the bed to the level of my shoulder. The spasmodic character of the cough ceased at once, the expectoration began to flow easily, and after a few minutes the patient declared herself much relieved. The foot of the bed was now permanently raised by blocks to the height of 14 inches, and the patient has since persevered with this practice. The temperature chart shows that from that date the temperature never rose again.

The sequel of the case is of interest. *The patient was re-admitted on March 26th, 1901, for a return of the catarrh and of the fœtor. From the beginning of the postural treatment the typical expectoration in gushes had ceased, but from time to time the catarrh had become worse and the expectoration occasionally fetid, showing that posture alone will not obviate this result which I suspect may be connected with infection from the mouth. The patient had gained in weight and in strength and the clubbing of the finger ends was perceptibly less than prior to the adoption of the postural treatment. On April 13th several



Temperature chart of Case 1.

arious stumps were extracted. During her stay in the iospital six intravenous injections of protargol were given rithout any striking result. Ichthyol was administered with dvantage and a further instalment of treatment by respiraory exercises was inaugurated. The patient left the hospital nuch improved and, although still rather short of breath ind still expectorating, she is progressing steadily.

The second case is in many points analogous to the other. The patient had never been systematically treated, though he physical signs were clearly those of bronchiectasis.

CASE 2.—A woman, aged 30 years, was admitted in the eventh month [illegible] ind expectorat[illegible] weeks. There was a history of pneumonia and bronchitis at the age of 12 years after getting wet. Since then she had ilways had a cough with expectoration, but she had been worse during the seven months previous to her admission and had been bedridden for six weeks. The paroxysms of cough were exceedingly trying and the expectoration was foul and abundant and difficult to raise. The patient was also permanently orthopnœic, particularly during the fits of coughing. In spite of the complication of pregnancy, which, however, was an inducement to resort to some effective treatment, I determined to adopt the posture method. The patient was made to lie back and the foot of the bed was raised about 12 inches. This gave the first instalment of relief from harassing cough which had been obtained for six weeks. The altered posture was borne without any detriment to the abdominal condition, but after a while there were slight discomfort and dragging from the pelvis. The patient's bed was then raised only for periods of an hour twice or three times a day. Under the administration of ichthyol the progress of the case was most satisfactory, and she was removed to Queen Charlotte's Lying-in Hospital for delivery. The patient was subsequently readmitted to complete the cure and she gained considerably in weight and strength under the combined influence of postural treatment and ichthyol.

The method illustrated by these instances needs no further elucidation. The immediate result in both cases was a great sense of relief, a diminution in the frequency and severity of the cough, a lessening of the sputum, a complete cessation of the gush of expectoration, and presumably the liberation of the affected pulmonary areas from entangling slime and from any further plugging with muco-pus.

The continuous postural method as originally applied in these cases is, I believe, preferable to the intermittent use of posture recommended by Quincke, to whom, as I have lately discovered, belongs priority in the systematic use of *this form of treatment.* *His method, which is to place* the patient in the inclined prone position with the head lower than the feet for a period of half an hour or more night and morning, was described by him[1] in 1898, and was further described by O. Jacobson[2] in 1900. It should not, however, be forgotten that the same principle had long been utilised by some chest physicians, in a modified and perhaps less systematic form, for the relief of the basic cavities apt to occur in phthisis. Patients were sometimes directed to lean over the edge of the bed in order to empty their vomicæ more effectually. This rough-and-ready device is not free from obvious disadvantages and risks and should in all cases find its substitute in that which has been described. Quincke attributes the benefit secured (1) to the mechanical advantage of gravitation, and (2) to the stimulus to cough set up by the progress of the secretion as it reaches healthier and more excitable mucous surfaces, while other advantages are (3) that portions of the lung previously kept airless are enabled to expand, and (4) that the slanting posture by carrying the weight of the abdominal organs upwards against the diaphragm *facilitates expectoration.* A further advantage is that the time of day for emptying the chest can be selected. The various evils of accumulation are obviated or remedied. Local putrid fermentations, ulcerations, and infiltrations, collateral septic broncho-pneumonic infections, and general septic contaminations are all guarded against. Cylindrical bronchiectases are more quickly relieved than the saccular. It is obvious that pulmonary abscesses and empyemata possessing only narrow fistulous communications with the bronchial system are susceptible only of partial benefit. Nevertheless, in a case sent to me for treatment by Mr. Heaton C. Howard of Clapham-road, which proved to be one of pulmonary abscess with secondary empyema and pleuro-pulmonary fistula, great relief was given to the intensely paroxysmal cough, but the case ultimately needed for its cure surgical treatment by incision and drainage.

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[1] Zeitschrift für Krankenpflege, August, 1898, p. 525.
[2] Berliner Klinische Wochenschrift, Oct. 8th, 1900.

In bronchiectasis the prophylactic capabilities which must belong to this method are evidenced by the immediate results of treatment in the cases reported. The late and destructive results of the affection are entirely due to persistent accumulation and imperfect removal of stale secretion. Had my young patient in Case 1 been seen and treated on this plan several years ago bronchiectasis would never have reached in her the gravity which it now presents. Probably it might have been cured. This result might, indeed, be expected in all growing patients if only timely help could be afforded to the efforts of *naturæ medicatrix*. This points to the urgent need for some more distinctive diagnostic signs to identify the disease at an early stage and these will doubtless be found if sufficient attention be given to the matter.

A cure is perhaps not to be hoped for where fibrous replacement of lung tissue has taken place on a large scale. It is to be feared that in both of the cases mentioned this had already partly taken place and that the persistence of the expectoration and of the catarrh and the recurrence of fœtor are to be accounted for in this way. The obvious indication is sanitation of the cavities which are deprived by the stiffness of their walls of the power of spontaneous evacuation. This is one of the aims of the creosote inhalation method which, however, must be regarded as a somewhat trying and awkward means of effecting the mechanical purpose in view. By enforcing the postural method we have done a great part of our duty towards protecting the patient against any progressive accumulation and its results and we may then without any misgiving take time to select, if necessary, curative measures of greater responsibility whether by the knife, by irritating inhalations, or by injections, all of which methods I have tried in other cases with doubtful benefit.

Where there is no advanced fibrosis, that is in all early cases, particularly before middle age, the best curative treatment appears to me to be a combination of the postural method with well-planned respiratory exercises whereby more and more of the previously hampered lung substance is restored to activity, and most of the space usurped by the dilatations may gradually be reclaimed by healthy pulmonary tissue. The experience in Case 1 demonstrates, however, that the respiratory advantage thus sought is not in itself capable of producing the desired effect so long as the major indication of keeping the cavities empty and dry remains unfulfilled. The wearing of the respiratory jacket as a stimulus to respiration did not make any appreciable difference in the pulmonary condition.

Bronchiectasis, though far from uncommon, is a relatively infrequent occasion for this treatment. But we all have daily opportunities of contributing to the comfort and relief of patients suffering from general catarrhal affections with tenacious mucus Though it is difficult to induce them to lie down after they have been accustomed for days or weeks to struggle with their cough in the sitting posture, if only we can get the shoulders down and the pelvis raised the struggle is at an end and a case of long-standing may in a few hours be on the high road to recovery.

Curzon-street, W.

AN UNDESCRIBED INNOCENT (?) GROWTH OF THE GALL-BLADDER.

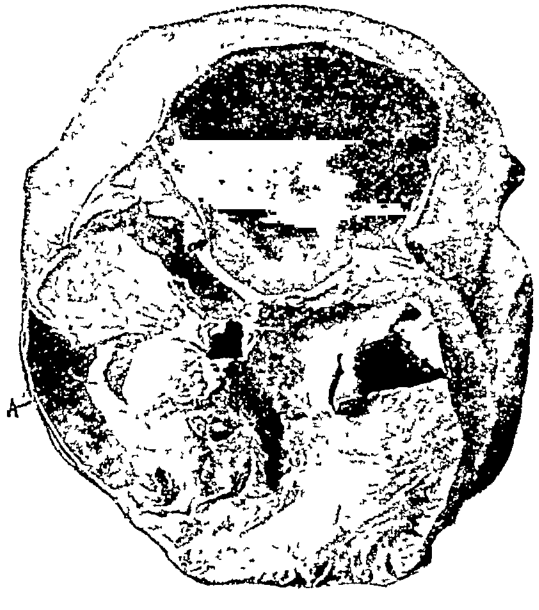
BY E. STANMORE BISHOP, F.R.C.S. ENG.,
HONORARY SURGEON TO THE ANCOATS HOSPITAL, MANCHESTER.

IN all books which treat of pathological changes in the gall-bladder the main interest centres in those produced by the presence of gall-stones, and secondarily, in carcinomatous degenerations. Very few innocent growths have been described. Mr. Mayo Robson says that innocent growth, except of inflammatory origin, is extremely rare; whether the condition figured below comes under that description appears to be doubtful. Papillomatous growths have been described, and in the Hunterian Museum is a specimen (No. 2812) showing villi and papillæ on the mucous surface, but these were associated with, and were apparently due to, the irritation of biliary calculi. In Guy's Hospital Museum papillomata are seen (No. 1404) sessile in some parts, whilst becoming pedunculated in others. It will be seen from the illustration that the condition figured is different in many ways from any previous innocent growth described—at least to that of any which I have been able to find after a fairly comprehensive search.

The case from which these figures were taken is that of a woman, aged 42 years, who was sent to the Ancoats Hospital by Dr. J. E Harburn of Buxton She was a healthy, florid-looking woman, fairly stout and in good condition. She had had no children and no miscarriages. Her periods were, and had always been, regular and never excessive. Previously to the last two years she used to have almost weekly bilious attacks which were never very severe, were attended by transient jaundice. and had since that time entirely disappeared. The last attack of jaundice was eight years ago. 18 months since she began to be conscious of a dull sickly pain, associated with a feeling of weight, not in the epigastrium or right hypochondrium, but in the left lower quadrant of the abdomen and over the sacrum. The pelvis was free. Below the liver, moving with it and with respiration, was a large rounded tumour, the dulness of which on percussion being continuous with that of the hepatic region. There had been no urinary symptoms There was no pain or discomfort in the right shoulder and there was no tenderness on manipulation. The bowels acted regularly and the stools were normal in colour.

On opening the abdomen parallel and internal to the right linea semilunaris the gall-bladder presented It formed a tumour of the size of a child's head, evidently multilocularly cystic, the contents of the cysts showing a bluish colour through the thin walls. There were no adhesions. The tumour was packed around with sponges and the cyst nearest to the surface was tapped. Mucus tinged with bile escaped through the cannula but the swelling was not perceptibly decreased. A second and deeper cyst was tapped through the same orifice with the same result and it became evident that the main bulk was composed of comparatively small cysts having no intercommunication.
The opening in the abdominal wall was then erLot
and the entire mass was turned out of th habitually
sprang from the under surface of the d, the veins,
for a pedicle apparently the cystic duct ver ends were
enlarged by the growth of the tumour y, and the nails
As this was too large to admit of the rtion had been a
constricting ligature, and as it appear en of the typical
attempt at transfixion with ligature in se long periods, its
in leakage of its contents into the genera re difficult and
its walls were carefully sutured all round to ment resulted
toneum and that portion of the mass above the relative
away. A few vessels in the walls of the gall-b catarrh and
ligature, but the bleeding was comparatively y provided
wound was then closed around it as far as wore with
remaining base of the tumour was dressed with io e. This
and the rest of the skin wound was sealed w

FIG. 1.

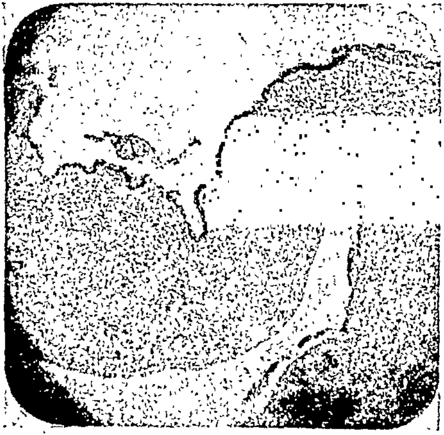


Growth of gall-bladder: cut surface of base. Rather more than half size.

Fig. 1 shows the growth from the cut surface. Examination of the tumour showed that it was the gall-bladder itself, the cavity of which was divided up by dissepiments into many separate spaces. These, as shown in the illustration, have been opened in order that the cavities might be filled with cotton-wool, so that in setting it might retain its original shape, but originally all the cavities were distinct and had no connexion with one another. They contained mucoid fluid stained with bile. No calculi were present and there were no hydatids.

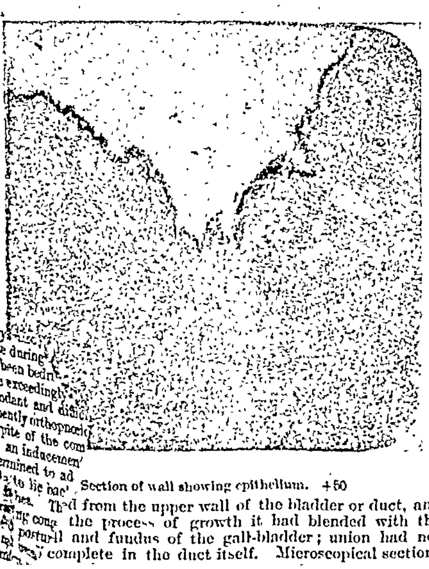
The after-course of the case threw some little light upon the mode of origin. The stump left in the abdominal wall, composed of some part of the tumour, and the walls of the cystic duct gradually contracted. The actual cautery was applied twice to the centre, and as the contraction went on bile escaped from the lower inner quadrant of the circle, showing that the tumour was not equally connected all round at its innermost extremity. It would appear that it must [illegible]d from the upper wall of the bladder or duct, and [illegible] the process of growth it had blended with the [illegible] and fundus of the gall-bladder; union had not [illegible] complete in the duct itself. Microscopical sections of the septa and walls showed dilated glandular tubes of all degrees. Even the largest cyst-walls were lined by cylindrical epithelium. There had apparently been hypertrophy of the mucous lining of the wall, with immense development and distension of the glandular layer, but what caused such hypertrophy was not so clear. Was this an extreme stage of a papillomatous degeneration or was it a new formation? That it was not a malignant growth seems evident by the regular arrangement of the component tissues and the absence of any confusion between the lining epithelium and the walls upon which they rest. No sarcomatous cells could be seen. Moreover, with the exception of the growth and some slight temporary attacks of jaundice the patient was in perfect health. She had not lost flesh and was of a clear, healthy complexion at the time of operation, nor has she lost ground since. Bile, which is perfectly healthy, still escapes at times from the site of operation and probably a cholecystenterostomy will be required, but otherwise she is perfectly well.

FIG. 2.



Section at A showing epithelial lining of cavities. ×50

FIG. 3.



Section of wall showing epithelium. ×50

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Fig. 3 shows a transverse microscopical section of the wall; Fig. 2 is a similar section taken from the junction of the septa at A. (See Fig. 1.)

Manchester.

A CASE OF MENINGITIS, PROBABLY INFLUENZAL IN ORIGIN.

BY ARTHUR F. PERIGAL, M.B., CH.B. EDIN.

WHILST holding the appointment of civil surgeon at Dover last summer a tall, well-built corporal, aged 24 years, was admitted under my care into the station hospital suffering from what seemed to be a severe attack of influenza which had begun suddenly on the previous night. There was no account of any serious illness or specific disease and his family history was good. On admission his temperature was 103·6° F. and he complained of pain in the back, the legs, and the head, and especially behind the eyes. There were no signs of pulmonary disease and the urine was normal. He was slightly delirious that night. On the following day his temperature was 102° and he had two attacks of epistaxis. At the end of a week he was improving in every way with the exception of headache, when his temperature went up to 102° and a sharp attack of diarrhœa occurred which continued on and off during the next week, his temperature keeping between 102° and 103°. Although no spots were to be seen and no signs of splenic enlargement or pulmonary disease, a specimen of his blood was sent for examination as typhoid fever was suggested, but Widal's reaction was negative. Early in the third week his temperature suddenly rose to 105° and he developed a [illegible] the right cheek whic[illegible] the nose. This disappeared in three or four days, his temperature gradually dropping to 101°, but he still complained of considerable pain in his head, chiefly in the occipital region; he had no retraction of the neck. Slight diarrhœa continued, his temperature gradually going up to 103°. During the fourth week he had a rigor and his temperature, which had been normal for two days, rose to 103·4°; he became very restless and his headache was worse. The same evening he was semi-comatose; he occasionally threw his arms about and kept on rubbing his head with his hands, and when roused and questioned he looked fairly intelligent but answered gutturally. His eyes were turned upwards and to the left which led me to suspect either an irritative lesion of the right cerebrum or a paralytic lesion of the left cerebrum, but he had then no signs of paresis and was very restless. After sleeping for a few hours he awoke with right hemiplegia and aphasia. The right side of his face was paralysed, but deglutition was unaffected; he passed urine involuntarily. Two days later there was slight improvement; his temperature was 100° and his pulse was good. He spoke a little and moved his right leg occasionally, but his right arm was powerless. Towards night, however, he again became restless and at times comatose; his pupils were widely dilated and insensitive to light and his eyes were turned to the left. Neither muscular twitching nor retraction of the neck was present. When seen next day he was steadily sinking, both arms and both legs being paralysed. In the afternoon he had an attack of hæmatemesis and died two hours later.

As regards treatment, at first the patient responded to the ordinary remedies for influenza, but as time went on and meningitis was suspected his head was shaved and an ice-cap was applied. Phenacetin and caffein (five grains of each) relieved the headache. The other symptoms were treated as they arose and stimulants were given when necessary. Towards the end a catheter was used regularly to prevent over-distension of the bladder.

At the post-mortem examination the brain was found to weigh 54½ ounces; the vessels throughout were enormously congested, especially those on the cortex. The dura mater was thickened and adherent in places where there were patches of organised lymph of the size of a sixpenny-piece, chiefly involving the upper portions of both Rolandic areas and the falx cerebri. On removing the brain a large quantity of serous non-purulent fluid was present at the base, over the whole of which were scattered patches of organised lymph. One of these deposits involved the inter-peduncular space. Though careful search was made no tubercles could be found. On section the brain substance was soft and œdematous; the ventricles, especially the lateral ventricles, were greatly over-distended with serous fluid, similar in character to that at the base. There was no sign of hæmorrhage or thrombosis. The hydrocephalus was evidently due to the occlusion of the foramen of Majendie by organised lymph resulting from meningitis. The cerebellum was soft, but otherwise it was normal. The spinal cord and membranes were normal. The lungs, the kidneys, and the stomach were somewhat congested; all the other organs, including the intestines, were quite normal.

The interest of this case lies in the early symptoms and their sudden onset in a strong, healthy subject, also in the fact that there were other cases of influenza in hospital at the time. Was this a case of influenza terminating in meningitis, or were the early symptoms those of commencing brain affection? Again, supposing the swelling of the face was true erysipelas, would this, considering the possibility of influenza, have been likely to cause meningitis, which apparently is a rare complication of erysipelas?

New Barnet.

THREE UNUSUAL CASES OF CEREBRO-SPINAL FEVER.

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THE following three cases of cerebro-spinal meningitis, which have been met with recently in the course of a persistent outbreak, have some points of special interest. In the first case there is the joint affection which appeared before the cerebral symptoms; in the second case there are the symptoms of hemiplegia; and in the third case the intensity of the process was such that the cerebellum was infiltrated with blood.

In the past four years there have been 60 cases of cerebro-spinal fever in the Bhagalpur Central Prison, and a detailed account of certain new points in the etiology of the disease as evidenced in these outbreaks has lately appeared.[1]

CASE 1. *Cerebro-spinal fever with arthritic complications.*—A Hindu, aged 40 years, who had been about six weeks in prison, working as a repairer of roads, was admitted to hospital with a temperature of 102° F., complaining of pains in the joints. The tongue was coated and the eyes were congested. At first he appeared to be suffering from subacute joint rheumatism, as both knees, both ankles, and the right wrist were much swollen and painful. The temperature remained at about 102°. The patient gradually became unconscious, and lay on his side with his knees drawn up. Retention of urine and involuntary passage of stools followed. Kernig's sign could not be elicited on account of the swollen condition of the joints. He died on the sixth day. There was no previous history of rheumatism. At the necropsy, 10 hours after death, rigor mortis was well marked. The lungs were deeply congested, but there was no pneumonia. A few old pleural adhesions were found at both apices. The heart was healthy, as were also the other organs, except the brain, which weighed 49 ounces. On its upper surface there was a very large amount of greenish-yellow exudation in the sulci; this extended to both sid and also backward to the fissure of the cerebellum whic was blocked with this greenish purulent exudation. Th base of the brain in this case escaped. There was muc turbid fluid in the lateral ventricles and in the spinal cana The joints were much swollen and full of flaky, yellow, oi fluid.

CASE 2. *Cerebro-spinal fever with hemiplegia.*—Th patient was a feeble old Mahomedan, aged 55 years his height was 5 feet 1 inch, and he weighed only 9 pounds. There was no history or sign of syphilis. H was brought to hospital from the sleeping barrack in state of paralysis and aphasia. Hemiplegia of the right sid was found; the tongue protruded to the right side. Thoug the patient could not speak he appeared to understan questions. His temperature on admission was 102° F. an during the six days of his illness it fluctuated from 101° t 102°. The pulse was small and usually rapid, but it vari in a characteristic manner from 80 to 110. Puffing respira tions came on during the last day. The motor aphasia wa well marked from the first day, but whether the other centr concerned in voluntary speech were affected it was im possible to find out owing to the ignorance of the patien Herpes appeared on the right side of the upper lip o the second day before death. There was also bladde paralysis. Babinski's phenomenon was also elicited. A the necropsy thick yellow, fibrinous exudation was found i abundance over the upper surfaces of both hemispheres o the brain. This was especially thick and almost gelatino over the left side, including Broca's convolution; it al passed back as far as the fissure of the cerebellum. Ther was no hæmorrhage in any part of the brain. The cerebr spinal fluid was very turbid and turbid fluid was also foun in the lateral ventricles. The brain weighed 51 ounces—a unusual weight for so small a man. The only other featur of interest in the necropsy was a well-developed Meckel diverticulum, four and a half inches long, projecting from th lower part of the ileum.

CASE 3. *Cerebro-spinal fever of fulminant hæmor rhagic type.*—A man, aged 45 years, had worked a day and took his food at 6 P.M. Shortly afte taking food he vomited and quickly became uncon scious. The breathing rapidly became stertorous; th pupils were dilated. When seen by me, an hour after th attack, Kernig's symptom was extremely well marked in bot knees. The patient died in three and a half hours. At th necropsy, 10 hours after death, the dura mater was found t be intensely congested. The surface of the brain was con gested to a degree that I have never before seen equalled The sulci were filled with a fine cloudy lepto-meningitis. O cutting into the brain it could not be described as other tha infiltrated with blood-clot. The fluid in the spinal cana looked like almost pure blood. The other organs presented nothing abnormal, except that both of the lungs were deeply congested. Several tubes of the cerebro-spinal fluid were taken and sent to the Research Laboratory, Bombay, fo examination, and in the fluid there was found the diplococcu intracellularis of Weichelbaum. The heart weighed no les than 12 ounces free of all clots.

REMARKS.

I have had special opportunity of studying this disease i the 60 cases which have occurred here in the past four years Of these 60 cases 43 were fatal, giving a mortality of 71 per cent., which is high even for this fatal disease. Of the 43 fatal cases 22 were of the fulminant type, causing death in one or two days. 17 cases were acute, the patients dying in from three to 14 days. Four cases were chronic, lasting from two to three weeks. Most cases occurred between the ages of 30 and 45 years. Pathologically the cases may roughly be divided into two classes: (1) the posterior basic, and (2) the vertical. In the posterior basic form the purulent exudation is chiefly confined to the base of the brain and medulla, and extends for varying distances down the cord. In the vertical cases the exudation is found filling up the sulci on the upper surface of the hemispheres, but in some cases it extends down the sides and back to involve the cerebellum.

Speaking generally, the characteristic signs of neck retraction and neck pain are found in the posterior basic cases and severe frontal headache in the vertical cases, but this rule is by no means absolute. In one recent case, a vertical one, I have found Babinski's phenomenon, which I understand to be extension instead of flexion of the toes on tickling the

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[1] Journal of Hygiene, No. 2, April, 1901, p. 214.

les of the foot. I had not searched for it in the other ses.

In Case 1 the arthritis is of interest It is a sym- om which has been known from the earliest records of e disease,[2] and has recently been written about by Dr ouncilman and Dr Osler As the latter writer says[3] it is a very inconstant symptom" I have only found it ree or four times in these 60 cases In the epidemic *Boston it was found only six times in 111 cases* se 2 is remarkable on account of the prominence of the miplegic symptoms Various paralyses are not uncommon, t in the 111 cases of the outbreak at Boston there were ly two cases of hemiplegia. Case 3 was of a type which have not been able to find described elsewhere The tense nature of the congestion and the hæmorrhagic filtration of the brain were unique in my experience To ake sure that I was correct in regarding it as a case of rebro-spinal fever I had the fluid examined in the Bombay search Laboratory and the diplococcus intracellularis of eichelbaum was found.

The rarity of this disease in England is remarkable. Except Liverpool, Manchester, and Bristol I do not remember y cases being reported in England save on a training- ip In Ireland, on the continent, and in America the sease is well known In India the disease has been cognised for 20 years past It is probable that it is the rity of the disease in England which accounts for the *perfect descriptions of the affection in most modern* glish text-books Even in an otherwise very admirable Text-book of Medicine," published in April last, the scription of the disease is utterly meagre and behind the nes The standard monograph on cerebro-spinal fever is e report to the Boston Board of Health by Dr Councilman, Mallory, and Dr Wright

CASE OF RENAL COLIC WITH UNUSUAL SYMPTOMS.

BY O CORBEN, M R C S ENG, L R C P. LOND,

AND

J OROPPER, M A, M B, B C CANTAB

A MARRIED woman, aged 30 years, was first seen by r Corben on March 14th, 1901, and was then complaining pain in the right side extending downwards from the wer ribs, there being a good deal of tenderness over the ole right side of the abdomen The pain, though great at nes, was not typical of renal calculus The patient was idently very ill and of an unhealthy sallow colour and ffy in the face, suggesting nephritis, but there was no ver and the urine was normal She was much constipated. was impossible owing to great tenderness, absence of fever the possibility of appen- be dismissed. She was given a mixture sulphate of magnesia and tincture of opium and put milk diet The urine was found later to have a nt cloud of albumin and to contain squamous epi- lium When seen a few days later the patient seemed much better that a tonic was ordered In a few days, wever, the symptoms were again so much aggravated that urgent message was sent After this date on two casions a temperature of 102° F was recorded. A thermo- ter was left with the person acting as nurse, but no other e of temperature was reported to us On account of the tance a daily visit was impossible

About this date the pain was complained of as radiating wards and backwards over the right scapula, and there was ood deal of catching of the breath, as in pleurisy Neither liver nor the kidney could be felt, but there was slight elling over the lower ribs, as seen from behind Constipa- n still persisted On March 29th borocitrate of magnesia s given in drachm doses every morning On the 30th re were a good deal of cough and hæmoptysis, the ttom of the chami e pain in the side tient was seen in s but the breath was very foul The diagnosis was very ubtful, and we had to consider tuberculous renal disease, bdiaphragmatic and hepatic abscess renal calculus, &c, *though most of these seemed* to be excluded by at least some of the facts of the case In order to clear the matter up specimens of the urine and sputum were forwarded to the Clinical Research Association, from whom the report on the urine was as follows. "Acid, specific gravity 1008, albumin a trace, a fair quantity of deposit, consisting of pus with many large squamous epithelial cells and a few red-blood discs No casts or renal cells" The report on the sputum *was very doubtful as to the presence of tubercle.* On examination of the right side of the chest moist sounds were heard at the right base, the percussion note was slightly but definitely impaired, but without any signs of consolidation The matter, however, was cleared up by the passage on April 2nd of several very sharp fragments of urate stone, about 10 in all, the original stone having been nearly a quarter of an inch in diameter The patient seemed much relieved after this, until April 15th when nine more pieces of stone were passed similar to the first Curiously enough, since this date the patient has frequently had quite typical attacks of renal colic She has, however, improved in health, though from April 7th to 26th she noticed blood in her urine A specimen sent on April 2nd showed distinctly the presence of blood, being more than smoky There was also slight sediment of pus On the 27th the urine was normal She was given 10 grains of salol every morning The pain on the 30th only occurred at times and the patient was able to be downstairs and to do some, if not all, *of her usual work* On May 12th *she was looking* and feeling well She occasionally has pain across "the small of the back" and at times a little pain on passing urine, but the specific gravity of her urine is 1018, it is acid, free from albumin, and without deposit on standing

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[2] North 1811,

[3] Boston Medical and Surgical Journal Dec 29th, 1893

PUERPERAL ECLAMPSIA: FOUR CASES SUCCESSFULLY TREATED BY RECTAL *INJECTIONS OF CHLORAL* HYDRATE.

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I HAVE read with great interest the very instructive article *by Dr Robert Jardine on the above subject which appeared* in THE LANCET of June 15th, p 1682 Having had four cases of eclampsia in somewhat over 2000 labours, all of which terminated favourably under rectal injections of chloral hydrate, I venture to think that a brief account of the same may be of interest, and perhaps of help, to my brethren engaged in general practice Of course, I am fully aware that there is nothing new or original in this line of treatment, I simply followed the advice given in Swaine's "Obstetric Aphorisms" which I hurriedly consulted on the appearance of my first case many years ago But where we find opinions so widely divergent, and more especially amongst those to whom we look for guidance, as to the pathology and *fons et origo mali* of this terrible complication, it almost becomes the duty of those who have fortunately been successful in adopting a special line of treatment to place that success on record, although limited, as in my experience, *to four cases* All four cases were primiparæ, two commenced ante-partum and two post-partum, one ante-partum and one post-partum were illegitimate In all four cases the convulsions were severe and of fairly frequent occurrence. Blood letting (20 ounces) was tried in one case (post-partum) after consultation, but without effect. On the continuance of the convulsions 60 grains of chloral hydrate in one ounce of water were injected per rectum; this was repeated three times during the next 12 hours, on the slightest reappearance of "twitching," recovery being afterwards *uneventful* In the other post partum case (illegitimate) the same treatment was adopted The attacks were severe, but readily yielded to the influence of the chloral. It was however, necessary to administer in all four injections, at intervals as occasion required, for 20 hours following delivery Chloroform was administered in one case (illegitimate), ante partum, pending the dilatation of the os Unfortunately the supply ran short and during my brief absence to obtain some more and the assistance of a brother practitioner, the patient "had a most awful attack," to use the words of her mother, who on my return handed to me on a plate the two lower central incisors, which had been forced completely out of their sockets by the violence of a convulsive seizure. Chloroform was at once given by my colleague, digital dilatation of the os was employed with care, with podalic version, and delivery was completed as soon as possible. Convulsions recurred in about an hour, and immediately 60 grains of chloral were administered as before described. This induced complete cessation for more than an hour, then a slight return was manifested and the injection was repeated, which had a most beneficial and lasting effect, the patient passing into a sound sleep lasting for several hours. It was, however, necessary to repeat the chloral three times at intervals of from three to four hours. Subsequently convalescence was uninterrupted. In this case the patient was unconscious after delivery for quite 24 hours. In the other ante-partum case the patient suffered from severe bronchial catarrh, so that it was impossible to administer chloroform; but fortunately the labour was fairly well advanced, and two injections, at an interval of about one and a quarter hours, sufficed to stave off further attacks before delivering with the forceps. Subsequently three injections were required and immediately given on the first sign of recurrence, at intervals gradually lengthening to three, four, and five hours, after which recovery was normal and complete.

All my cases were at or about full-term. In such ante-partum cases I would expedite delivery by all legitimate means without being unduly meddlesome. In ante-partum or post-partum cases I would say, Keep the patient from the exhaustive effects of the eclamptic seizures, prevent them from coming on, stand by, and act promptly. I have had no experience of this complication in the earlier months of pregnancy, but should such an emergency arise and remedial measures fail to arrest the onset of these deadly attacks I should feel it my duty to induce premature labour, taking good care to do so before the patient's strength had become exhausted.

Newark, Notts.

A CASE OF INTESTINAL ADHESIONS SIMULATING TUMOUR FORMATION,

AND CAUSING A RISK THAT THE SURGEON MIGHT TAP THE BOWEL UNWITTINGLY.

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ON Jan. 7th, 1901, Mr. S. Parsons Smith of Croydon asked me to see a patient, 45 years of age, from whose abdomen large quantities of clear fluid had been drawn off from time to time during a period of 18 months. The peritoneum was distended, the legs and lower parts of the body were extremely œdematous, and the patient was unable to assume the horizontal position without inducing dyspnœa. Vaginal examination showed that the pelvic contents were fixed. We drew off some pints of fluid by means of an aspirator, the puncture being made near the umbilicus. When the fluid was removed there remained a firm, hard mass which appeared to rise out of the pelvis, and which I believed was most probably a malignant growth.

I was asked to see the patient a second time on June 4th. In the interval she had been better; she had been almost free from œdema and had been able to walk about. She was again greatly distended by fluid in the peritoneum and in the tissues of the legs and lower part of the body. Although larger in the abdomen she seemed to me to be stronger than she had been when I saw her in January and the pulse was of better character. I recommended that an exploratory incision should be made to enable us to ascertain exactly the nature of the intra-peritoneal condition and to decide whether it was possible to help the patient by surgical means.

On June 6th Mr. G. E. Newby anæsthetised the patient and I made a short incision on the left of the umbilicus by which I let out four or five quarts of serous fluid and a great quantity of white flaky lymph. When the bulk of the fluid had escaped a smooth, reddish, rounded mass was seen filling the lower part of the abdominal cavity. On palpation this seemed to be a cyst and with the finger I felt that the front of the mass was continuous with the peritoneal lining of the anterior abdominal wall a little above the level of the pubes. The condition was very like that which is found when a broad ligament tumour raises the pelvic peritoneum high up into the abdomen. At first there seemed to be no doubt that the next step in our investigations should be the puncturing of the cyst-like mass with an aspirating needle. I noted, however, that there were no intestines visible above the supposed tumour and when the fluid was more fully removed th intestines were still not discovered. On percussing the tumour-like mass I found that it was resonant and there was then no doubt that it consisted of intestines matted together by adhesions. I washed out the cavity, removing as much of the loosely adherent lymph as I could, and closed the incision, leaving a drainage-tube in its lower end. After a fortnight the wound was healed except where a small drainage-tube passed through it. There was no elevation of temperature and the patient took food well and slept well. Mr. Smith informed me on June 30th that th "œdema had disappeared. The drainage-tube was ac well in allowing escape externally of the fluid. The patien continued to improve in general health and was able to from bed to sitting room."

I have described the mass of intestine as being in the lower part of the abdominal cavity. This position wa however, to some extent more apparent than real. Th fluid had accumulated in the upper part of the peritoneal sac and had pressed the bowels downwards, but the enlargement of the cavity upwards made the tumour-like appear to be relatively lower. I noted before the operat was finished that the upper walls of the abdomen had down towards the bowels to a considerable extent and the operation the intestines have expanded and have assu a fairly normal position.

I was aided in this operation by the fact that 15 years I was an onlooker when a somewhat similar condition discovered. The mass of intestine was enveloped in adh omentum and was even more prominent and rounded and a tumour than in my case. I noted, however, in that also that the *intestines did not* show themselves above supposed new growth. A trocar was inserted into the and when I saw only a little yellow fluid escaping from cannula I at once recognised that the intestine had punctured. Again, a friend to whom I mentioned the now recorded has told me that he had been present a operation when a similar mass of intestine was cut i its nature having been unrecognised until the bowel opened.

If the possibility of the existence of the condit described above is known and suspected a correct diagn is easily made. The absence of the intestines above supposed growth and the resonance of the latter on cussion are conclusive. If, however, the nature of the dition is not recognised the surgeon is almost certain make a mistake which may very probably prove fatal to patient. I hope that the publication of these notes, drawing attention to the difficulty, may possibly save s surgeon and patient from such a disaster.

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OBSERVATIONS UPON 40 CONSEC CASES OF INTUBATION OF THE LARYNX IN DIPHTHERIA.

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INTUBATION of the larynx is by no means a t diff operation, and that it is successful in diphtheritic the table given below sufficiently demonstrate th its introduction into the diphtheria wards of th Hospital I have given it a fairly extensive trac cases an excluding those cases in which it was at this rule intubation was tried before having recours ertical one, Diphtheria antitoxin was also freely adminis derstand of the success in these cases is due to its ickling th at the outset that the operation was the anatomical knowledge possessed by a student, combined with a little manual dexterity that can be acquired by practising upon the cadaver, is all that is necessary, albeit there are difficulties in the living that cannot be learned otherwise than by experience. But in spite of the patient's temporary struggles [illegible] practice. The instruments used at the Eastern Hospital were supplied by Collin of Paris. Compared with the ordinary O'Dwyer's the tubes are lightly made, shorter, and the fusiform swelling of the body shades off above and below less abruptly. The obturator is jointed as usual, but the upper extremity has a horizontal slit, into which the end of the sliding catch of the introducer fits. This is in every way satisfactory, it locks safely and is not iable to get out of order.

The results of the 40 consecutive cases I have intubated re set out in the following table.

—	Number of cases.	Recovered.	Died.
ntubation alone	32	28	4
ntubation with subsequent tracheotomy	8	5	3
Total	40	33	7

The ages ranged from 13 months to seven years; e youngest recovery was 18 months. Of the eight [illegible] intubation four patients had membrane in [illegible] of these died from broncho-pneumonia; [illegible] as that of a child with an impermeable [illegible] stenosis of the larynx following upon ntubation who succumbed to a relapse of diphtheria some nonths later. Of the four cases of death after intubation lone three were hopeless diphtheria cases. Two of these atients died completely relieved of the obstruction, with the ibe in the larynx. The other patient developed scarlet ever two days after admission; and although she had [illegible] om the laryngeal obstruction a brawny [illegible] of the neck set in, with otorrhœa and [illegible] and she died 22 days after admission. [illegible] ne post-mortem notes of one of my cases [illegible] died with the tube in the larynx.

[illegible] The patient was a girl, aged 13 months, who was dmitted to hospital on Feb. 22nd, 1901, at 3.40 P.M., and who ied on the 23rd at 1.20 P.M. A post-mortem examination was nade on the 24th. The tonsils, uvula, soft palate (anterior nd posterior surfaces), and lateral walls of the pharynx were overed with greyish-black membrane; the tissues were somewhat swollen and injected. A No. 2 intubation tube was within the larynx and its lower opening reached to the pper border of the fourth tracheal ring, the tube was lear, the metal was bright, and there were no signs of njury to the supra- and intra-laryngeal tissues. Membrane ad completely invested the epiglottis, the aryteno-epiglotdean folds, the interior of the larynx, the trachea, and the ght and left bronchi and their ramifications as far as they ere traced. The visceral pleura covering the lower lobe of e right lung was smeared with recent lymph. The lobe as dark and heavy; on section it was red, granular, friable, nd pieces of it readily sank in water. The ramifications of e bronchus were lined with easily detachable tubes of membrane. The left lung was dark and spongy, and on section showed similar tubes of membrane. Further examination s not allowed.

Of the 28 recoveries after intubation alone membrane ughed up through the tube was expectorated in five cases. ppend the notes of two of these by way of illustration *de* Cases 2 and 3) referring to another later (*vide* Case 5).

ASE 2.—A girl, aged six and a half years, was admitted ospital on March 8th, 1900, at 1.40 P.M., with faucial heria and urgent croup. Intubation at once gave full [illegible] On the 9th, 16 hours after admission, the became very restless, her lips were cyanosed, and some retraction of the chest. The patient soundly throughout the night and was now y a troublesome, unproductive cough. Water was he mouth, and the resulting cough cleared the ube of a deal of thick mucus, after which the child settled down comfort[illegible] had been in for [illegible] the tube, which within a hour or [illegible] was re-inserted [illegible] chest, cyanosis, and restlessness. The relief was complete and the coughing induced by the tube led to the expectoration of a small piece of membrane. An hour after this the child was again uncomfortable and the breathing was not so satisfactory; water was again given, when she coughed violently and brought up a tough strip of membrane marked with the tracheal rings On the 13th the tube was expressed after it had been in the larynx for 70 hours. The after-expectoration was occasionally streaked with blood and the child was aphonic for seven days. But for subsequent paralysis she made an excellent recovery and was discharged on May 30th.

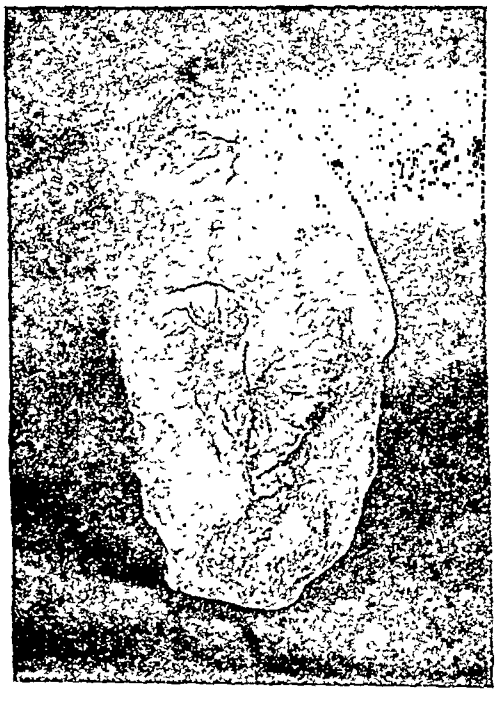
A further point is illustrated in the following case—namely, expression of the tube when necessary by the nurse.

CASE 3 —A boy, aged two and a half years, was admitted to hospital on Jan 31st, 1901, at 3 30 P.M. in urgent distress. A hurried faucial examination revealed thick and firmly adherent membrane on the tonsils. The child rallied somewhat whilst I was preparing to perform tracheotomy, so I intubated the larynx and this gave complete relief. On Feb. 1st, 17 hours after admission, the child suddenly became uncomfortable, with signs of increasing obstruction. Before I could get to the ward "he struggled violently to get his breath" when the nurse instantly expressed the tube, and with it came a hollow cylindrical piece of membrane one and a quarter inches long and marked with the tracheal rings. I found the boy regaining his normal colour and coming round in every way satisfactorily. Within two hours, however, the signs of obstruction returned, necessitating re-intubation, and during the operation the examining finger detached a piece of membrane from the posterior surface of the epiglottis. I was sent for again in the evening of the same day 12 hours after re-intubation; the child had had a fit of coughing, excited by the sips of water ordered, and had brought up another almost complete cylinder of membrane two inches long and nearly half an inch wide On Feb. 4th I expressed the tube; it had been in the larynx for 50 hours, and but for some complications of diphtheria no further anxiety was experienced. The boy was discharged on April 6th the picture of health

For intubating the larynx I always adopt the dorsal decubitus position for the patient. Much valuable time is saved thereby should tracheotomy become necessary, for, indeed, intubation should never be attempted in diphtheria without all the requisites for a cutting operation being close at hand. I will not discuss the method of introducing the tube, but will at once proceed to recount some of the difficulties which I have experienced. Nearly all the patients require the introduction of a gag, and I have seen the breathing during this process become so severely embarrassed, and even cease so that instant tracheotomy was necessary (*vide* Case 4). Great care and gentleness must therefore be exercised in introducing this instrument, it should be inserted on the left side, away from the operator, it being noted that the tongue has fair play and that the mouth is not unduly widened For toothless children the index finger of the assistant inserted as far back as is convenient between the upper and lower jaw is all that is necessary. For patients who refuse to be gagged a very simple plan is to excite the reflex by passing the index finger behind the last molar teeth. I need hardly mention that any struggling should be controlled without in any way embarrassing the movements of the chest and abdomen, an assistant for this purpose standing on the right side of the table behind the operator. Severe swelling of the laryngeal mucosa with an ill-defined epiglottis is not uncommon and may preclude all possibility of intubation; indeed, the propriety of attempting it under these conditions is questionable, as it is naturally so in cases of naso-pharyngeal and faucial swelling, combined with membrane almost occluding the faucial cleft and completely blocking the nares.

The tube may slip into the œsophagus; this is very common and is readily discerned by the absence of relief and the gradual shortening of the silk thread attached to the tube. If the epiglottis is held well forward by the intromittent finger this accident is less likely to happen. Spasm of the glottis (*vide* Case 5) may be so persistent that the tube will not enter for quite an appreciable space of time, whilst the patient's condition begins to give cause for anxiety. It usually yields, however, providing the manipulation is extremely gentle, when the succeeding inspiratory effort the bladder. The vagina was afterwards plugged with strips of gauze and a tube was placed in the suprapubic opening.

The growth, of which the accompanying illustration shows the section, has been preserved in the Museums of the Royal College of Surgeons of England and St. Thomas's Hospital. The specimen from which the illustration is taken is described by Mr. Shattock as follows: "Half of an ovoidal tumour, about two and a quarter inches in chief diameter, which was excised with the urethra which it surrounds; on one aspect it is covered with the smooth mucous membrane of the vagina. The urethra has been rendered very tortuous by the growth, the free or urethral surface of which is highly papillary and is comparable with that presented by a villous carcinoma arising from the bladder. At the highest part of the specimen the internal urethral aperture is shown. Histologically, the growth is a papilliferous columnar-celled carcinoma, the epithelium lining its recesses and processes being of a typical cylindrical form without overlying flat cells."



Villous carcinoma of the urethra. From a photograph, almost natural size. The vesical end shows the opening of the urethra and the projection of the growth. The urethra has not been opened in the full length of the section.

On Sept. 3rd some leakage through the vaginal wound was noticed and on the following day the suprapubic vesical pump was fitted. On the 21st a small orifice through which leakage was taking place was touched with nitric acid and the vagina was packed with gauze. On the 24th the urine was ammoniacal, containing phosphates and pus. On the 25th nitrate of silver was used to touch the edges of the fistula. On Oct. 16th there was no leakage and the vaginal opening had quite healed. The temperature remained normal throughout except for one rise to 100·2° F. the day after the operation. Some days after the operation her mental condition changed and she became wandering in her speech and suspicions in her manner; this abnormal mental state gradually improved and passed away. She left for a convalescent home on Oct. 17th, having been supplied with a suprapubic tube and portable rubber urinal.

The patient attended at the hospital nine months after the operation in response to a letter requesting her to do so. She had put on flesh and had lost the pale, anxious look. The condition of the parts was quite satisfactory and the apparatus worked well. She was wearing, in addition to the usual suprapubic tube, a second tube which fitted into this at a right angle and was of smaller size, the upper open end of which was fixed to the undervest by means of a safety-pin some 12 inches from the junction with the larger tube. This addition was worth making as it improved the action of the apparatus considerably. It was, Mr. Battle believes, first made at the suggestion of Mr. Makins by Messrs. Down. The patient expressed her opinion of the apparatus very strongly: "It's just beautiful, sir."

Remarks by Mr. Battle.—A similar case of carcinoma involving the urethra and bladder in a woman, aged 60 years, was under my care in the year 1894, and an account of it was published in The Lancet of June 15th, 1895, p. 1512. At the operation in that case a similar free removal of the growth was made and the subpubic wound was sutured; in that case, also, a permanent drainage was arranged above the pubes. The result appeared to promise well, but the patient disappeared and has not returned to the hospital since, so that no fresh information can be given of her. The result in this second case as regards comfort and smooth working of the apparatus is very satisfactory. At the time of the first operation I was unable to find any precedent for the course which I followed, but in searching the literature on the subject afterwards a case of removal of extensive growth of the parts with similar treatment of the bladder was found to have been recorded by Dr. J. H. Dunn,[1] U.S.A., when the relief was very striking.

The contrast between these very rare cases of primary malignant growth of the urethra, which hardly excited alarm or discomfort until obstruction was caused by the size of the tumour, and the distress caused by the common urethral caruncle, even when of small size, is very interesting. I have heard of a case of similar character which has been operated on since this one, but it has not yet been published and I have no particulars.

GUEST HOSPITAL, DUDLEY.

A CASE OF INTUSSUSCEPTION WITH SPONTANEOUS REDUCTION; RECOVERY.

(Under the care of Dr. Arthur S. Underhill.)

That spontaneous reduction of an intussusception may occur cannot admit of doubt, but it is probably an exceedingly rare event, at least in cases in which the diagnosis of intussusception has been made. Yet a certain number of cases have been recorded in which patients have exhibited all the signs of intussusception, and when death has occurred a few days later no invagination of bowel has been present, though a portion of the intestine has shown some constriction or congestion.[2] It is likely that in most of these instances of spontaneous reduction the intussusception has affected only the large intestine. For the notes of the case we are indebted to Mr. F. A. Simpson, assistant house-surgeon.

A girl, aged eight months, was admitted into the Guest Hospital, Dudley, on March 25th. She had been sent by a medical man with a history of "some internal trouble." On admission the child was very pallid; she had an anxious expression and cried out as if in pain at frequent intervals; this crying continued for two days. The patient was immediately sent to bed. The mother gave a history of the child passing blood by the rectum and said that she had vomited everything since the day before. On examination the child was found to be very collapsed and almost pulseless. On palpation there was the definite swelling to be felt just external to the outer border of the left rectus which was very rigid. The swelling might well be described as "sausage-shaped." On making a rectal examination a lump could be felt in the rectum about two and a half inches from the anus. The finger could be passed completely round this lump and almost into the mouth of it. There was a blood-stained, slimy discharge from the rectum, but not very profuse. After making his examination Mr. Simpson had little doubt in his own mind that the case was a definite intussusception. He immediately telephoned to the surgeon of the week, Dr. Arthur Underhill, to come to see the child with a view of operative interference. He arrived about 8.30 P.M., a few hours after the child's admission. He made a careful examination and was fully convinced that it was a definite intussusception. On rectal examination the intussusception had come down another half an inch at least and was even more pronounced than before. Dr. Underhill came to the conclusion that the child was too collapsed to stand an operation and consequently treatment was confined to keeping up her strength. No attempt at reduction was made The child was given 30 minims of brandy hourly and milk if it could be retained She slept most of the night, but vomited after all milk given until 6 A M when she retained two drachms, but she retained the brandy given hourly Boiled milk-and-water (half an ounce of each) was given every half hour and 30 minims of brandy were given every hour During March 26th the patient vomited after each feed The blood-stained discharge continued this day and also the next She vomited nine times during the night and after each feed on the 27th She vomited seven times during the night of the 27th On the 28th she began to improve, she did not vomit and the blood-stained slimy discharge from the anus ceased, but the intussusception could still be plainly felt per rectum On the 29th the bowels were well open, the motion being semi-solid and dark brown in colour She did not take nourishment well that day The bowels were opened twice during the night On April 2nd the motions became greenish and contained some slime This condition continued for two days The child improved daily On the 10th she sat up in her cot playing with toys and taking a lively interest in her surroundings She left the hospital on the 17th The child was examined per rectum before she left the hospital and a distinct thickening was felt in the bowel, but the intussusception was completely reduced No slough of the intestines came away at any period.

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[1] Annals of Surgery, 1894, vol. i., p. 461.

[2] F. Treves: Intestinal Obstruction, 1899, p. 382.

Remarks by Mr. SIMPSON —Cases of intussusception with spontaneous reduction are, I believe, exceedingly rare Ashby and Wright say "Recoveries after spontaneous reduction and after sloughing have been recorded, but they are so rare that waiting for a natural cure means practically abandoning the child to almost certain death" A form of chronic intussusception in children somewhat resembling a prolapse of the rectum is mentioned and chronic invaginations are recorded, Treves reporting one of a year's duration and other doubtful ones; but this case was definitely acute and there is no doubt in my own mind that it underwent spontaneous reduction I have every hope that the patient will have no further trouble I am indebted to Dr. Underhill for his kind permission to report the case

Medical Societies.

PATHOLOGICAL SOCIETY OF LONDON

Researches in Tetanus Toxin.—Improved Form of Hæmoglobinometer —Chemical Constitution of the Tubercle Bacillus —Experimental Arthritis produced by the Rheumatic Bacillus —Lantern Demonstration, Exhibition of Specimens, &c

A MEETING of this society was held in the new Pathological Laboratory of the University of Oxford on July 6th, Mr W WATSON CHEYNE, the President, being in the chair

Dr JAMES RITCHIE (Oxford) detailed further experiments bearing on the Relation of Resistance to Tetanus Toxin in the Immunised Guinea-pig to the Antitoxin Value of its Serum The method of immunisation used was to administer at intervals of four days equal doses of tetanus toxin the toxicity of which had been destroyed by means of hydrochloric acid. He had compared the action of four such doses with the action of eight doses In the former case while the animals presented a resistance to 43 minimal lethal doses there was in the whole blood of the animal just sufficient antitoxin to neutralise between one and two minimal lethal doses. In the latter case while a resistance to 1000 minimal lethal doses was present there existed in the serum of the whole body only sufficient antitoxin to neutralise about 100 minimal lethal doses Two other series of animals similarly treated gave similar results In a further experiment, when the effect of four doses of modified toxin was compared with the effect of four doses of double the amount of toxin, a resistance to 2500 minimal lethal doses was developed in the latter, as against a resistance of 50 minimal lethal doses in the former, the antitoxin value of the sera being about the same. The general conclusion was that early in the process of immunisation there was developed a very high degree of resistance while there was very little antitoxin present in the blood.

Professor SIDNEY MARTIN made a preliminary communication on the Inhibition of the Growth of the Typhoid Bacillus in various kinds of earth and under various conditions

Dr J S HALDANE (Oxford) described a modification of Gowers's Hæmoglobinometer Instead of the usual standard of picro-carmine jelly he used a 1 per cent solution of ox blood saturated with carbonic oxide and sealed in coal gas By this means he had obviated the disadvantages of the picrocarmine standard—viz, (1) it did not alter with time, (2) it was always a constant colour, and (3) it could be used in artificial light

Dr W BULLOCH and Dr J J R. MACLEOD communicated some of the results of an investigation into the Chemistry of the Bacillus Tuberculosis The research was undertaken chiefly in order to ascertain to what chemical substance these bacilli owed their peculiar "acid fast" properties In confirmation of the work of Aronson they found that, after thoroughly extracting the bacilli with alcohol ether containing 1 per cent hydrochloric acid the acid-fast properties disappeared from the bacilli The extract on cooling deposited a white scaly precipitate This was separated and was found to stain deeply with carbol fuchsin, retaining the stain even after treatment with 75 per cent. sulphuric acid The extract also contained a lipochrome, a considerable amount of fatty acid, and only a trace of a neutral fat The extracted bacilli were then treated at 60° C with between 2 and 3 per cent. caustic potash till all proteid had been removed. The residue was found to contain about 3 5 per cent nitrogen and to yield on hydrolysis a body capable of reducing cupric salts in alkaline solution They suggested that the sediment might therefore consist, in part at least, of chitin Sufficient material had not yet been prepared in order to decide this question Rüppel and others suggested that the acid-fast properties of the bacilli might be due to chitin, since it has been observed that this substance was very "acid fast" and also that certain fungi contained it Dr Bulloch and Dr Macleod found, however, that chitin did not retain the fuchsin stain when the usual procedure was adopted, but that by leaving the chitin in the stain for 24 hours it was fast, even to 50 per cent. sulphuric acid They found also that the wax-free residue of the bacilli was acid fast after 24 hours' staining

Dr F J POYNTON and Dr ALEXANDER PAINE made a communication on the Arthritis Produced in Rabbits by the Intravenous Injection of the Diplococcus isolated from Cases of Rheumatic Fever They first gave an outline of their researches into the bacteriology of rheumatic fever from January, 1899, to June, 1901 They had isolated a minute diplococcus from 18 cases of rheumatic fever which maintained its virulence for long periods in media of slight acidity and also grew in media of high alkalescence This organism they believed to be identical with that described by Triboulet, Wassermann, and Meyer They had demonstrated it in the tissues of men and had produced by intravenous inoculation the "symptom complex" of rheumatic fever in rabbits The results obtained having been so constant and the number of cases now investigated being sufficient, it was, in their opinion, justifiable to apply the name "diplococcus rheumaticus" to this organism The arthritis that was produced in rabbits (specimens of which were exhibited), though a frequent occurrence, was not invariable It varied in severity and resembled in this respect rheumatic pericarditis in childhood, though, as clearly stated by Wilks and Moxon in their work on pathological anatomy, similar grades of severity were also to be recognised in the rheumatic arthritis of man, though with less frequency The exudations were clear or blood-stained, turbid, or fibrino plastic The sheaths of the tendons round the joints and the bursæ in the neighbourhood were sometimes affected together with the joints The first symptoms usually appeared upon the third day, though sometimes more than a week elapsed It was a polyarthritis especially of the larger joints and it frequently ended in complete recovery. Two cases became chronic and much thickening of the fibrous tissues of the joints resulted. In the acute stage there was gelatinous swelling of the fibrous tissues of the joint and the amount of exudation might be little or much The organisms were rapidly destroyed by leucocytes and endothelial cells, and a section through the joint capsule in the early stage showed much cellular exudation in the delicate areolar layer which bound the endothelial lining of the joint to the fibrous layer The difficulty that was experienced in obtaining cultures from rheumatic synovitis of moderate severity was, they believed, clearly explained by this extensive cellular reaction which brought about a rapid destruction of the diplococci. In conclusion they summarised their observations upon the arthritis produced in rabbits as follows. Arthritis was frequent but not invariable. It was a polyarthritis affecting especially the larger joints. It was of varying severity and sometimes recovery ensued. There might be acute swelling of the fibrous tissues causing a gelatinous appearance or a chronic fibrous thickening of the joint capsule. The exudations were clear, blood-stained, turbid, or fibrino-cellular. The diplococcus was demonstrable in the exudations, but with difficulty in the most acute and in the chronic phases. The diplococci were destroyed by leucocytes and endothelial cells and probably gained access to the joints by the minute blood capillaries in the areolar layer of the joint capsule. Macroscopical and microscopical drawings and specimens were shown illustrating these researches.

Dr. PURVES STEWART gave a lantern demonstration of the Degeneration following a Transverse Lesion of the Cord at the Level of the Sixth Cervical Segment in the Human Subject. The Marchi method was employed. In addition to the ordinary ascending and descending degenerations special attention was directed to the following points. 1. The existence of a new descending tract—"Tract X."—in the cervical region, ventro-external to the crossed pyramidal tract and at a plane corresponding to the tip of the lateral horn. 2. The existence of ascending degeneration in the pyramidal tract *above* the level of the lesion. 3. The presence of degeneration in the anterior commissure of the cord for three segments below a cervical lesion. 4. The probability that the descending degeneration in the posterior columns, extending down to the coccygeal region and constituting successively Schultze's comma tract, Bruce and Muir's septo-marginal tract, Flechsig's oval field, and Gombault and Phillippi's *triangle médian*, was really all one long combined system. 5. The fact that ascending degeneration of the posterior columns did not stop short at the posterior column nuclei, but continued upwards in the arcuate fibres above.

Dr. N. BISHOP HARMAN exhibited a series of Water-Colour Drawings, Microscopical Specimens, and Cultures of the Veldt and Natal Sores. The veldt sore was, he said, a vesicle or blister forming in the stratum lucidum of the epidermis. Cultures from the serous discharge yielded a diplococcus growing freely on ordinary media and resembling staphylococcus aureus in some respects. In aerobic cultures it grew as a diplococcus. It exhibited a most extraordinary resistance to the usual destructive agents. It would grow in a moist heat of 86°C., in a dry heat of 110° C., and it had retained all its virulence in a dry film for 61 days. He had soaked cultures of the organism in equal parts of 1 in 1000 perchloride, and yet they would grow afterwards. The veldt sore was only found in the dry, rather barren, high tableland of South Africa. It affected the troops to the extent of over 20 per cent., mounted men being attacked in almost twice the proportion to infantry. It affected the Boers also, but not to such an extent as it did the British. The Natal sore was found in the lower parts of Natal where vegetable life and animal life were abundant. It was essentially an abscess of the true skin, and yielded the staphylococcus pyogenes aureus both on film and culture preparations.

Dr. A. WATERS showed a number of Microscopical Sections of the Rarer Tumours. Of these the most interesting was a secondary malignant growth invading a dermoid cyst, giving rise to metastasis in various organs. The tumour conformed to no regular type but much resembled "deciduoma malignum" histologically.

Dr. H. L. BARNARD exhibited the organs taken from a boy, aged nine years, who had died from the effects of an accident. The patient had been the subject of a calcified aneurysm of the renal artery, and this by the force of a blow on the back had been driven into the liver, causing rupture of that organ.

OBSTETRICAL SOCIETY OF LONDON.

Spontaneous Rupture of the Uterus in Placenta Prævia.—Exhibition of Specimens.

A MEETING of this society was held at 20, Hanover-square, W., on July 3rd, Dr. PETER HORROCKS, the President, being in the chair.

Dr. J. PRESTON MAXWELL (Amoy, China) read a paper on Spontaneous Rupture of the Uterus in Placenta Prævia. He had met with three cases of this accident. In the first case the woman died undelivered within a few minutes of the rupture; in the second case, the uterus was found ruptured posteriorly after delivery and the patient had dangerous hæmorrhage, but recovered after packing of the rent by antiseptic gauze. The details of the third case were as follows. The patient, a primipara, aged 23 years, had been in poor health during her pregnancy. Fortunately she was more enlightened than were the majority of Chinese women, and she called Dr. Maxwell in when labour began. She had weak, poor pains, and the child was evidently at full term; the cervix dilated very poorly, especially posteriorly. There was a little more bleeding than usual, and this combined with the irregular dilatation of the os, which would admit two fingers, caused a suspicion of placenta prævia, and the edge of the placenta was felt behind. As she lived close by it was decided to get her into a better condition by procuring some sleep, and to that end she was given a dose of chloral and bromide. She went to sleep, and when next visited, about 12 hours after, the cervix had closed up and it admitted one finger with difficulty. There was no further hæmorrhage, and at the end of 14 days labour came on and the os dilated, but still it did not dilate well behind. When it was nearly dilated Dr. Maxwell left the room for some two or three minutes, but returning found that the patient was beginning to bleed badly, and he at once ruptured the membranes, and, the child's head coming down, he placed his hand on the uterus and kept it there but without in any way stimulating it. At the end of 10 minutes the child was born without assistance. The moment the child was out of the vagina blood simply pumped out and death appeared imminent. Turning the patient on to her back he quickly expressed the placenta and, with his hand on the abdomen, pressed the uterus forcibly downwards and backwards and administered ergot by the mouth and by hypodermic injection. The bleeding, which had been checked by the pressure of the uterus downwards, came from a rent of the posterior wall of the uterus and the cervix and the examining finger could be passed directly into Douglas's pouch. He packed the rent with gauze wrung out of biniodide of mercury lotion and kept up pressure on the uterus for two hours. The gauze was removed in 24 hours. No douche was given and no septic symptom arose and her recovery was uneventful. The child weighed five pounds and was puny. At the end of three weeks the child developed pneumonia owing to a chill and died after two days' illness. The placenta was a placenta prævia marginata and the rupture had occurred through the entire cervix and lower portion of the placental site. It was well known that in cases of placenta prævia the wall of the uterus was not strong and in some cases fatty degeneration of the uterine muscle had been discovered. What exactly sets up the rupture in these cases it is difficult to tell. A severe pain accompanied by an expulsive effort is sufficient to start the rent, and once started it is apt to enlarge mechanically. As to the treatment, laparotomy and suture would have been extremely difficult and almost certainly fatal. And it was impossible to suture the rent per vaginam, especially in a dirty Chinese home.

Dr. F. H. CHAMPNEYS said that the case was remarkable in several ways. The small size of the child, the absence of malpresentation, the absence of interference, and the absence of anything in the history to account for the accident combined to make it worthy of record. As to the treatment which had been adopted he thought that it was perfectly correct; the plugging of the rent with gauze was the most successful treatment in cases in which the fœtus and placenta had not escaped into the peritoneal cavity. He was not, however, surprised that the case was well treated, as Dr. Maxwell (who had only lately been his hospital assistant) was well known to him.

Dr. G. E. HERMAN concurred with what Dr. Champneys had said as to the merit of the paper. Dr. Maxwell had quoted some current statements without, however, indorsing them as his own, and therefore he could hardly be held responsible for them. He said that in placenta prævia the uterus had been observed to be soft. It was true that some writers had said so; others had said that it was hard. He (Dr. Herman) did not think that there was any marked or constant difference in consistence between the uterus with placenta prævia and any other pregnant uterus. Dr. Maxwell had also said that spontaneous rupture of the uterus was due to fatty degeneration, and in that he followed the statements of eminent writers on midwifery. But he (Dr. Herman) knew of no good evidence to show that fatty degeneration of the uterus was present in cases of rupture of the uterus.

Fatty degeneration of the uterus had been said to take place in the puerperium, but the more recent researches of Helme showed that it was no part of the process

Dr Drummond Robinson, in reference to points raised by Dr Herman regarding fatty changes in the involuting uterus, stated that he had had the opportunity of examining microscopically two specimens of involuting human uterus Careful staining with osmic acid failed in both instances to demonstrate the presence of fat.

Dr Herbert Spencer said that the case was one of unusual interest and had been judiciously treated and well recorded He was pleased to find that in two cases mentioned by Dr Maxwell in which gauze-packing had been employed recovery ensued. Dr Spencer had called attention to this method of treatment in a paper read before the society last year, giving notes of four cases successfully treated in this way His previous experience had been that in every case of rupture of the uterus (about eight in all) the patient had died At the present time it was usual to recommend abdominal section for complete rupture of the uterus, but that operation, especially if followed by hysterectomy, was generally too severe a shock for a patient suffering from a rupture of the uterus, and if those with experience of that accident would publish all their cases as he had done he had no doubt that the results of hysterectomy would compare very favourably with those given of gauze-packing

Dr Amand Routh had seen one case of spontaneous rupture of the uterus with placenta prævia The patient was eight months pregnant and had had several attacks of hæmorrhage. Under deep anæsthesia the cervix was found to be rigid and it was not easy to insert the finger An anterior marginal placentation was found The tongue of placenta was separated from the lower uterine segment, podalic version was performed, and the leg was brought down to the half-breech, which was left *in situ* for nature to complete the delivery In about 24 hours, the patient's medical attendant being then in charge, labour pains came on and the child and the after birth were spontaneously expelled In two days septicæmia was evident and the practitioner in attendance then found that the uterus had ruptured anteriorly In spite of all treatment the patient died He had no doubt that Dr Maxwell's treatment by packing the rent with antiseptic gauze was the correct one to adopt, arresting hæmorrhage and securing drainage

The President thought that the treatment was not only excellent "in a dirty Chinese home" but was the very best treatment in a London or any other hospital with every appliance available The treatment of rupture of the uterus by packing with gauze was most successful in saving life He certainly considered that much of this success was due to the fact that the parts had not been rendered septic by the accoucheur's hands He related details of a most extensive rupture of the uterus which was treated by packing, this being renewed under chloroform every day for 12 days in succession and then less frequently The patient then became very ill and at last a large slough was extracted from the right broad ligament, and ultimately the patient recovered

The following specimens were exhibited —

Dr Cuthbert Lockyer A Menstrual Membrane from a case of Exfoliative Endometritis

Dr Richard Alcock Microscopical Sections of a Cyst of a Corpus Luteum

Dr J S Fairbairn (1) A Primary Carcinoma of the Ovary, and (2) an Incomplete Tubal Abortion

Mr A C Butler Smythe (1) A Cancerous Uterus removed 18 years after Double Ovariotomy, and (2) a Diverging Traction Forceps for Vaginal Hysterectomy

Dr William Duncan Two Fibro-myomatous Uteri (one Cystic) removed by [illegible]

The specimens [illegible] Dr W F V Bonne[illegible] A Doran, Dr Dunca[illegible] iles, Dr Herman, Dr Drummond Robinson, Dr Amand Routh, *Dr Herbert Spencer*, and Dr W W H Tate.

OPHTHALMOLOGICAL SOCIETY

Blindness resulting from Sodium Salicylate —Melanotic Sarcoma of the Conjunctiva (sequel) —Conjunctival Bridges and Pouches due to Union of Retrotarsal Folds —Sympathetic Irido cyclitis (recovery) —Exhibition of Specimens

The last ordinary meeting of the session was held on July 5th, Mr G Anderson Critchett, the President, being in the chair

Mr Simeon Snell related the following case of Blindness resulting from Sodium Salicylate. The patient, a girl, suffered from acute articular rheumatism, for which sodium salicylate was prescribed She woke from sleep at 7 30 A M and said that everything was dark in front of her On the medical attendant's visit between 11 and 12 he found her unable to distinguish between light and dark The next day Mr Snell saw her and found her perfectly blind The ophthalmoscope disclosed nothing abnormal in either fundus The following day he again saw her, when she was succumbing to pericarditis with endocarditis Again nothing abnormal in either fundus was detected There was no return of vision and she died that same evening It was calculated that the total quantity of sodium salicylate taken must have been 140 grains, if not 160 grains, in 60 hours Mr Snell said he thought that there could be very little question that the sodium salicylate was the cause of blindness in this instance The number of similar cases recorded was very limited

Mr J B Lawford reported further notes of a case of Melanotic Sarcoma of the Conjunctiva The patient was a woman whose conjunctiva showed marked and increasing pigmentation when she was shown to this society on June 11th, 1896 In July 1896 two pinkish nodules appeared In August, 1896 the cornea became hazy and the intraocular tension raised In October, 1896, the eyeball and conjunctiva were removed and were examined by Mr Devereux Marshall who reported the growth to be a pigmented sarcoma The pinkish nodules consisted of connective tissue cells, and blood vessels There was no growth whatever within the eyeball In May, 1897, the patient had a serious illness with brain symptoms, and it was thought that an intracranial growth was present. However she got better In October, 1897, some new growth was seen in the orbit and the general health was not good On Oct 21st, 1897 the growth was removed and was examined and found to be a sarcoma In August, 1898, another recurrence was seen On Sept. 1st, 1898 the growth was removed and examined by Dr Jenner and found to be a sarcoma. In April 1899, another pigmented spot was seen, and in the following September another had appeared in the upper lid On Sept 14th, 1899, the whole contents of the orbit were removed On March 20th, 1900, the patient was very ill and died on April 28th, but no necropsy was obtained. Mr Lawford unfortunately did not hear of her death until some weeks later Owing to the patient's very irregular attendance and also to her refusing operation in the early stage of the disease her chances of cure were much diminished

Major H Herbert, I M S (Bombay), described Conjunctival Bridges and Pouches due to Union of Retrotarsal Folds, a condition found in nine upper lids of seven patients of all ages One or more retrotarsal folds had contracted permanent adhesions with the tarsal conjunctiva evidently while displaced downwards through swelling in some previous inflammatory attack The adhesions were sometimes multiple along the summit of the one fold, in other cases smaller adhesions of underlying folds were found beneath the principal ones The folds had retracted, except when held by the adhesions thus leaving the permanently displaced portions as broad or narrow bands, or bridges of conjunctiva connecting tarsus and fornix and freely admitting the passage of a probe beneath them There was no history of injury in any case, but in the majority there was or had been trachoma Two cases were also mentioned in which small bridges of union had formed between folds in the lower fornix In another patient recovering from acute conjunctivitis (membranous or pseudo membranous) the actual formation of these adhesions was seen. The union was primarily by means of fibrinous exudation which apparently became organised Finally, another upper lid was mentioned in which a broad fold came down over the tarsus and had adhesions not only at its summit but also over the greater part of its surface, leaving only a shallow pouch or pocket under each curved lateral margin —Dr Bishop Harman stated that he had seen a similar condition in a patient in South Africa who had previously suffered much from grit in the eye

Mr Sydney Stephenson communicated notes of a case of Mild Sympathetic Irido cyclitis in a child 54 days after removal of an injured eye The interval between the original injury and the enucleation of the eye was 20 days The injured eye was affected with puro-plastic cyclitis, but micro-organisms could not be recognised. The patient when seen 16½ months after the accident had made a complete recovery.—The PRESIDENT referred to an observation of Liebricht that pressure on the nerve stump in the vacant orbit was painful in these cases.—Mr. DEVEREUX MARSHALL asked Mr. Stephenson if this was a record case. He himself had seen a mild case develop between two and three weeks after an eye had been removed for injury, but he had never seen a case develop so long as 54 days after enucleation.—Mr. SIMEON SNELL narrated a case of recovery of both eyes under similar circumstances. Enucleation sometimes sacrificed the better eye of the two.—Mr. STEPHENSON said that he was not certain what was the longest interval observed, but he did not think that his was the longest on record.

The following cases and card specimens were shown:—

Mr. C. WRAY: Gumma of the Orbit which occurred 40 years after Primary Syphilitic Infection.

Dr. W. C. ROCKLIFFE: Cystic Growth of the Retina (probably Carcinoma) Secondary to a Primary Scirrhus of the Breast. There was evidence of both eyes being affected.

Mr. MARCUS GUNN: Exceptional Appearance of a Choroidal Lesion, probably tuberculous.

Mr. INGLIS TAYLOR: Peculiar Form of Vitreous Opacity.

Dr. HARMAN: Hole in the Macula.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

Alcohol in its Medical and Scientific Aspects.

THE tenth ordinary meeting of this society was held on July 3rd, Dr. A. G. MILLER, the President, being in the chair. The meeting was devoted to a discussion on Alcohol in its Medical and Scientific Aspects.

Professor G. SIMS WOODHEAD, in opening the discussion, said that it was always well to have clear issues and that before they could discuss the matter reasonably they must arrive at some agreement as to what category alcohol must come under. Was it a poison, a drug, or a food? Or if it were all three, as some maintained, in which did it play the most important rôle. As a food, or even as a drug, did it play a part anything like so prominent as it did as a poison? All agreed in believing that alcohol was a narcotic poison, and certainly as a pathogenetic agent it was a protoplasmic poison. Certainly alcohol was a drug, but it was not a panacea for all ills. Let them keep alcohol as a drug and use it and prescribe it as any other drug, not loosely, but with a definite end in view, and at any rate with some show of scientific precision. The third question, Was alcohol a food? interested them greatly. It was this view of it which rendered it responsible for the greater part of the diseases which were now ascribed to its action. Few physiologists denied that alcohol was oxidised in the body, and to that extent might supply a certain amount of heat, but that any sane man would put forward alcohol as able to supply the number of calories required by the body and easily given by carbohydrates and fat was scarcely conceivable. Quite recently Dr. John Madden, criticising Professor Attwater's teaching on the food value of alcohol, pointed out that it differed from fats and carbohydrates in so far that it was a violent protoplasmic poison whilst they exerted absolutely no toxic effect. Ehrlich's views were important, and he stated that the nutrition of cell protoplasm appeared to result from a combination of certain proteid elements with the cells. Certain bonds or links were necessary for the application of nutritive substances to the use and nutrition of the cell. All these links appeared to be connected with the nitrogenous element. Now alcohol did not contain this nitrogenous element. It entered into combination with the protoplasm but apparently in quite a different fashion from the nutrient substances ordinarily utilised by the cell and acting rather as a toxic than as a nutrient substance. Dr. Madden pointed out that there was absolutely no evidence to show that alcohol might act as a respiratory food or that it was converted into a reserve supply of fat, but that instead of protecting nitrogenous tissues from undue waste (as did the fats and carbohydrates), alcohol actually hastened their waste, acting as a protoplasmic poison. Another important feature in connexion with alcohol as a food was the extraordinary avidity that it, like phosphorus, appeared to have for oxygen. This was probably one of the prime factors in producing certain forms of fatty degeneration. Under ordinary circumstances fat and carbohydrates taken into the body were readily oxidised by the respiratory oxygen. With alcohol, however, they had a much more active process. It became oxidised under conditions in which oxidation of fat and carbohydrates could not take place, and, like phosphorus, it appeared to divert to its own use oxygen which normally would go to protect nitrogenous tissues from undue waste, thus leading to derangement of their functions and metabolism. It interfered with the normal oxidation of carbohydrates and fat and to that extent set up abnormal metabolic processes which ended in the destruction of protoplasm and in the accumulation of the resulting fatty degenerative products in the protoplasm. This change was seen best in the heart muscle, but took place in muscular tissue throughout the body generally. In these secondary fibrous and calcareous changes occurred, thus leading to premature senility and thus directly due to alcohol. Like phosphorus or the products of micro-organisms and alcohol, they offered them evidence of the danger of assuming that because it was readily oxidised in the tissues alcohol was to be looked upon as a substance useful in the animal economy. In the case of alcohol they appeared to have this degenerative action on the cells without any accompanying nutrient action. It was because of this want of the nutrient element that the protoplasmic cells did not in time become accustomed to the poisonous action of alcohol as they did to the poisonous action of the proteid toxins. As a result of tissue reaction between the toxin and the cell the tissues of the body as a whole might in time become capable of withstanding enormous doses of certain proteid toxins. In the case of alcohol the process of immunisation was only slightly (then only apparently) increased, the degenerative changes affording evidence that the tissues, at any rate, did not become immune to its action. Professor Woodhead referred to the combined actions of alcohol and arsenic, the tissues "weakened" by one poison being more readily affected by the other. It was also recognised that alcohol in some ways acted as a predisposing cause to specific infective disease. McLeod of Shanghai insisted most strongly on this point. Abbot had shown that the normal resistance of rabbits to infection by the streptococcus pyogenes erysipelatis was markedly diminished by the use of alcohol when given daily to the stage of acute intoxication and indicated that this agreed in a way with clinical observations on human beings addicted to excessive use of alcohol when infected by this organism. Delearde found that animals treated with considerable doses of alcohol were less resistant to the action of the anthrax bacillus, tetanus toxin, and rabies poison, and also that it was a more difficult matter to render and maintain such animals immune to the action of these poisons than it was in the case of ordinary non-alcoholised animals. It was, however, to be noted that all these animals were treated with very large doses of alcohol. Laitenen tried the effect of small doses of alcohol for a lengthened time on animals, and his first conclusions were that alcohol, however given, induced in the animal body a markedly increased susceptibility to artificial infection or poisoning by certain infective and toxic agents, and he stated that the use of alcohol in the treatment of anthrax, tuberculosis, and diphtheria, at any rate, was not only useless but was probably actually deleterious. He stated, as also did Abbot, Welsh, and others, that the predisposing action of alcohol must be looked for in the production of abnormal conditions and pathological changes in the various organs—alimentary canal, liver, kidneys, heart, &c. Alcohol slightly diminished the alkalinity of the blood and favoured some leucopenia during which there seemed to be a slight decrease in the bactericidal power of the blood and an increased susceptibility of the tissues to the action of infective agents. Leitenen pointed out that experiments proved that pregnant animals and their offspring were markedly affected by the continued use of small doses of alcohol. The normal temperature and that in disease were often temporarily but slightly reduced by alcohol and this was the most favourable moment for the invasion of infective agents. As regards the relation of alcohol to phthisis there was direct evidence to show that even in small doses alcohol predisposed to this disease, and this was equally true as regarded the secondary and continued infection. If alcohol increased the susceptibility of the tissues to this infection or interfered with the production of immunity it could scarcely be good as a permanent food substance in this disease. Alcohol insisted on being oxidised in the body and where there was such marked interference with the respiratory processes this might be a most serious factor in bringing about an accumulation of fat in the liver and in setting up a fatty degeneration in the cell of this and of other organs. Mitchell Bruce was satisfied that dilatations of the heart and alterations in the myocardium were of frequent occurrence as the direct result of alcoholism. Professor Woodhead had seen two cases both in young and otherwise healthy people who had died from acute alcoholism in which there was an acute myocarditis without any endocarditis or pericarditis. The heart, however, appeared to be affected by alcohol long before any organic change could be made out in its tissues. Leonard Hill told them that alcohol rendered systolic output incomplete and increased the diastolic pressure and the dilatation of the heart. As regards the influence of acute alcohol poisoning on nerve cells, it had been shown that Nissl's granules gradually disappeared and the protoplasmic basis became slightly stained in the nerve-cells of the cerebral cortex, in Purkinje's cells and in the multipolar cells of the spinal cord, indicating a marked toxic condition such as was met with in connexion with diphtheria, tetanus, and other poisons. The changes were more marked as the dose of alcohol was increased or allowed to act for a longer period. Professor Woodhead described the changes which resulted in the nerve-cells in alcoholic brains. Such lesions of the neuron were not peculiar to the effect of alcohol, but might be reproduced by any irritant drug or bacterial toxic product. They had thus materials on which to found a study of the pathological changes set up by alcohol. Now that the conditions which produced these changes were understood and could to a certain extent be controlled they were more satisfactorily placed for studying the direct changes which took place in these and other tissues and might soon obtain more definite information on many controversial points.

Professor T. R. FRASER said that there were those who thought that alcohol was of the highest value, while there were others who thought that it had no value whatever. It must be admitted that alcohol was a toxic agent, yet it had actions which might be of service in many directions—e.g., to patients suffering from certain diseases and even in certain circumstances to society at large. Enough care had not been taken to discriminate between the effects produced by small doses as contrasted with the effects of large doses. The effects were entirely different. In small doses alcohol stimulated the heart, while in large doses it paralysed it. It was a substance which either improved or destroyed digestive processes and because of the ease with which it was burnt up in the body might give energy and so be of use in certain crises. In considering its actions Professor Fraser noted: 1. Effects on circulation.—There was no doubt but that alcohol acted directly on the heart in small doses so as to increase the force of its contractions and to quicken its action. This rapid stimulating action of alcohol was of value to the circulation as contrasted with the majority of other drugs. Alcohol was readily absorbed and so its effects were speedily produced. There was no subsequent depression following on this cardiac stimulation. The heart merely returned to its normal and was not enfeebled. It had a direct action on the blood-vessels as a result of which they dilated. As a result of this increase in cardiac action, together with the vascular dilatation, there was a widely distributed acceleration in the blood-supply and a consequent stimulation of distant tissues and cells of the body when these might be perishing for want of nourishment. 2. Effects on digestion.—It had been absolutely proved that alcohol stimulated salivary secretion without deteriorating its power. It also increased the peptonising power of the gastric secretion as well as increasing the peristaltic movement of the stomach. This caused, therefore, a more thorough digestion of food. It also induced a [illegible] questions they must deal only with such doses as were proper. Alcoholism was a very satisfactory agent in stimulating primary digestion. It was a tonic to digestion, but only when the dose was moderate. 3. As regards nutrition, alcohol was very easily oxidised. After taking alcohol the output of CO_2 and the intake of oxygen were enhanced. Only an insignificant amount of alcohol was to be discovered in any of the excretions. Such facts showed that alcohol was absolutely burned up in the body and it must therefore generate energy and force and must therefore be a good substance. It was much more readily consumed than either carbohydrates or fats. Professor Fraser did not place it high as a food substance. Its only value lay in allowing them to tide over an emergency, as where a patient was unable to retain any food in the stomach and where death threatened. By giving alcohol in suitable cases they could ward off this and so overcome crises. They could cure such cases by giving alcohol, as it proved not only a food but also acted by stimulating the circulation. 4. Its action on the temperature.—Even in normal conditions as well as in pyrexia alcohol reduced the temperature. This was due to radiation of heat from the body and not from any inhibition of heat production. Alcohol therefore proved very satisfactory in reducing pyrexic conditions. 5. Action on the nervous system.—As physicians they had not much to do with this aspect of the question. The actions of alcohol which were made use of were scarcely those which affected the nervous system at all. The chronic action of alcohol on the nervous system was something totally different, however. 6. As regards the action of alcohol in infection Professor Fraser said that the incidence of plague amongst an absolutely teetotal population gave a case mortality of 95 per cent. in Calcutta, whilst amongst the Europeans who drank alcohol it was only 20 per cent. The same results were seen in the recent outbreak of this disease in Glasgow.

Dr. T. S. CLOUSTON said that alcohol was the greatest factor in producing disease in the higher nerve centres, accounting for from 20 to 25 per cent. of the cases of mental disease. In explaining this, however, one must consider the neuropathic brain, which was really the original predisposing cause of the mental disease. Even if alcohol did not act on these cases many other causes would come into play and act on such brains. In Dorsetshire, for example, there was a good deal of quiet beer-drinking but little ardent spirit was consumed; alcohol was said only to cause 5 per cent. of the cases of mental disease, yet Dorsetshire furnished as many lunatics as were found in Edinburgh. Again, amongst the Society of Friends mental disease occurred to as large an extent as amongst the general population and yet the habits of the Friends were above suspicion. This showed that alcohol as being *the* factor must be conditioned in many ways. In those in whom the brain was easily excited to desire and where inhibition was easily decreased (and this formed a large class, artists, poets, &c.) alcohol produced to an intense degree pleasurable excitement and yet it was one of the most powerful toxic substances. One must put against the increased liability to infectious troubles induced by alcohol the advantages which it produced on the social side. Experiment showed that alcohol led to a liberation of energy. Its first effect was a katabolic one on the higher nerve centres. Then these easily discharged themselves. The effect of a small amount of alcohol was to give slight conscious pleasure and the mental output was increased, but the latter was of a poor sort. Ferrier long ago showed that repeated stimulation of the motor cortex soon led to the production of convulsions. The same happened with alcohol; repeated doses had a much greater effect, as perhaps half the former dose would interfere with mental processes. This effect on the higher centres should be remembered. Some change of a molecular kind took place in these centres and this effect was of a lasting kind. Dr. Clouston thought that much valuable information might be obtained by the appointment of a scientific committee to investigate this. In the treatment of admitted alcoholics one of the great hindrances was that the patient could not help in his own treatment. He needed legislative help, and surely if the whole profession demanded this the legislature would grant it. Taking a broad view of the social customs and the neuropathic brain there was undoubtedly an excessive use of alcohol. If they could by an emphatic expression state that the excessive use of alcohol was very harmful, and if they could make people believe in this pronouncement, they would do a great deal of good.

Dr. J. O. AFFLECK said that the various views had to be brought to the test of experience. His own view in regard to the administration of alcohol was that while he would not like to be without it, yet it was an emergency remedy. He thought that the statements of Professor Fraser were very strong and very dogmatic and open to serious question. One often saw a case of pneumonia in a drunkard end fatally in a short time and this result was simply due to the unfavourable condition of his body induced by alcohol, yet alcohol was much used in pneumonia and given in large doses. Dr. Affleck had been greatly disappointed in such cases in its use. He had rarely seen large doses do any good. He thought that the use of alcohol as an aid to digestion was fraught with terrible danger. If this stimulus to digestion were called into play every day, would it not shortly fail as such, and might it not cause such tissue disintegration that evil results would follow in later life? He felt more and more chary of ordering alcohol and a greater responsibility in doing so. One could not dissociate the moral from the medicinal aspects of the question.

Dr. **JAMES RITCHIE** quoted statistics from life assurance offices to show that the lives of total abstainers were very much better than those of moderate drinkers and said that the 20*s.* per cent. of added premium did not suffice even in those who were merely connected with alcohol in a business capacity. In one office the deaths of total abstainers fell to 23 per cent below the normal expectation of deaths, while in another it fell to 26 per cent. In the industrial insurance companies the same was seen—e.g., the Rechabites were tectotalers while the Foresters were not, and in the latter there were three and a half times as much sickness as in the former. In accident companies total abstainers paid 10 per cent. less premium. In disease, Dr. Ritchie stated that in gout alcohol so modified the vital processes as to predispose to gout and that he found gouty people were much better without alcohol. The same he found with rheumatism. In dilatation of the heart he never gave alcohol. He differed from what Professor Fraser had said regarding the cardiac failure. After giving alcohol they got a failing of the heart after about two hours and so another dose had to be given.

Dr. **J. FOULIS** thought that alcohol had very little effect in sustaining the heart in chronic disease.

Dr. **LESLIE MACKENZIE** spoke regarding the effect of alcohol on infection. Infectious diseases were chiefly confined to the early years of life and at that time alcohol was out of reckoning. At later periods of life alcoholic and non-alcoholic were equally liable to infection. The prognosis in each of these varieties might be influenced but not the susceptibility to the disease. Cholera did not prevail in the western areas where alcohol was used.

Dr. **H. M. CHURCH** spoke regarding the use of alcohol in children. Frequently the physician did not know when to give or when to withhold alcohol in certain ailments of children. His plan was to give small doses and watch the results with the finger on the pulse.

After Dr. **P. A. YOUNG** and Dr. **D. A. WELSH** had spoken,

Dr. **CLAUD KER** said that in diphtheria he used alcohol as a routine and he had noted that when alcohol was not employed in such cases heart failure more frequently occurred. He asked if they were not to give alcohol or strychnine what were they to give in such cases?

Professor **FRASER**, in reply, said that there was a crowd of other cases besides infectious ones where alcohol was of the greatest use. Alcohol required no previous digestion and was absorbed at once, and also exerted its influence immediately. Strychnine, digitalis, and strophanthus acted slowly, and in all probability the patient would be dead before they began to act. His contention was that alcohol was a beneficial medicinal agent.

Professor **SIMS WOODHEAD** said that the strong point in the evening's argument was the admission of Professor Fraser that alcohol should be taken in medicinal doses and only for a brief period. He himself believed that alcohol should be used as a drug, and if alcohol was the only drug necessary then it must be used so as to get a definite result. When small amounts of alcohol were given there was a diminution in the number of leucocytes. Even in minute doses alcohol increased the susceptibility of the animal to infection. There was a rapid increase of energy after taking alcohol, but it was of the nature of an explosion and not of a useful nature. The antipyretic effect was often neutralised by the cumulative action of the poison of alcohol. As regards plague, Europeans were so differently situated and nourished that this might well be the explanation of the lowered case-mortality. By starving animals they could increase their susceptibility to infectious diseases. The taking of alcohol led to the easy production of rhythmical movements—they become automata. When alcohol was given in diphtheria, except in minimal doses, it greatly increased the liability to antitoxin rash.

DIPHTHERIA AT SHIREHAMPTON.—At the meeting of the Barton Regis (Bristol) Board of Guardians held on July 5th it was stated that 79 cases of diphtheria had occurred during the recent outbreak at Shirehampton and Avonmouth, and that there had been no fresh case since June 14th.

Reviews and Notices of Books.

Studies in Human and Comparative Pathology. By WOODS HUTCHINSON, A.M., M.D., Professor of Comparative Pathology and Embryology in the University of Buffalo. Edited by Dr. EDWARD LAKE. London: Henry J. Glaisher. 1901. Pp. 350. Price 12*s.* 6*d.*

RARELY have we perused a medical work with more pleasure that the one now before us. Not only is the matter contained therein most interesting and instructive, but the charming manner in which it is written is irresistible and rivets the attention of the reader. The study of comparative pathology, a science which owes so much to Mr. J. Bland-Sutton, is as yet scarcely past its infancy and consequently the records collected by those who have made it a special study are very valuable. The field which has to be covered is enormously wide, embracing at least the three distinct and usually separated provinces of morphology, veterinary medicine, and human pathology. Dr. Hutchinson has made excellent use of the opportunities afforded him whilst in this country by study at the Gardens of the Zoological Society of London.

The first chapter is headed "The Cell Republic and the Individuality of the Cell in Health and in Disease." A delightful account is given of the "solidarity and the *esprit de corps* that exist between all the body cells," or, more prosaically expressed, of the functions of the red and white blood corpuscles. In the second chapter the Diseases of the Alimentary Canal are considered. Dr. Hutchinson has seemingly an admiration for the simple stomach of the amœba; he describes it as "an impromptu, and can be improvised at a moment's notice on any part of the amœba's surface ...... absolutely simple as the device is, it has its advantages; if one part of the surface become 'dyspeptic,' a new one can be utilised." After careful consideration of such a convenient digestive apparatus he suggests: "Our boasted superiority to our ancestors sometimes brings penalties with it."

"Appendicitis" obviously claims attention in such a work as this and a most interesting account is given of the natural history of the vermiform appendix. The conclusion is arrived at that we have in the human appendix a structure which is not only ancestrally degenerate—intermediate, as it were, between the voluminous and well-nourished cæcum of our more herbivorous ancestors—but is also actually undergoing further atrophy during the lifetime of the individual both before and after birth, and we should expect, therefore, upon morphological grounds to find it a point of least resistance in the food-tube and a frequent starting-point of inflammatory disturbances of every description, and such, of course, is its well-known surgical and medical history. As Dr. Hutchinson remarks there is no need to call in the aid of foreign bodies or concretions of any sort, fæcal or otherwise. Very interesting also is the chapter on the Lungs, their Morphology and Pathology. The peculiar vulnerability of the lungs to disease is discussed at length, and the author points out a distinctive and unvarying characteristic of the lung, as an organ, which marks it off from almost all other organs of the body as abruptly and as positively as does its marked liability to the attack of disease, and that is its extreme recentness. With the exception of the uterus and mammary glands there is no organ of the body which has not from five to 10 times the length of ancestral history that the lung has It is argued, and we think justly, that the longer a given organ has performed its functions in an adequate and satisfactory manner the more likely it will be to continue to perform that function, undisturbed by any influences which may be brought to bear upon it. We would willingly quote Dr. Hutchinson's own language further, but we have not space. His suggestions as to the predisposition of the lungs to tuberculous disease are lucid and powerful and afford most interesting reading.

The chapters on Tumours and Tuberculosis contain a vast amount of information and demonstrate the powers of observation and description possessed by the author. We can cordially recommend this volume and heartily congratulate Dr. Hutchinson on the result of his labours.

Purulent Nasal Discharges: their Diagnosis and Treatment. By HERBERT TILLEY, B.S., M.D. Lond., F.R.C.S. Eng., Surgeon to the Throat Hospital, Golden-square; Lecturer on Diseases of the Nose and Throat, London Post-Graduate College and Polyclinic. London: H. K. Lewis. 1901. Pp. 120. Price 4*s.*

DR. TILLEY says that no apology is necessary for the publication of a treatise on a special subject of such general importance as nasal suppuration, and with that we cordially agree. To the practitioner of general medicine in particular the subject is of the utmost importance, for, as Dr. Tilley points out, it is often that general malaise, if not a much more serious disturbance of the digestive functions, is due to the frequent ingestion of septic matter from the nose. In chronic empyema of the antrum, for example, the relief that is immediately given through correct diagnosis and treatment is almost magical, and the intelligent perusal of a work by such a careful observer as Dr Tilley will do a considerable amount towards rendering the practitioner capable of giving *this relief.*

The subject-matter is classified under the following six headings: purulent nasal discharges met with in early infancy, discharges associated with the exanthemata and other acute infectious disorders, nasal manifestations of constitutional disease in the adult, pathological conditions of the nasal or post-nasal mucous membranes, foreign bodies in the nasal cavity, and disease of the trans-nasal accessory cavities.

In nasal syphilis Dr. Tilley advocates the practice of mercurial inunction, a line of treatment that receives wide support; but he does not allude to mercurial fumigation, a method that has given excellent results and one which, in view of the later ideas on the mode of action of mercury when used as inunctions, would suggest itself as being of considerable value in nasal syphilis. Dr. Tilley includes atrophic rhinitis in his book, and perhaps finds sufficient justification in the fact that some authorities opine that there is a distinct relationship between accessory sinus disease and atrophic rhinitis. Still, having introduced this disease, it would have been better to have described it more in detail It is, however, to diseases of the accessory sinuses that Dr. Tilley chiefly directs his readers' attention, and he gives a detailed list of 16 cases of frontal sinus operation and alludes to 200 cases of antral disease that he has seen. Dr. Tilley's book is one which, as we have said, will be most useful, though he assumes, perhaps, at times that his readers have a wide knowledge of the subject.

Introduction to Medical Jurisprudence. By WILLIAM MCCALLIN, M.D., B.Ch. R U.I., D.P.H. Camb., Barrister-at-Law. London: Baillière, Tindall, and Cox. 1901. 8vo. Pp. 160. Price 4*s*

THIS work occupies a position between the large text-book on the one hand and the small examination cram-book on the other, and thus, though perhaps its scope of usefulness is but limited, it may be considered worth buying by most general practitioners, who do not often require a large work of reference on this subject. More than half the book is devoted to the essentials of medical jurisprudence, and the information is given in a concise, lawyer-like way with a minimum of comment by the author. The articles on Death, Post-mortem Examinations, Identity, Infanticide, Insanity, and Wills are thoroughly practical and useful, though they are all very short. The latter half of the book deals with Toxicology. Only the poisons that are most frequently fatal are described, and those are arranged very conveniently in alphabetical order, while at the end of the list is a table of doses of the usual remedies employed as antidotes. The general remarks which precede the description of the poisons are worth reading, containing as they do legal definitions of terms used in connexion with criminal poisoning and the essential points of the law relating to the sale of poisons. The brief articles on Food-poisoning and Ptomaines are too sketchy to be of much service, however, and it would be as well, too, if the author had given a little more information about edible and non-edible mushrooms. Having in mind the recent criminal trial in Paris known as the "Gouffé Murder Trial," in which the counsel for the accused, Gabrielle Bompard, urged that she was acting under the compulsion of the post-hypnotic suggestions of her paramour, we looked in vain for the opinions of Dr. McCallin on the bearing of hypnotic suggestion on medical jurisprudence.

Sooner or later English lawyers will have to face the question of how far hypnotism can be employed as a criminal agency. We think that the author might have mentioned hypnotic suggestion under several of his headings—notably under Rape and Assault. Dr. Luys in 1891 definitely declared that violations may certainly take place in the catalepsy induced by the hypnotist. Others than medical men are able to induce *hypnotic sleep, and when the* knowledge of this influence is more widespread there can be little doubt both that hypnotic suggestion will be used by unscrupulous persons and that malefactors will plead post-hypnotic influence as an excuse for their behaviour, just as many criminals now feign and plead insanity. Any medical man may one day find himself in court as an expert witness, and he would do well to be acquainted with the possibilities of injuries to the person committed while in that state of partial insensibility which we know as hypnotic sleep.

LIBRARY TABLE.

Materia Medica, Therapeutics, Medical Pharmacy, Prescription-writing, and Medical Latin By WILLIAM SCHLEIF, Ph.G., M.D., Instructor in Pharmacy, University of Pennsylvania. London: Henry Kimpton. 1901. Pp. 354. 8vo. Price 7*s* 6*d.*—This is a text-book on materia medica intended, we suppose, for American students of medicine; it contains "in a concise, definite, and assimilable form the essential knowledge required in the most complete college courses." There are no references in it to the British Pharmacopœia, and for this and other reasons the book will be found of no service to students preparing for examination in any university or college in the United Kingdom. Anxious as we are to do justice to the volume we cannot altogether congratulate the author on his arrangement of the subject-matter. There are the usual tables of doses, of poisons and their antidotes, of incompatibilities, and there is the usual instruction in prescription-writing The remedies are arranged for description under headings indicating their most important therapeutic use, and thus we find under the heading "Alterative" such differing medicines as iodine, cod-liver oil, sarsaparilla, and colchicum. Only in a few cases is the method of laboratory preparation of a medicine described and the ingredients of even commonly-used pharmacological preparations are in many cases omitted altogether. Thus if we look up paregoric we find it, of course, under its American name of tinctura opii camphorata and we read that "it contains opium gr. ij. to fl. ℥j. and a variety of other ingredients." To learn all about the therapeutics and pharmacology of, e.g., potassium and its salts it is necessary to consult six different parts of the book. There are two indices given, one "general" and the other "therapeutic," but it would be better if there were but one, for the work of reference is not as simple as it should be. There are a few pages devoted to the teaching of practical anæsthesia, but the information here, as for the most part elsewhere in the book, is scrappy and incomplete. We regret that we cannot recommend the book to British medical men with any degree of confidence.

Manners for Girls. By Mrs. HUMPHRY ("Madge" of *Truth*), author of "Beauty Adorned," &c. London: T. Fisher Unwin. 1901. Pp. 139. Price 1*s.*—This is a little book on the purchase of which girls might do worse than expend 1*s.*, for it contains a number of useful hints in little matters of etiquette adapted to all sorts of occasions which might prove of much assistance to those about to embark in society. It is short, sensible, and to the point, and young girls might do well to read it because it hits off numerous situations which, without the exercise of a little promptitude and judgment, are occasionally apt to prove embarrassing.

Lip-Reading: What it Is and What it Does for the Partially Deaf. By ISABEL POLLOCK. London: Simpkin Marshall, and Co. 1901. Pp. 12. Price 6*d.*—Miss Pollock's intention in writing this pamphlet is to help in some small degree to arouse the outside world to practical interest in a process by which half the disabilities of the deaf person can be removed. She points out that the oral system of teaching the deaf, though well known in the educational world, has not received the smallest attention from the public, and she urges that this neglect should be rectified. Writing from personal experience Miss Pollock testifies to the incalculable benefit which she has derived from lip-reading. She lost the pain of being left out of social intercourse and the power of lip-reading brought "nothing short of a new life" to her. If they are able to lip-read deaf persons can not only share in the conversation around them, but can retain posts of responsibility and discharge the duties effectively, though quite unable to hear a word that is said. Nor is the art of lip-reading so difficult to acquire as is generally supposed; according to Miss Pollock anyone with ordinary ability and patience can acquire it in a few months. In these circumstances medical men will do well to bring the matter before any deaf patients they may have with perhaps greater insistence than they now employ.

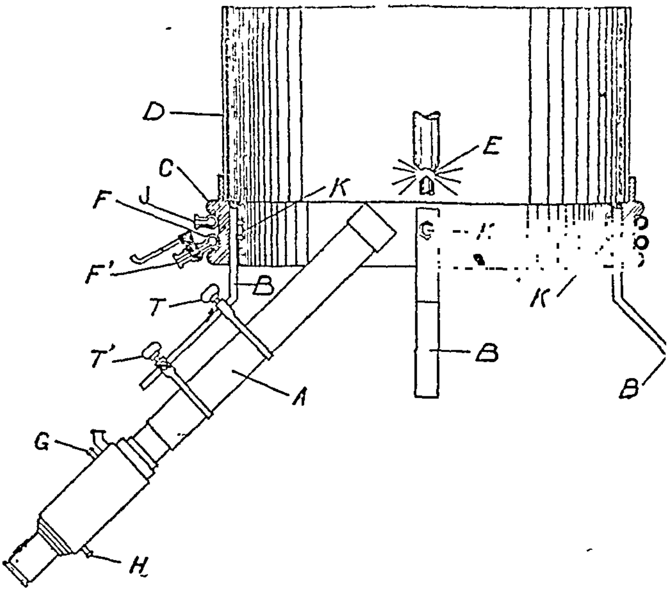
JOURNALS AND MAGAZINES.

The Journal of Physiology. Edited by Sir MICHAEL FOSTER, F.R.S., and J. N. LANGLEY, F.R.S. Vol. XXVI. No. 6. London: C. J. Clay and Sons. June 14th, 1901. Price 6*s.*—The articles contained in this number of the *Journal of Physiology* are the following: 1. The Conditions of Action of "Trypsin" on Fibrin, by H. M. Vernon, M.A., M.D.Oxon., Fellow of Magdalen College, Oxford; with two figures in the text. Dr. Vernon's experiments show that trypsin is very rapidly destroyed by sodium carbonate, an active extract kept at 38° C. with 0·4 per cent. Na_2CO_3 having about 65 per cent. of its ferment destroyed in an hour. 1 per cent. Na_2CO_3 destroys over 80 per cent. and pure water may destroy over 30 per cent. in the same space of time. The statement made by Schütz that the rate of digestion varies as the square root of the quantity of ferment present is confirmed by Dr. Vernon. 2. Intestinal Absorption of Maltose, by E. Waymouth Reid, Professor of Physiology in University College, Dundee. Professor Reid shows that in the normal gut the uptake of maltose and glucose is independent of the relative rates of diffusibility of these substances. 3. Transport of Fluid by certain Epithelia, by E. Waymouth Reid, Professor of Physiology in University College, Dundee, with seven figures in the text. 4. Observations upon the Chemistry and Heat-rigor Curves of Vertebrate Muscle, involuntary and voluntary, by Swale Vincent and Thomas Lewis, with 10 figures in the text; from the physiological laboratory, University College, Cardiff. 5. On the Presence of Nerve Fibres in the Cerebral Vessels, by William Hunter, M.B., C.M. Aberd., with two figures in the text. By *intra-vitam* injections of saturated aqueous solutions of methylene blue till the animal died the presence of a dense plexus around the vessels is demonstrated and the appearances presented are depicted in two wood-cuts. 6. The Conditions that Underlie the Peculiarities in the Behaviour of the Coloured Blood-corpuscles to Certain Substances, by G. N. Stewart, M.A., M.D., Cleveland, U.S.A. This article is the outcome of experiments made to determine whether the power of selecting certain substances by cells from surrounding liquids and of rejecting others depends upon the vitality of the corpuscles or upon a certain physical structure or chemical composition of the cell envelope or cell substance. The author attributes the power to the structure of the corpuscles in the case of the white corpuscles of the blood and in part to the nature of the envelope and not to their vital qualities. 7. The Colorimetric, Determination of Hæmoglobin, by John Haldane, M.D.Edin. F.R.S., with one figure in the text. The number also contains the Proceedings of the Physiological Society.

IMPROVEMENTS IN THE APPARATUS USED FOR THE TREATMENT OF LUPUS BY LIGHT RAYS.

THE remarkable results obtained in the light-ray treatment of lupus have naturally directed attention to the design of the apparatus with the view to its improvement in many important details and to increase its convenience of adaptation. Primarily the apparatus consisted of a series of lenses and water chambers through which the intense rays of the arc light travelled. The rays were thus not only focussed but separated—the light rays from the heat rays. The water chambers served to absorb the heat rays and the lenses to focus the light rays. One of the chief difficulties met with in the apparatus is that of providing, so to speak, absolutely water-tight compartments. Leakage was a constant source of trouble, and only the best construction is calculated to obviate the effects of contact with water constantly varying in temperature. Further, not only is leakage to be avoided, but the lenses ought to be easily removeable for the purpose of cleaning them. Now, however, that the importance of the treatment has been established

FIG. 1.

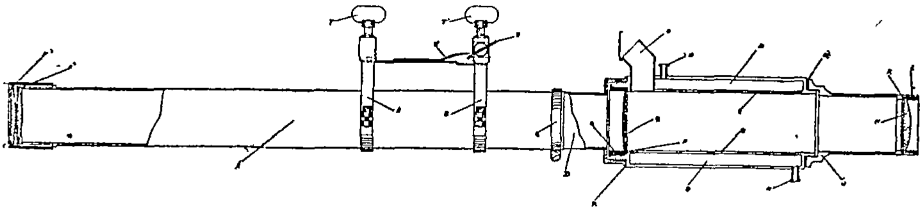


The electric light apparatus with one collector.

more attention has been paid to these points and an apparatus has been constructed, excellent both in workmanship and design, in which the structural defects just indicated no longer exist. The description of this improved apparatus will therefore be of interest.

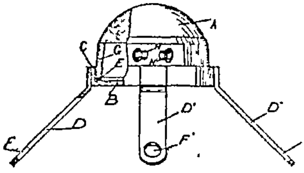
First of all, the arc lamp used is of the direct current type, taking from 50 to 80 ampères at 70 volts pressure and generating a light of approximately 30,000 candle-power. As will be seen in Fig. 1, the arc E is surrounded by a ring of metal, O, which is rigidly suspended from the ceiling of the building at a height of from six to seven feet from the floor. The lamp is shaded by a cylindrical hood D (Fig. 1). Four sets of crystal collecting lenses, one of which is shown in the figure (A) are mounted on brackets B, B, B, which are attached to the ring C and can be adjusted vertically by the bolt at K in order to place them in the best position for collecting the light. Outside the ring O are placed two pipes F, F′ which provide for a system of circulation of cold water. In Fig. 2 the structure of the collecting tube will easily be seen. It contains four rock-crystal lenses. At the end nearest to the arc light are two lenses F, F in tubes which slide on to the body of the collector like a telescope cap which can be removed for cleaning. Lower down will be seen two clamps for attaching the apparatus to the brackets T, T′ in Fig. 1. These brackets are so made as to allow of an adjustment by means of screws so that any irregularity in the burning of the lamp may be compensated for. Further adjustment may be made by means of the screw V which provides for deflecting the collector in the opposite plane (Fig 2) In practice the adjustment screw T is [illegible] Fig. 2, a draw tube B slides which can be fixed at any position by the clamp S which enables a focus of the light to be made and consequently the size of the image to be adjusted. This draw-tube carries a pair of rock crystal lenses G and H, and the space between these lenses is filled with distilled water to absorb the heat rays from the light, a tube O with a hinge cap being provided for the purpose of filling. The greater portion of this absorption chamber is jacketed so that a constant stream of water may be kept up through the nozzles N, N and thus keep the absorption chamber cool. All the lenses can be removed for cleaning. The joints are perfectly water-tight, consisting of a rubber ring against which the lenses are gently but firmly pressed by means of a screw. The joints can at any time be renew[illegible] of fresh rubber washe[illegible] advantages of this [illegible] of the apparatus is the "compressors," as illustrated in Fig. 3. These consist of two rock crystal lenses with a space between them for the circulation of water. The lens B is parallel, while the outer one, A, is bull's-eye shape, the curve being adjusted to fit that portion of the body under treatment. The water is conveyed through the tubes represented at H, H. D, D, D are arms or handles which enable the operator to hold the compressors, without obstructing the view through the lens B. The compressors may be attached to the patient by elastic bands (Fig. 3). This piece of the apparatus is constructed in the same way as are the lenses in the tube—that is to say, the lenses may be easily removed and cleaned and the rubber washer may be easily replaced. In Fig. 4 will be seen a special form of compressor with holder for treating surfaces such as the cornea of the eye, but in ordinary practice the forms of compressors shown in Fig. 5 are found to be most useful (Figs. 4 and 5). The water circulation is established by drawing the supply from a tank situated at a considerably higher level than the apparatus from the tap F (Fig. 1), indiarubber connexions being made throughout for the water jacket. The water enters by the nozzle G (Fig. 1) and flows out of the nozzle H to one of the nozzles of the compressor. Thence it flows through the compressor to the exit pipe and thence to the waste-pipe.

FIG. 2.



The collector.

FIG. 3.



The "compressors."

This apparatus is admirably adapted for the purpose in view. It is free from the annoyance of leakage and is so designed that the lenses may be easily removed and cleaned, while adequate provision is made to give the apparatus stability and support during its application for treatment. We have inspected a type of this apparatus, which was under construction at the engineering works of Messrs. R. and J. Beck, Limited of 68, Cornhill, E C., to whom we are indebted for the illustrations in the text. These instrument-makers have also designed an apparatus for use with the sun, consisting of a water-lens with a thin glass back and a curved front filled with a solution of methyl blue. This lens is suitably and strongly mounted and it may easily be cleaned. The compressors are the same as those which are used with the electric light apparatus The crystal collectors cost £15 each and the ring containing the lamp with copper circulating pipes about half that amount, while the compressors cost about a guinea a-piece.

FIG. 4.

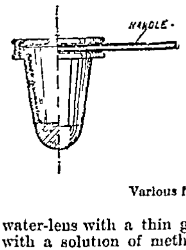
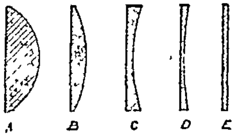


FIG. 5.



Various forms of compressors.

PREVENTION OF TUBERCULOSIS.—A meeting was held at the Guildhall, Gloucester, on July 2nd, under the presidency of the Mayor, for the promotion of the scheme to establish a free sanatorium for Gloucestershire, Somersetshire, and Wiltshire for the open-air treatment of consumption. Interesting addresses were delivered by Dr. R. Maguire (physician to the Brompton Hospital for Consumption) and Dr. L. A. Weatherly of Bath. The meeting passed resolutions in support of the project and for the appointment of a committee to advance its interests locally.

THE LANCET.

LONDON: SATURDAY, JULY 13, 1901.

Epsom College.

THE twenty-eighth festival dinner of the Royal Medical Benevolent College, Epsom, the report of the proceedings at which will be found in another column, was held on Tuesday night last at the Hotel Cecil. Every nerve had been strained by those responsible for the finance and management of the College to obtain from and through their guests a large accession of pecuniary support. The owners of some of the best-known names in medicine were present and in Lord ROSEBERY, the President of the College, an ideal chairman was forthcoming. The interest which THE LANCET has always taken in Epsom College makes us very glad to be able to report that the outcome of the dinner was the substantial addition of over £4000 to the funds. The pressing needs of the day have thus been provided for by the generosity of a few members of the public and of the medical profession, but it must be pointed out that only temporary necessity can be met with such a sum as £4000, and that what is required is a regular and substantial endowment commensurate to a certain extent with the expenditure necessitated by the foundation. Dr. HOLMAN, the treasurer of the College, and Mr. LAMB, the secretary, have year after year with unwearying energy striven to bring this fact before public attention, and as far as lay in our power we have assisted their efforts. Some measure of success has been attained by persistent struggle, but we wish our readers fully to understand that the handsome result of the collection made at the recent dinner in no way absolves them from the obligation of subscribing to the funds of Epsom College.

Epsom College was founded with a twofold object. There was to be a public school where the education should be as good as that provided in any secondary institution in the kingdom. Secondly, certain provision was to be made for a limited number of unfortunate medical men or their widows, while foundation scholarships were to be offered to the children of such medical men as were unable during their professional career to make provision for their families. This double aim of the institution has been found to involve the management in something of a dilemma, the difficulty of which has recently become more obvious than ever. It is expressed in the full title of the institution—the Royal Medical Benevolent College. Epsom College is a public school open to, and attended by, boys who generally go to an English public school; their parents are of the same class and have the same range of income. Therefore it militates against the interests of the school to be labeled "medical" or "benevolent." The parent who pays full fees for his children because he can afford to do so does not care to have it appear that he is educating them with the assistance of charity. The parent, again, who does not belong to our profession sees no inducement in the word "medical" to send his children to Epsom College. For which reasons it is clear that the adjectives "medical" and "benevolent," as Lord ROSEBERY said in his capable and sympathetic address, would be better out of the title of the institution. They are cumbrous, they are not wholly accurate, and they do not serve the best interests of the school. But, and it is a large but, Epsom College has a very valuable and delicate trust to discharge. The kernel of the founder's idea was to benefit the medical profession, and no alteration in the title or the working of the College can be sanctioned, with fairness to PROPERT or the medical profession, which might endanger his great design. PROPERT was profoundly moved by the fact that a very large proportion of medical men, carrying their lives in their hands as literally as does the soldier on the battlefield, are struck down before they can make adequate provision for their families. He desired to shelter some of the unfortunate widows, to give peace to the last days of a few luckless professional brethren for whom circumstances had proved too strong, and to educate a proportion, if only a small proportion, of the children of medical parents who would otherwise have no chance of receiving the training that they were entitled to expect. These were the founder's noble wishes; and as long as the adjectives "medical" and "benevolent," by keeping his design before the minds of subscribers, help to provide funds to carry out the original charitable scheme so long those adjectives must remain.

There is a perfectly simple remedy. The College, under a recent Act of Parliament, possesses the power to alter its name to Epsom College, and the authorities will make this change directly they know that their pecuniary support is so large and so certain that the interests of those whom it was designed to benefit charitably are safe. We do not think that the £50,000 which the treasurer in an admirably clear speech asked to have given to him is likely to be forthcoming in the lump. Many less worthy objects have been munificently endowed in this way, but we see no grounds for taking a more sanguine view at the present moment. It is increased income to which Epsom College must look. If the College were supported, as it should be, by every medical man in the kingdom the regular influx of subscriptions would be so large that the certain income would allow of the titular modification which everyone admits is almost necessary. And not only can the medical profession help by subscribing; they might well make it one of their duties—nay, one of their pleasures even—to proselytise in the interests of the College. Epsom College, from the charitable point of view, has claims upon the public as strong as are its claims upon the medical profession. Ours is not a well-paid calling and the social conditions of medical life make it almost impossible for the medical man to save from the beginning of his career. There are circumstances in medical practice—we refer particularly to general practice—which make it almost necessary for the medical man to be married when young, yet many cannot expect success until middle age is reached. If death should occur before success comes, what provision can the bread-winner make for his family save a small life insurance? None. This is a fact which might well be brought by all our readers before their patients. It is a gratifying truth that we sometimes meet with sufferers who are ready to recognise that the ministrations which they have experienced are not really paid for by discharge of a bill. They are willing to see that medical service is not simply trading and that the intimate relations between the sick and the medical attendant are not just those of employer and employed. Every opportunity might well be taken to point out to these just persons that to endow Epsom College is a particularly apt manner of wiping out a debt to which no formal claim is made but which their own consciences press upon them. We own that we should like to see the medical profession at large sturdy beggars in the interests of Epsom College.

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Stocks and Crossman v. Watson.

THE above action was tried in the King's Bench Division of the High Court, before Mr. Justice BRUCE and a special jury, on June 26th. It was originally a claim for payment of account for professional services rendered by the plaintiffs to the defendant—a licensed victualler—and members of his family. In the ordinary way the hearing would have taken place at Wandsworth County Court, but the defendant, in *addition to disputing the claim, counterclaimed for damages* (£250) on the ground that one of the plaintiffs—Mr. F. STOCKS—had not treated him with ordinary care and skill; and consequently, pursuant to the Judicature Act, 1873, Section 99, it was ordered that the action should be transferred to the High Court of Justice on the ground that the defence or counter-claim of the defendant involved matter beyond the jurisdiction of the county court.

On Sept. 28th, 1900, the defendant Mr. WATSON met with a bicycle accident, and besides other injuries he sustained damage to his shoulder. Mr. STOCKS was called in on the same day and, according to his evidence, he made the ordinary examination for dislocation of the shoulder-joint but failed to detect evidence of luxation. Some time in December Mr. STOCKS found that the joint was dislocated, and he made an ineffectual attempt to reduce it. He did not consider it advisable in the defendant's state of health to give an anæsthetic, and in this he was supported by the judgment of Mr. H. H. CLUTTON who examined the patient on Jan. 4th, 1901. Both Mr. CLUTTON and Mr. VICTOR HORSLEY, who were called for the plaintiffs, were of opinion that if Mr. STOCKS at the first examined the defendant in the manner he described he must have found the dislocation if there were one; that the injury to the shoulder might have predisposed it to dislocation; and that an injury subsequent to the bicycle accident, such as a fall out of bed or injudicious pulling at the arm by someone, might have produced it. On the question of the character of the examination made by Mr. STOCKS on Sept. 28th there was a direct conflict of evidence. The defendant and his wife said that the rotatory movement carried out by Mr. STOCKS was done whilst the defendant had a covert coat on. On the other hand Mr. STOCKS averred that he used the customary methods whilst his patient was stripped. It was admitted that as a consequence of the swelling on the days following the accident the diagnosis would be more difficult. The summing-up left nothing to be desired. The learned judge said that the main issue to be determined was: Did Mr. STOCKS use ordinary and reasonable care in his examination on Sept. 28th? Because if he did it seemed impossible that he could have failed to detect a dislocation if it existed. The jury replied in the affirmative. The verdict was thus in favour of the plaintiffs. As regards the counter-claim, costs would necessarily follow on the High Court scale, and on the direct claim of the plaintiffs the judge said that he would give a certificate. The action was taken into the High Court at the instance of the plaintiffs, although the amount sued for by them was less than £50 and thus within the limit for county-court actions. From the gravity of the issues involved it was clearly a case to be tried in the King's Bench.

It is well known that simple dislocations, and especially of the shoulder, are not always diagnosed at the time, but the exceptions are few and far between. A medical man of ordinary knowledge and attainments could scarcely with due care fail to detect a dislocation of the shoulder. The limitation of movement of the arm, the alteration in length, and the hollow tension of the deltoid are alone sufficient to determine the nature of the injury. As regards the value of the evidence given at the trial we may say, without in the least degree questioning the *bona fides* of the defendant and his witnesses, that a medical man would be more likely to recall accurately the nature of his examination and the conditions under which it was made. To have found for the defendant the jury must have come to the conclusion that they could not rely upon the testimony of Mr. STOCKS, and without that the corroborative testimony of Mr. CLUTTON and Mr. HORSLEY would have been of little avail. We entirely subscribe to the verdict and congratulate Mr. STOCKS on the vindication of his professional reputation, which, after all, was his chief aim.

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The National Hospital for the Paralysed and Epileptic.

THE meeting of governors of the National Hospital for the Paralysed and Epileptic, Queen-square, which took place on Saturday, July 6th, adopted unanimously three resolutions calculated to render effective the findings of the report recently referred to in our columns.[1] By the first resolution the report was adopted; by the second resolution it was decided to appoint a committee to carry into effect the recommendations of the report; and by the third resolution the constitution of this committee was decided upon. It is to consist of nine members, four of these to be appointed by the committee of governors elected on March 23rd, three by the Board of Management, and two by the medical staff. We cannot help thinking that the medical staff has exercised too much forbearance in being satisfied with a smaller representation in this committee than the Board of Management. The staff has shown all through this unfortunate but most necessary controversy an interest in, and regard for, the best interests of the hospital and a knowledge of its requirements to which the actions of the Board of Management have shown them to be quite strangers, and it would probably have been much to the advantage of the charity if the numbers of Board and staff representatives had been reversed. We are informed that even at the meeting of the Board specially convened to receive the report the necessary quorum could not be obtained and the meeting had to be adjourned; and at the meeting on Saturday last, at which the great majority of the staff was present, the Board was represented by the chairman and one other member, although it is true that two other members of the Board were present for a few minutes but left before the resolutions were carried. How the long-suffering governors of this institution regard such "slackness" on the part of their representatives we cannot tell. To most other people it looks like callous indifference to duty and an almost studied insult to the electorate.

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[1] THE LANCET, June 29th, 1901, pp. 1837 and 1855.

It cannot be denied that the duty imposed upon the committee first appointed is a most onerous one. No one who has not carefully studied the wonderfully tortuous rules and by-laws which have gradually been imposed on this charity can be at all aware of their nature. They seem to have been skilfully framed to exclude the so-called governors from obtaining any effective voice in its management, and the alterations which will have to be made must be both numerous and radical. The abolition of the office of secretary-director, followed as it has been by the resignation of that official, and the admission of representatives of the medical staff to the Board of Management, which that body has already sanctioned, will no doubt do much towards a healthy reconstruction, but the committee, we venture to think, will find many things to abolish and many more to amend. If the statement made by the Chairman of the meeting held on July 6th is to be regarded as expressing the deliberate opinion of the Board, that body must be singularly obtuse to the censure conveyed in almost every line of the report, and in that case the committee may find in the representatives of the Board a solid body of resistance to even moderate proposals of reform. It is almost incredible that a member of the Board should have the effrontery, in face of a report which condemns the conduct of the hospital in almost every particular except the treatment of the patients for which the medical staff was responsible, to say that "the condition of the hospital was good and the management on the whole satisfactory." We do not wonder that an energetic protest was made on behalf of the medical staff against such a statement. What the members of the staff alleged in their original letter to the governors was quite the contrary of this, and the report of the commission shows them to have been right.

We can now only await the action of the committee. We trust that the effect of their revision of the rules and by-laws and of their careful study of the report may be to establish this useful charity on such a basis as to give everyone connected with it, whether in a medical or any other capacity, a pride and interest in it which will ensure for it a career of ever-increasing honour and usefulness.

Annotations.

"Ne quid nimis."

FASHION AND THE SUN.

THE alarming accounts of deaths from heat in New York, not, we are happy to think, entirely free from the exaggeration that spices most newspaper sensations as served up in America, have naturally aroused fears that this country would receive the heat-wave and furnish victims to an unusually high atmospheric temperature. In countries where great heat is regularly expected at certain seasons life is adjusted to meet the conditions. Business is abandoned in the hot hours; leisure, few clothes, sleep, and appropriate drinks reign in the place of affairs, which are relegated entirely to the cooler portions of the day. In England, because great heat is so occasional and because we are slow to change our customs, the inconveniences of a high temperature bring no attempt at alleviation. No changes are made in the hours of business and business men prefer to perspire and to fret beneath a silk "topper" and a frock coat, though they would prosper no less and be far more comfortable in flannels and a "straw." The learned professions show no wider sense of what is due to climatic changes. Clergymen, lawyers, and our own profession alike preserve the proprieties and in black-coats sweat to their satisfaction. Women alone, whether guided by the instinct with which they are credited or by the reason in which they are commonly thought deficient, show men in this matter how suitably to adapt costume to climate and to remain cool, active, and comfortable, though the sun shine never so fiercely. Do men want to vaunt their superior physique that they make such a contrast between the heavy trammels of their own costume and the easy coolness of that of their wives and daughters? On one side a black coat, top hat, stiff shirt, and black boots; on the other a light bodice, open or with only lacing at the neck, soft cool skirts, open-work stockings, light shoes, and a parasol. No one doubts which looks better; is there any more hesitation in declaring which is healthier and better adapted to activity in a hot atmosphere? We do not suggest that Cornhill should quiver with parasols, or that the Stock Exchange should rustle with the flimsy skirts of hurrying brokers, but why should not light flannels and broad light straw hats be universally adopted in hot weather? Men would be better able to attend to their affairs and, a by no means unimportant point, would need far less to drink, for they would perspire less. Stiff shirts and stiff collars should be put away in hot weather. When they absorb perspiration they become ridiculous and when they preserve their rigidity they are unhygienic.

PROPOSED EPILEPTIC ASYLUM NEAR BLACKBURN.

AT the meeting of the Manchester Board of Guardians on June 26th, a communication was read from the Chorlton and Manchester Joint Asylum Committee pointing out that application had been made to the Local Government Board for their approval of the purchase of about 165 acres of land near Blackburn for £13,627, for the erection of an asylum for invalids and epileptics. Alderman McDougall said that after long seeking a suitable site had been found. The Local Government Board was anxious that the scheme should be proceeded with and the building would soon be commenced. It was the intention of the Joint Committee to place the imbeciles and epileptics in separate departments of the asylum. The chairman hoped that the Prestwich Union would join the scheme. Many sites had been inspected but were unsuitable, and Alderman McDougall thought that they had been lucky to find one on the Manchester side of Preston. In commenting on this the *Manchester City News* says that the proposal should be considered with care and seems to think it hard that "the Joint Committee *is solely responsible to the Local Government Board* and that the ratepayers have only an influence when the mischief is done," also that the price per acre is more than double that asked for Heaton Park. The buildings, it thinks, will cost "anything up to £250,000," and "probably £10,000" will be required for annual maintenance. The number for whom provision is to be made is about 500, who are, as the paper says, "already being housed and tended in workhouses and asylums." Without concurring in the views just given—it being quite clear that increased provision is needed for these unfortunate people—some moderating influence might be well employed in distinguishing between what is necessary and reasonable in the estimates for such institutions, and what is unnecessary and extravagant. There is no doubt a delightful feeling of opulence among those who spend other people's money, the results of which may be seen in the furnishing of, e.g., some school board offices or the board-rooms of limited liability companies. It is evidently very difficult for persons in this position to resist the inclination to lavish expenditure, regardless of mere ratepayers or shareholders.

UNUSUAL SYMPTOMS OF A WOUND OF THE SPINAL CORD WITH PARTIAL RECOVERY AFTER OPERATION.

IN the June number of the *Journal of Nervous and Mental Diseases* Dr. Joseph Sailer records an interesting case of an injury to the spinal cord inflicted by a bullet during the Cuban war, and the result of operation three years later. The case is of interest in several respects—viz., as regards the presence of curious sensory phenomena and the results of operation. The patient was an officer in the Cuban army, aged 31 years, and he was wounded by a Mauser small-calibre bullet on Nov. 2nd, 1896. The bullet entered one centimetre to the left of the right nipple and passed out 2·5 centimetres to the left of the spinous process of the twelfth dorsal vertebra, having penetrated the lung, the liver, and the spinal cord. The wounds of entrance and exit healed in the course of a week without suppuration. The only serious results were those due to injury of the spinal cord. Immediately after the wound there were complete paraplegia and intense pain in the back, while there was loss of sensibility in the lower half of the body. Atrophy of the lower limbs followed and bed-sores developed over the sacrum, buttocks, and ankles. There were also severe paroxysmal pains in the thighs and lower portion of the abdomen. To relieve the pain the patient took morphia hypodermically and thus acquired the morphia habit. On May 3rd, 1898, he was admitted to the Presbyterian Hospital in Philadelphia in the following condition. There was some motility in the left leg as regards movements at the hip and knee. There was no movement at the ankle or of the toes, but a slight tremor developed in the toes upon effort. The knee-jerk was greatly exaggerated, but there was no ankle-clonus or plantar reflex. In the right leg there was slight flexion of the thigh, due to contraction of the ilio-psoas muscle and the only movement possible at the hip was slight adduction. The reflexes were abolished in the right leg which was totally anæsthetic below the upper third of the thigh. Just above this line there was a zone of hyperæsthesia, three inches broad, around the thigh. In the left leg there was total anæsthesia exactly to the same extent, but sensation was normal above that. In November, 1899, the patient began to suffer from lightning pains about the thighs and lower part of the abdomen. These were severe and did not respond to drugs, and as the patient was getting weaker laminectomy was performed. The arches of the tenth, eleventh, and twelfth dorsal and first lumbar vertebræ were removed, exposing about four inches of the spinal cord. The dura mater was found to be greatly thickened. It was opened and freed from adhesions to the pia mater in and about the lower part of the incision. About a pint of cerebro-spinal fluid escaped freely during the operation. The spinal cord appeared normal to inspection and palpation. The wound healed without trouble, but for the first four weeks the pains continued as before and were even somewhat intensified. Improvement followed after this as regards movements of the hips and knees, but the ankles and toes remained practically incapable of movement. There remained, however, a total anæsthesia over the sacral area and partial anæsthesia of the perineal region. Allochiria of the legs was discovered 39 days after the operation, while improvement was still in progress, and lasted only three days.

BLINDNESS DUE TO DRINKING BAY RUM AND OTHER LIQUIDS CONTAINING METHYL ALCOHOL.

AT the annual meeting of the American Medical Association held in June Dr. H. Moulton described the case of a man who drank bay rum and next day had an uneasy sensation about the eyes followed by vomiting. He suffered from dizziness, retching, and gastro-intestinal symptoms for two days after this. Vision became feeble, especially at dusk (*hemeralopia*), and ophthalmoscopic examination showed œdema of the optic papilla and retina. Finally total blindness ensued, the discs of the eyes now showing the appearance of optic atrophy. Dr. Moulton points out that similar symptoms may result from "Jamaica ginger"—a liquid preparation which contains about 95 per cent. of methyl alcohol. Dr. Ray of Louisville cited a case under his observation where blindness began on the second day after drinking methyl alcohol. There was œdema of the optic nerve and retina. Blindness ensued and lasted three or four weeks, when the power of vision gradually returned, central vision being the last to reappear. Dr. Woods of Baltimore described cases of blindness from Jamaica ginger which on inquiry was found to consist almost entirely of methyl alcohol in which the active principles of ginger were in solution. Dr. Wood of Chicago referred to an instance where several persons had partaken of the same liquid but only one suffered from the above after-effects. He pointed out that an idiosyncrasy may exist in some cases.

SEWAGE DISPOSAL AT BURNLEY.

A REPORT recently presented to the Highways and Sewage Committee of the County Borough of Burnley speaks strongly in favour of the bacteria bed system of sewage disposal lately adopted there. The result is of special interest in view of the fact that the staple industry of the town is cotton-weaving, and in addition there are also spinning mills, iron works, two dye works, and a tannery, the trade effluent from the two last-named being discharged into the sewers. Various chemical methods were tried, but without satisfactory results. Ultimately bacteria beds were adopted which proved a success both from the economical and hygienic point of view. In the report it is stated that from a careful perusal of the figures it is confidently felt that a very considerable saving is effected by the adoption of the system now in use as compared with that of chemical precipitation and land irrigation formerly practised at the Burnley sewage works. As to the effluent, it is stated, according to incubator tests made with the second contact-bed effluent, that the indications are that the purification was sufficiently complete to allow of the discharge of the effluent into any stream without fear of objectionable contamination. Fish placed in this effluent thrived and since November last have presented a healthy and flourishing condition, although they were supplied with nothing but the effluent from one or other of the secondary beds. It is interesting to note in this report that although the temperature of the atmosphere fell as low as 19° F. on one occasion yet the temperature of the tank effluent and of the first contact-bed effluent and of the second contact-bed effluent did not fall below 45°. Of course, the microbic action taking place in these beds is accompanied by distinct evolution of heat and it is owing to this fact that the temperature of the beds, and consequently also of the effluents, is not affected by atmospheric changes to any sufficient extent to interfere with their efficient working or with the development and growth of the bacteria required for purification. The results of the whole scheme, in fact, are such as to lead to the belief that it will prove an efficient one, and that the treatment of the sewage of the borough will be carried out in a more satisfactory manner and with less cost by this system than it could be by any other which has come under the notice of those entrusted with the solution of the problem. With this sort of evidence coming to hand almost day by day the probability is that the disposal of sewage by chemical means will sooner or later be abandoned.

THE NEW FACTORY AND WORKSHOP BILL.

RUNNING through the Government Bill to Amend the Factory and Workshop Act there is a tendency to substitute the local for the central authority in respect to the control and the inspection necessary to carry out the provisions of the law. Whatever abstract arguments may be adduced in favour of local government, practical experience clearly shows that in respect of sanitary questions small local bodies elected by the ratepayers are not to be trusted. For example, what has been done to prevent the terrible pollution of the Irwell and other Lancashire rivers? If the law were applied this pollution would not occur. Its application, however, is entrusted to the local governing bodies, but the manufacturers, who are the principal transgressors against the law, dominate at the elections and therefore year after year pretexts are discovered for not applying the law. Any legislation which appears to interfere with a local industry is likely to be resisted by the authorities elected in that locality. It is true that such interference has often proved to the advantage of the industries in question. It has led to the utilisation of what were considered waste products, and by improving the health of the workpeople has resulted in an improvement of the work which they are able to perform. Nevertheless, such measures are generally at first strenuously resisted. Whatever immediate advantage exists is fully appreciated; those that may result from a change are considered problematical. Thus reform as a rule has to be enforced from without. According to Clause 11 of the present Bill the power to forbid the giving out of work to places injurious to health is taken from the factory inspectors and is handed over to the local authority. It is true that Mr. Ritchie has promised to add subsequently a clause providing that where a district council neglects its duty in respect to outwork and outworkers a Home Office inspector may interfere. But who will volunteer to call the attention of the Home Office to such neglect? And what delay this will entail. A local authority is not likely to encourage the exercise of a strict control over, and the occasional prosecution of, its largest ratepayers and most influential electors; yet they are not infrequently among the principal transgressors against the laws enacted for the preservation of public health. The factory inspector who was appointed by the Home Office could do his duty without troubling himself as to how the owners of the factories which he inspected would vote at the next local election. But if as proposed the factory inspector is henceforth to be appointed by the local authority he will soon find out that it is expedient not to offend influential electors. Such a change would be a decided step backwards. It is no use improving the law if the means taken for its application are to be rendered less efficacious.

MEDICAL EXCURSIONS TO GERMAN WATERING-PLACES.

As briefly mentioned in the letter of our Berlin correspondent, which will be found on p. 107, arrangements have now been completed for the making of annual excursions by parties of medical practitioners and students to the various watering-places and mineral springs of Germany and Austria. The excursions are organised by the Comité zur Veranstaltung Aerztlicher Studienreisen in Bade- und Kurorte, and the first of them will start from Hamburg in the last week of next September for a trip of 11 days' duration to various health-resorts on the coast and islands of the North Sea, eventually returning to Hamburg. The expenses of the whole tour (everything being included except wine) amount to £5. The names of intending excursionists must be sent by August 20th at latest to one of the honorary secretaries, Dr. W. H. Gilbert, Baden-Baden, and Dr. P. Meissner, Kurfürstenstrasse 81, Berlin, W., from either of whom every information may be obtained.

EARLY ITALIAN MEDICAL WORKS.

IN 1894 the Eleventh International Medical Congress was held at Rome and in 1898 there was an Italian exhibition held at Turin. At both of these meetings there was a special department illustrating the history of medicine. The various documents have now been carefully catalogued and in some instances reproduced in a carefully printed volume[1] edited by Signor Piero Giacosa. Much of the book is taken up with reprints of hitherto unpublished treatises by masters of the school of Salerno. Of these the Catholica Magistri Salerni contains some most interesting information. Thus we note that the Master says concerning a cold: "Coriza est opilatio narium cum reumate." Could anyone in fewer words describe better that most annoying of all complaints? The treatment, too, we are sure, will interest sufferers: "Suffumigetur de asa fetida, serapino vel opoponaco vel bombace vetustissimo accenso et extinto, vel de vino decoctionis malve, foliorum lauri, semine lini, fenugreci aut meliloti et olebani vel de ipso olobano posito sub carbone vel storace vel laudano vel quolibet panno involuto de amurca olei accenso ex extinto vel de cornu caprino similiter subfumigentur." Besides all these the patient can, if he likes, poultice his nose with an application made of ground-up beans and pig's gall, or, if he prefer it, with a cooked onion. It will be noted that many of the drugs for the "suffumigation" are aromatics and would have an antiseptic effect. There are among the other MSS. reproduced two treatises upon the baths of Puteoli. Both MSS. are in the Biblioteca Angelica at Rome. One is in prose and has no illustrations, the other is written in verse and adorned with illustrations of the various baths. Though the sentiments are unexceptionable, the poetry is not—e.g.:

> Inter opes rerum Deus est laudandum in illis,
> In quibus humane deficit artis opus.

The illustrations give views of the various baths. We should note that Piero Giacosa's text is accompanied by a large portfolio of magnificent photogravures, reproductions of pages of MSS., illuminations, and the like. The illustrated MS. in the Angelica library is said to be of the thirteenth century, and a similar one of the same date, also in verse, was recently purchased at the Ashburnham sale by Mr. J. Leighton of Brewer-street, W., who very kindly permitted us to compare the illustrations in his MS. with those reproduced in Signor Giacosa's work. They are practically the same, although there is a slight difference in the details. The Angelica MS. apparently deals only with the baths of Puteoli. The MS. in Mr. Leighton's possession gives the "Nomina et Virtutes Balnearum Puteoli et Bayarum." The following are the verses descriptive of Bath No. II.:—

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[1] Piero Giacosa: Magistri Salernitani Nondum Editi. Torino: Fratelli Bocca. 1901.

De Balneo quod Sulphurata Dicitur.

[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
Intrabis securus aquas, nam corpora pura
Quum semel accipiunt servant sine labe salutem,
Inspirant quocunque modo, non balnea culpes
Affectum virtutis ama; nam saepe videmus
Quod fugiunt nares fugat hoc a corpore morbos.

In conclusion we must congratulate both Signor Giacosa and the publishers upon the production of a most interesting book.

THE PATHOLOGY OF GENIUS.

IN the July number of the *Popular Science Monthly* Mr. Havelock Ellis continues his series of papers upon British Genius. The article now before us deals with the pathology of genius, and Mr. Ellis has collected some interesting facts Out of 322 cases where he has been able to ascertain accurately, or nearly accurately, the cause of death, lesions of the brain occurred 35 times and pulmonary tuberculosis, including the somewhat doubtful case of Purcell, 30 times. Other forms of lung disease are only mentioned 15 times and of these nine deal with asthma. This, however, Mr. Havelock Ellis rightly points out is probably spasmodic asthma which is in no sense a true pulmonary disease. Gout is mentioned 38 times, and the gouty geniuses were very remarkable. A disease which can claim for its victims such men as Milton, Harvey, Sydenham, Newton, Johnson, Savage Landor, W. R. Hamilton, and Darwin is, indeed, a very Cæsar amongst diseases Mr. Havelock Ellis propounds a somewhat ingenious theory as to the concordance of gout with genius. The gouty man views the world with, as it were, two different brains. When uric acid is circulating in his blood he is gloomy and introspective. When the acid is deposited in his joints his brain becomes abnormally clear. He thus exhibits well-marked mental periodicity. Gout, however, must not be considered the cause of genius, but given a highly endowed organism the gouty poison acts as a stimulus. As for insanity, of 902 eminent persons some 5 per cent. were insane. Epilepsy is mentioned as having occurred in only two cases—Lord Herbert of Cherbury and Sir W. R. Hamilton. Other nervous or neurotic conditions are, however, fairly common. Many men of genius stuttered, many were singularly awkward in performing actions requiring muscular coördination, and many were "neurasthenic." In fact, Mr. Havelock Ellis's researches go to show that genius exists in persons highly charged with nervous energy, but the energy is ill-balanced and not equably distributed throughout the organism.

ANNUAL DINNER OF THE ASSOCIATION OF BRITISH POSTAL MEDICAL OFFICERS.

THE ninth annual dinner of the Association of British Postal Medical Officers was held on July 3rd at the Hôtel Métropole, London, Dr. J. Walton Browne (Belfast), the President, being in the chair. There was a large attendance of members and guests, including several Members of Parliament; Sir Robert Hunter, solicitor to the Post Office; Mr. E. P. W. Redford, secretary to the Post Office in Scotland; Mr. Baillie Gage, solicitor to the Post Office in Ireland; Sir William Mac Cormac, Sir Joseph Fayrer, Sir Dyce Duckworth, Sir James Crichton Browne, Dr. Tatham of the Registrar-General's Office, and Dr. James G. Glover. After the usual loyal and patriotic toasts had been given Dr. Henry Fitz-Gibbon proposed "The Board of Education and other State Departments." Sir George Kekewich, secretary to the Board of Education, in reply, said that the Cockerton judgment had left behind it a certain amount of chaos, and had made it difficult for an official of the Board to speak on the subject of education. Dr. Tatham also responded. Sir James Crichton Browne, in proposing "The Houses of Parliament," said that as medical men they were in favour of gradual and orderly development, and deprecated all violent changes, which were really acute diseases of the body politic and tended to degeneration. They thought the House of Lords might open its doors a little wider than it did, and that the House of Commons might endeavour to remedy its habitual malady, which had been termed "logo diarrhœa." Mr. Eugene Wason, M.P., responded. Sir Joseph Fayrer then proposed "The Royal Colleges of Physicians and Surgeons." Sir Dyce Duckworth (treasurer of the Royal College of Physicians of London) responded for that College. Sir William Mac Cormac (President of the Royal College of Surgeons of England) in his reply said that both Colleges maintained a high standard of professional education, and their examinations would bear comparison with those of any other institution. Sir Thomas Roe, M.P., proposed "The Postmaster-General, the Secretary, and other Executive Officers of the Post Office," to which Sir Robert Hunter and Mr. Edward Yeld replied. In the course of his remarks Sir Thomas Roe said that he was aware that medical officers felt that they had certain responsibilities in connexion with the hygienic condition of the premises occupied by workers whom they attended, and he trusted that it would not be necessary for either Parliament or any other body to interfere with the duties of the members of the association.[1] Sir John Leng, M.P., then proposed the toast of the evening, "The Association of British Postal Medical Officers," to which the Chairman replied.

THE LATE PROFESSOR JOHN HUGHES BENNETT.

ON July 20th a ceremony will take place at the University of Edinburgh which will be of interest to the friends, pupils, and admirers of the late Professor John Hughes Bennett. His daughter, Mrs. Cox, with the view of perpetuating his memory, has caused to be erected an experimental physiological laboratory, with theatre attached and all the accessories needful for modern teaching and research. This, along with a life-sized medallion in bronze of Hughes Bennett, is to be formally handed over to, and accepted by, the university authorities on July 20th. The public ceremony will be an eventful and impressive one, taking place in the McEwan Hall, on which occasion an address will be delivered by Sir J. Burdon Sanderson, Bart., when it is expected that all those interested in the late physician and teacher will attend.

THE DISTRIBUTION OF PLAGUE.

A TELEGRAM received at the Colonial Office on July 4th gives the following statistics of plague in the Cape Peninsula for the week ending June 29th. Fresh cases: European, 1; coloured persons, 3; Malays, 2; natives, 2; East Indians, 0; Chinese, 0; total for the week, 8. Corpses found: European, 1, Malay, 1, total 2. Deaths (including corpses found): European, 1, coloured person, 1; Malay, 1; total, 3.

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[1] An annotation on the sanitary inspection of post-office buildings was published in THE LANCET of June 29th, 1901, p. 1840.

The total cases and deaths up to June 29th are are as follows: Europeans, 184 cases and 63 deaths; other nationalities (Asiatics and African natives), 538 cases and 284 deaths. The Total up to June 29th, 722 cases and 347 deaths. The plague returns at Port Elizabeth for the week ending June 29th are as follows. Fresh cases: Europeans, 3; coloured person, 1; total, 4. Deaths, 0. The total cases and deaths up to June 29th are as follows: Europeans, 5 cases and 1 death; other nationalities (Asiatics and African natives), 13 cases and 8 deaths. The total cases of plague at all other places up to June 29th are as follows: Europeans, 4; coloured person, 1; natives, 4; total 9. On June 30th four cases of suspicious illness occurred in soldiers at Imvani station, midway between Cathcart and Queenstown in the Eastern Province, where an infected rat was found on June 25th, and a case of plague developed in an employé of the Railway Department on June 27th; otherwise the area of infection remains unchanged. Only nine cases have been reported from the whole of Egypt during the week ending June 30th. Eight of these cases have been reported from Zagazig, among which three deaths have occurred; one death out of hospital has occurred in Alexandria.

THE THAMES IN EFFERVESCENCE.

IT is sometimes said of a person of no particular promise or brilliancy that he will never "set the Thames on fire," or again, a similar expression is used for describing a chimerical and impossible scheme. Thus "You may as well attempt to set the Thames ablaze" is a frequent criticism and very often a perfectly just one. Portions of the Thames, however, have apparently been fired owing to the fact that oil in flames has been seen floating upon its surface, leaking away perhaps from a large oil store-house on fire on its bank or an oil-ship on its waters "well alight." But it is seldom that any part of the great historic waterway is seen to present the appearance of water in a rapid state of ebullition. We have known it as a babbling, but scarcely ever as a bubbling, stream. A bubbling turmoil of this kind, however, may just now be witnessed going on a little to the south of Charing-cross railway bridge. The phenomenon is very singular and calls to mind the natural effervescing springs which are so abundant in Germany, and particularly in the Rhine valley; indeed, the waters of the Rhine itself may at several points be seen to be bubbling violently with carbonic acid gas. It is not so with the Thames in the instance we are describing, for the effervescence is due to the air escaping from a caisson in which men are engaged excavating beneath the bed of the river for the purpose of constructing an electric railway tunnel. The bubbling indicates exactly where the work is proceeding. Sometimes it is near either bank, sometimes in mid-stream, and again in other places, altogether presenting a curious spectacle. It is enough to make the spectator shudder to think what would happen if at any moment the air pressure failed which keeps out the water, for if the pressure were relaxed the water would pour in. And so the sight of a copious stream of huge air-bubbles in the river on this occasion is a welcome one: it means that a superabundance of air exists and that they who labour beneath the bed of the stream may live.

WHAT SHALL WE DRINK?

THE hot days are upon us, when the tendency to thirst is considerably increased and the question may be profitably and appropriately discussed as to how it is best quenched. A perfectly safe answer, we know, would be, not with an alcoholic beverage, but that is only an evasive reply. The reproach is constantly hurled at the extreme temperance advocate that while he forbids wine and all other alcoholic beverages he has no substitute to suggest which can be regarded as possessing anything like the same degree of palatability. What temperance drink, for example, can equal a good cider, a well-brewed beer, not to mention a sound wine. The so-called temperance drinks, if not simply effervescing water are at their best washy concoctions, with a flavour it is true, but one not often pleasing. Then it is the fashion to make up a stock liquor and to charge it artificially with carbonic acid gas, and so instead of the good old-fashioned stone ginger-beer we encounter a perfectly clear decoction containing sometimes ginger and sometimes capsicum. Similarly lemonade is often merely a sugary solution of tartaric or citric acid into which carbonic acid gas is forced, the gas helping in no small measure to keep the composition of the beverage a mystery. Though these may be wholesome enough in their way they are respectively very inferior to brewed ginger-beer or to a lemon squash in which the juice of a fresh lemon is used. Brewed ginger-beer, however, is, strictly speaking, not non-alcoholic, though we doubt if it has ever been recorded that a person got intoxicated on it. In hot weather it is often forgotten that what we drink hot in the winter will afford excellent and wholesome beverages when iced in summer. Thus, iced weak tea and coffee, or even soups, are most refreshing, wholesome, and palatable. Then plain or aerated barley or oatmeal water with a little lemon is an excellent and very salutary beverage. Lime-juice moderately aerated may also be counted as a healthful hot-weather drink. But it is well to bear in mind that even innocent beverages like these can be easily partaken of to a harmful excess. Too much iced-water drinking often proves injurious. To sip rather than to drink should be the guiding principle when thirst is excessive and frequent, and at such times alcohol should be avoided, those beverages rather being chosen which have a cooling effect upon the system. Soda-and-milk is an excellent beverage taken in moderate quantities. Let it be remembered that thirst is a perfectly healthy manifestation and a demand which calls for a healthy answer.

STRUCTURAL IMPROVEMENTS AT THE LONDON HOSPITAL.

THE opening of the new Pathological Institute and the distribution of prizes to the students and the nursing probationers by Sir Henry E. Roscoe, Vice-Chancellor of the University of London, took place on July 10th. The new Pathological Institute has been erected by the House Committee to replace the old post-mortem room and mortuary. The institute consists of two post-mortem rooms with a complete set of laboratories for pathological anatomy, chemistry, and bacteriology in the floor above. Two rooms have been set apart for those who intend to undertake some serious research in pathological anatomy. The Hon. Sidney Holland, speaking on behalf of the Committee of the London Hospital and of the staff, invited Sir Henry Roscoe to declare as open for all time the Pathological Institute, the building of which was an attempt by the hospital authorities to recognise their responsibility to utilise all possible opportunities of helping future generations. Sir Henry Roscoe said that the pathological anatomist, unlike the chemist and physicist, must stand in the closest possible relation to hospital practice. His was the ultimate court of appeal for both physician and surgeon, and in order that his subject might advance he must have access to complete clinical records based on the most advanced knowledge of practical medicine. Moreover, from the nature of the material that occupied his attention the work of the pathological anatomist was intimately bound up with the work of the hospital. In every well-organised laboratory the workers, from the highest to the lowest, formed a family bound together by what might properly be termed the laboratory spirit. The true "laboratory" atmosphere was not that of masters and pupils, but rather that of friends and co-workers; it did not strive after mutual admiration or gain, but it sprang from the knowledge that all who worked in union were united by a recognition of the value of ideas and of honest work. But in order that this true ideal of a laboratory for study and research might be realised mere buildings and equipments were insufficient. There must be at its head a master spirit who could infuse into all the workers his own enthusiasm; a laboratory worked on those lines was the most democratic institution in the world. A man who entered such an atmosphere was judged of by no fictitious attributes of position or power, but solely by his capacity for work and by his love of truth. Lord Lister, in a few words, expressed his approval of the institute and its object. In the course of the afternoon Dr. Stephen Mackenzie, Professor Clifford Allbutt, and Mr. Mansell Moullin also addressed those present. The distribution of prizes took place in the library of the Medical College, the proceedings exciting the greatest enthusiasm, especially on the part of the friends of the successful students and nursing probationers. Miss Kathleen S. Miller won the first prize among the nurses and was warmly congratulated by Sir Henry Roscoe.

THE usual breakfast given by the National Temperance League in connexion with the annual meetings of the British Medical Association will be held on Thursday morning, August 1st, at eight o'clock, in the Parish Room, St. James's-square, Cheltenham. Cards will be sent to any person desirous of attending who will communicate with Mr. John Turner Rae, secretary of the National Temperance League, 34, Paternoster-row, E.C.

H.R.H. PRINCESS LOUISE, DUCHESS OF ARGYLL, performed the opening ceremony at the Kensington Dispensary and Children's Hospital on Monday afternoon last. The addition of a children's ward to the Kensington Dispensary is generally felt in the neighbourhood to be a sound departure.

A GARDEN party was given at Guy's Hospital on July 10th on the occasion of the distribution of medals and prizes to the students by Lord James of Hereford. Mr. Cosmo Bonsor, the treasurer, mentioned that he had received a cheque for £1000 as a thank-offering from Lord Portman.

WE have received Vol. XXXVIII. of the Minutes of the General Medical Council and of its various committees and branch councils from Jan. 1st, 1901, to June 11th, 1901. There are also published with the Minutes 10 appendices comprising various reports and tables.

HER MAJESTY QUEEN ALEXANDRA has graciously intimated her intention of presenting certificates to the eighth and ninth thousand nurses who have joined the Royal National Pension Fund for Nurses, at Marlborough House on Friday next, July 19th.

THE sixtieth annual meeting of the Medico-Psychological Association of Great Britain and Ireland will be held in the medical school of the Queen's College, Cork, Ireland, on Thursday and Friday, July 25th and 26th, under the presidency of Dr. Oscar T. Woods.

THE Public Health Committee of the London County Council brought up at the last meeting of the Council a report containing certain valuable recommendations for restraining the sale of filthy ice-creams. The report was adopted by the Council.

DR. J. J. MARSH has been promoted from Honorary Associate of the Order of the Hospital of St. John of Jerusalem in England to Knight of Grace.

ROYAL MEDICAL BENEVOLENT COLLEGE, EPSOM.

THE twenty-eighth festival dinner of the Royal Medical Benevolent College, Epsom, was held in the Grand Hall of the Hotel Cecil on July 9th, when the Earl of Rosebery, K.G., President of the College, presided. During the course of the evening subscriptions amounting to £4127 were announced by the Treasurer, including 1000 guineas from an anonymous friend and 100 guineas from the Chairman.

After the loyal toasts had been honoured, Lord Rosebery proposed "Success to Epsom College," and in his prefatory remarks described the adjectives connected with the name of the College as being superabundant. As the president of the College he suggested that those adjectives should be left out of the title altogether and the institution called simply Epsom College, with the words "Royal Medical Foundation" as a sub-title. Incidentally, he remarked that he did not see why Epsom College should not rise to the level of Eton. As to the statistics of Epsom College, they were embodied in papers which were circulated among those present. The facts were these, that there was a foundation—he left out the pensioners from his consideration that night, he did not quite know how they became connected with Epsom College—there were 50 foundation scholars in Epsom College for whom exhibitions had to be found from some fund or other, and then there was a difference which had to be met from public funds for those who were sons of medical men and those who were not sons of medical men. That represented a sum of some £6000 a year. The fixed income of the establishment was not one-third of that and considerable reinforcements were required from outside. He took the greatest interest in the school and he had known some of the lads personally as they passed from the school. They could not see finer lads anywhere than they saw in Epsom College. He did not believe that anyone who was conversant with the position which those boys held could refrain from giving it their enthusiastic support. Considering the nature and conditions of the College, how closely it was allied to the medical profession, it was right to ask for a larger support from the public and the profession. From the profession perhaps first, but also from those who had benefited by it: "The devil was sick the devil a saint would be," but when the patient was well he was apt to forget to whom it was that he owed that he was well. They owed much to those who cured them, and in an indirect way by assisting the institution in whose aid they had met that evening, they could show in some measure their gratitude. Did they not all owe a debt which they could not estimate or limit to the medical profession? All professions and all callings had their pain, but of the medical profession alone, perhaps, of all secular professions it might be said that a man on his setting out to do his day's work knew that he could have no object but a beneficent object—to heal and to assuage pain, to combat, and with ultimate ill-success, the chill angel of death. This was a consideration, he thought, which comprehended all humanity in the debt to the medical profession—a profession equal to its duty, whether on the battlefield in South Africa or in the not less arduous task of combating disease at home. They pursued that duty only at the cost of their own lives. It was very easy to fancy that the medical profession was nothing but a brilliant and well-paid one; but when they came to think of the great number of medical graduates turned out every year, and that there were some 30,000 medical men in Great Britain, or perhaps outside of Great Britain just now, they could not but feel that the number of blanks in that profession must be out of all proportion to the number of prizes. The princes and the prizemen were at that dinner, but that was only a small percentage of the great number in the country and of the small practitioners in the towns who were at the beck and call of disease and pain by day and by night, at every hour, in every weather. It was a noble profession, but it was in many cases a profession of forlorn hopes. Those men, when they died, died as truly in the service of their country as many of the men who fell in charge of batteries. They might leave behind them a wife whom they could not maintain, children whom they could not educate. It was for these children that they pleaded that night. There was one medical student—the worst physician, he believed, but the most famous medical student—who in the eighteenth century lay dying not far from there, and as he lay dying—it was an episode he could never forget—they gathered round and asked him, "Is your mind at ease?" The answer, in the words of Lord Macaulay, which had never been obliterated from his mind since he read them, was, "No, it is not." Those were the last recorded words of Oliver Goldsmith. They were the words of thousands who died with that feeling and who belonged to the great profession to which so many there belonged. He asked them to come that night to the assistance of Epsom College with the assurance that everything they gave would be well and worthily expended and that they would have done no better deed in their lives than by assisting to maintain that noble institution

Dr. Holman, the treasurer, in reply to the toast, said that he was quite unable to follow in the eloquent footsteps of Lord Rosebery, but he did not believe that there was a single word uttered by the chairman with which he himself did not completely concur. At the first dinner held after he became an officer of the College he had said that the public did not do their duty to medical men who ministered to their medical needs, and he still held that view. The adjectives attached to the name of the College, he thought, might well be omitted, and he might mention that in the last Act of Parliament which the Council obtained they took the opportunity of deleting the words "medical" and "benevolent" in the clauses of that Act. Epsom College was mainly built by John Propert and members of the medical profession, and Propert could scarcely do less than call a college "medical" which was built by the funds of medical men. With regard to the benevolent part, he had seen in his long life the enormous amount of misery amongst his profession, to relieve which in a very humble way Propert instituted the two classes of pensioners and foundation scholars. It went without saying that in the profession of medicine there must be failures which carried with them misery and suffering. Dr. Holman gave the case of a medical man who, in hastening to the succour of a burnt child, was himself burnt with lightning whilst crossing a wild heath in a storm as a case in which the bread-winner was untimely torn from his family which relied upon him for support, and made the story terribly vivid by detailing personal experiences of his own that might have ended in a like tragic manner. The idea in John Propert's mind, he continued, was not to form a class school but a mixed school—a form of education which he believed was the best. The needs of the school amounted to about £6000 a year, though the numbers varied considerably. Since he had been treasurer some £17,000 or £18,000 had been apportioned to foundation scholarships and pensionerships. To diminish in any way the amount of relief which had hitherto been afforded would result in incalculable misery. If those present and their friends would only make the position of the pensioners and foundation scholars secure the adjectives might go; but the difficulty which he had each year to meet the requirements convinced him that unless people had a *quid pro quo* they would not give the money. That was painful for him to say, but it was true. If the Council were provided with £50,000 they would wipe the whole thing out as regards benevolence altogether; but he did not feel justified in doing so without that security.

The toast of "The Chairman" was proposed by Dr. J L. Propert, a son of the founder of Epsom College, in felicitous terms, his lordship's all-round qualities being insisted upon and reference in particular being made to his sporting successes.

Dr. Holman announced the donation of 1000 guineas from an anonymous friend who had been moved to generosity by Lord Rosebery's speech.

Lord Rosebery said that although the subject of the speech to which he was replying was necessarily a fascinating one to himself he would set limits to his egotism. He was anxious to remove the impression that might be created by Dr. Propert's allusions to his racing successes as to the character of the College over which he presided. He understood that during race meetings the boys were strictly confined to bounds.

A well-arranged evening was brought to a pleasant close by Lord Rosebery's humorous words.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

AN extraordinary meeting of the Comitia was held on July 4th, Sir W. S. CHURCH, the President, being in the chair.

The PRESIDENT alluded to the cordial reception which was given to the delegates of the College at the recent conference held at Glasgow and announced amidst acclamation that the University of Glasgow had conferred upon him the degree of D.C.L. *honoris causâ.*

A report, dated May 6th, from a special committee of the two Colleges appointed to consider their financial position in relation to the laboratories was received and entered on the minutes, the proposer and seconder being Dr. T. T. WHIPHAM and Dr. W. CAYLEY. In relation to the above a communication from the secretary of the Royal College of Surgeons of England, dated June 21st, was read, reporting further proceedings of the Council on June 20th and forwarding a report of their Finance Committee, dated June 5th, making certain proposals for meeting the working expenses of the laboratories for another year.—Sir DYCE DUCKWORTH moved, and Dr. F. W. PAVY seconded, that thanks be returned to the Royal College of Surgeons for their generous offer.—Sir DYCE DUCKWORTH also moved that for another year, provided that the expenses be strictly limited to £1300, the Royal College of Physicians of London are prepared to bear their share as heretofore in carrying on the work of the laboratories.—Dr. ROSE BRADFORD seconded this motion, which was carried, and also suggested that the expenses of the workers in the laboratories should be defrayed by themselves.—Sir DYCE DUCKWORTH moved, and Dr. PAVY seconded, that a special joint committee of the two Colleges be appointed for carrying on the work of the laboratories.—Dr. NORMAN MOORE proposed, and Dr. W. H. ALLCHIN seconded, that Dr. Rose Bradford's name be added to the committee.—This was carried.

A report, dated June 7th, of the Laboratories Committee was adopted.

The Committee of Management presented a report, dated June 10th.—Dr. NORMAN MOORE proposed, and Dr. S. MACKENZIE seconded, that the proposed regulation that the teaching of the administration of anæsthetics to all candidates for the diplomas of L.R.C.P. and M.R.C.S. be referred back to the committee.—This was carried.

A communication was received from the Dublin Sanitary Association suggesting the transfer of pneumonia from the respiratory to the zymotic class in the "Nomenclature of Diseases," with letters from the Registrar-General for Ireland and the Royal College of Physicians of Ireland.—Dr. J. F. PAYNE moved, and Dr. THEODORE WILLIAMS seconded, that the question be deferred for discussion until the new edition of the "Nomenclature of Diseases" was in preparation when the matter should receive the serious consideration of the College.—This was carried.

The REGISTRAR moved that the amendment of the by-laws, in conformity with the revised regulations of the Conjoint Board, adopted May 9th, 1901, should be re-enacted for the first time.—This was seconded by Dr. NORMAN MOORE and carried.—The result of this resolution is that in future proofs of registration by the General Medical Council will no longer be required of candidates for diplomas granted by the Conjoint Board.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

ELECTION OF PRESIDENT.

AT a meeting held on July 11th, Mr. H. G. HOWSE was elected President of the College, and Mr. T. R. JESSOP and Mr. HOWARD MARSH were elected Senior and Junior Vice-Presidents.

ANNUAL MEETING OF FELLOWS.

THE annual meeting of Fellows was called for July 4th, at 5 30 P.M., but no one expected that a quorum (30) would be obtained. The President, Sir WILLIAM MAC CORMAC, Bart., K.C.B., K.C.V.O., and the senior Vice-President, Mr. JOHN LANGTON, with the 16 Fellows who attended, waited for a quarter of an hour in vain.

The abstention of the Fellows is not surprising when it is remembered that there were no agenda and that no meeting had been held since 1897.

Some informal remarks were made suggesting a reduction in the number required for a quorum, but the President did not hold out any hopes of a change.

It is not improbable that the fixed meetings of Fellows will be abandoned, though meetings might be called when necessary.

ADDITIONS TO THE MUSEUM.

On Thursday, July 4th, and the following two days, the Conservator, Professor C. Stewart, F.R.S., exhibited in the Council-room the additions made to the museum during the previous year. When only personal voting for the Council existed this annual exhibition was visited by a large number of Fellows, but now that less than 20 Fellows vote personally the new specimens do not receive the attention that they deserve. There are many interesting pathological specimens, and among them may be specially mentioned a base of a skull which shows a bullet embedded in the body of the sphenoid; the patient survived the injury for many months, but suppuration ultimately occurred at the base of the brain and it proved fatal. There are two examples of excisions of joints which were performed many years ago; one exhibits the portions of bone excised from the elbow by Mr. John Tudor in 1857 and the other shows the excised lower end of the ilium removed by Sir James Grant in Canada in 1864. Mr. Thomas Bryant has presented some curious little elongated calculi removed from the bladder; they have formed on pubic hairs introduced in catheterisation. There is an excellent example of an ovarian pregnancy which was removed by Mr. H. Littlewood from a patient under the care of Mr. G. P. Anning. Mr. F. W. Collingwood has presented a curious native instrument for opening abscesses; it comes from Funafuti, one of the Ellice Islands, and consists of a shark's tooth fastened to a small rod. Mr. J. D. Malcolm has given a very fine dendritic renal calculus and Mr. Bryant a curious double calculus. In the physiological series there are numerous dissections of the muscles and organs of a hedgehog and of a three-toed sloth (Bradypus tridactylus). Three specimens show "Stewart's organs," which are internal branchiæ; the forms shown are Cidaris tribuloides, Diadema saxatile, and Asthenosoma hystrix. The nervous systems of many invertebrates have been most exquisitely dissected and an enlarged model and drawings have been made of the cerebral ganglia of a blackbeetle copied from originals constructed on a new plan by Mr. E. T. Newton who kindly lent them for the purpose. Brains from three gorillas, three orang-outangs, two chimpanzees, and three chiromys obtained from the Zoological Gardens are also exhibited and show the convolutions well. The life-history of a fish (Rhodeus amazus) is illustrated by a series of specimens. A number of Chinese skulls and skeletons have been obtained and are especially of value as the museum was deficient in this branch. Skulls from various Pacific islands are also shown.

ASYLUM REPORTS.

Leicestershire and Rutland Lunatic Asylum (Annual Report for 1900).—The average number of patients resident during the year was 488 and comprised 216 males and 272 females. The admissions during the year amounted to 107—viz., 36 males and 71 females. Of these, 94—viz., 31 males and 63 females—were first admissions. Mr. Rothsay C. Stewart, the medical superintendent, states in his report that 20 female patients are boarded out at the Wells Asylum and 18 at the Beverley Asylum. Of the admissions 23 were known to have had previous attacks of insanity and 34 cases showed some hereditary tendency. The number of epileptics was six and of general paralytics only two, the latter being the lowest number on record for years. During the year 34 patients—viz., 10 males and 24 females—were discharged as recovered, or 6·96 per cent. of the average number resident. The number of deaths during the year amounted to 49—viz., 25 males and 24 females, or 10·04 per cent., as calculated on the same basis. A male patient, admitted in a very exhausted condition, died on the evening of his admission. Amongst the deaths three were due to cerebral softening, two to pneumonia, four to epilepsy, five to general paralysis, six to senile decay, 10 to cardiac disease, and 10 to phthisis and other forms of tuberculosis. There were four accidents involving fractures of bones; three of these were due to accidental falls and one was the result of a violent kick from a patient. All these patients made good recoveries from their injuries. No inquest was held and there was no serious attempt at suicide. Mechanical restraint was not found necessary in a single case. Two male attendants were dismissed for insubordination; with these exceptions the conduct of the staff has been satisfactory. Several of the attendants were still out with their regiments in South Africa and their continued absence was sadly felt. The erection of a new asylum for the two counties had been decided upon and the detailed plans and sections of the buildings, prepared after consulting with, and receiving the consent of, the Commissioners in Lunacy, had been passed. The committee of visitors to the asylum state in their report that the profit derived from the farm and garden amounts to £353 3*s.* 8*d.*, which has to be deducted from the deficiency on maintenance account, leaving a net deficiency for the year of £721 9*s.* 7*d.*, as against a surplus of £23 13*s.* 7*d.* for the previous year. The average weekly cost of maintenance of patients during the year has been 9*s.* 4¾*d.*, as against 8*s.* 9¾*d.* for the previous year. The aggregate expenditure on building repairs for the year has been £1321 13*s.* The Commissioners in Lunacy state in their report that the wards were in good order and the rooms bright and cheerful. The behaviour of the patients was very tranquil and their dress was neat and varied. In the very favourable proportion of 90 per cent. of the deaths post-mortem examinations were made. The post-mortem books and case-books were kept carefully and with intelligence, and were illustrated by excellent photographs of the patients on admission and on discharge.

Public Health and Poor Law.

LOCAL GOVERNMENT BOARD.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

Rhondda Urban District.—This is a rapidly increasing district, the population of which has risen from 88,351 in 1891 to 129,028 in 1900, and there are now only 19 towns in England and one in Wales with a larger population. The illegitimate births in the Rhondda during 1900 amounted to 24 per 1000 of the total births, and Mr. Herbert Jones remarks that in 1899, the year of the strike, there were fewer illegitimate births than in the previous year or in 1900. Among these illegitimate births the mortality was no less than 308 per 1000 in 1900, and probably even these figures do not convey a correct idea of the magnitude of the evil. In connexion with diphtheria Mr. Jones has shown that he is fully alive to the influence which animals may have in the spread of the disease by issuing a notice to poultry-keepers drawing attention to the symptoms of diphtheria in fowls and to the dangers arising therefrom. With respect to puerperal fever Mr. Jones is to be congratulated upon his vigorous measures. When a case of this disease is notified the nurse in attendance is sent to the hospital, her clothing is passed through the disinfector, and she is given a thorough bath. Special attention is paid to her hands and nails.

Borough of Finsbury (Western Division), Clerkenwell.—Dr. George Newman reports that during the last six years there have been 98 houses in Clerkenwell in each of which more than one case of phthisis has occurred; in some instances there have been several cases. The persistence of infected dust is, Dr. Newman thinks, the cause of the repeated invasion of certain houses, and as a consequence he has persuaded the Public Health Committee to adopt a system of voluntary notification of acute phthisis (cases with mucopurulent discharge or infective sputum from the lungs). The usual payment of 2*s.* 6*d.* is made for each notification and although it is perhaps too early to judge of the results Dr. Newman is so far satisfied that the measure is valuable. It is to be hoped that at the forthcoming Congress on Tuberculosis this subject of the notification of pulmonary tuberculosis will be adequately discussed and that if there is an overwhelming opinion in favour of, or against, such a measure, that it will find expression in a formal resolution.

Belfast Urban District.—The Market Committee of the Belfast Corporation have recently visited certain abattoirs in England and on the Continent, and a report upon the expedition has now been presented. Visits were made to England, France, and Germany, but in the first-named country the attention of the committee appears to have been limited to the City of London Corporation Markets at Smithfield. The report describes the method adopted for dealing with the diseased meat seized at Smithfield. Such meat is steeped in a bath containing picric acid, and when sufficiently stained and coloured it is sold to a contractor who is apparently bound to destroy it. But upon this matter the report, without affording much information, states that the deputation is of opinion that there should be no handling of such meat by *anyone not under the direct supervision and authority of the corporation.* In Paris attention was mainly directed to the abattoir known as "La Villette," and plans, &c., thereof are furnished in the report. The deputation were much struck with the stamping of the meat, and they think that every corporation should adopt similar precautions. They do not, however, recommend that the Paris models should be followed, and they regard the arrangement for pig-slaughtering and singeing as very primitive; there are apparently no pig-singeing furnaces in use, the process adopted being to cover the carcasses with straw which on being ignited singes the pigs. The system used for the destruction of condemned meat is also, in the view of the deputation, very primitive. In the slaughtering of pigs Paris has, the report states, much to learn from Dublin. From Paris the deputation proceeded to Barmen in North Germany which is regarded as one of the best equipped abattoirs in Europe. They regarded the mechanical arrangements in the slaughtering-houses as eminently satisfactory, and they were much struck by Herr Koch's pig-killing apparatus which consists of a bolt which is driven into the skull of the pig and which is drawn back by means of a specially constructed lever. By this method all damage to the skull or soft parts is avoided, as also is the suffering which must attend prolonged slaughter by the knife. In the central Vieh-hof in Berlin the custom is to knock the pigs on the head with the back of an axe, and the result is that a comparative silence prevails in the abattoir. Diseased animals and slaughter-house refuse are destroyed in a double Podewil's apparatus, a full description of which is given in the report. Briefly stated the apparatus aims at utilising all the valuable ingredients of the carcass. The system by which meat of little value is offered for sale in the "Freibank" is of interest. Only meat which has been cooked can be there offered for sale, and hence there can be no likelihood of such meat being sold as thoroughly sound In one of the several appendices to the volume before us an account is given of the municipal knacker yard in Hamburg, and Hartmann's meat steriliser, which is used for rendering unmarketable meat palatable, is described. As a result of these inspections the deputation made the following recommendations. 1. That the stamping of all meat before sale to the public shall be made compulsory. 2. That a veterinary surgeon shall be appointed to take charge of the inspection and stamping both of live animals in the market and of meat before sale. 3. That the condemned animals, carcasses, or meat shall not be removed from the abattoir under any pretence, but shall be retained and destroyed by a qualified staff in the employment of the corporation *only*. 4. That the system adopted for the treatment of condemned meat shall be that known as Podewil's. The cost of the necessary apparatus will not exceed £2000, as the buildings can be erected to suit the apparatus without any exceptional delay and will be capable of dealing with the probable quantity of condemned meat in the city for many years. We have given these recommendations in full because other corporations may be glad to know what Belfast proposes to do.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 33 of the largest English towns 6250 births and 3325 deaths were registered during the week ending July 6th. The annual rate of mortality in these towns, which had been 15 0 and 14·8 per 1000 in the two preceding weeks, rose again to 15·1 per 1000 last week. In London the death-rate was 14·4 per 1000, while it averaged 15·6 in the 32 large provincial towns. The lowest death-rates in these towns were 9·3 in Leicester, 10·7 in Burnley, 11·0 in Swansea, 11·3 in Derby, and 11·6 in Norwich; the highest rates were 19·3 in Gateshead and in Newcastle, 19·6 in Blackburn, 20·2 in Birkenhead, and 21·9 in Liverpool. The 3325 deaths in these towns last week included 431 which were referred to the principal zymotic diseases, against 357 and 399 in the two preceding weeks; of these, 157 resulted from diarrhœal diseases, 95 from measles, 63 from diphtheria, 62 from whooping-cough, 37 from scarlet fever, and 17 from "fever" (principally enteric). No death from any of these diseases was registered last week in Croydon, in Norwich, or in Halifax; in the other towns they caused the lowest death-rates in Swansea, Plymouth, and Preston, and the highest rates in West Ham, Portsmouth, Birkenhead, Liverpool, and Bolton. The greatest mortality from measles occurred in West Ham, Wolverhampton, and Birkenhead; from scarlet fever in Derby and in Blackburn; from whooping-cough in Bradford; and from diarrhœal diseases in Portsmouth, Birkenhead, Liverpool, Bolton, and Leeds. The mortality from "fever" showed no marked excess in any of the large towns The 63 deaths from diphtheria in the 33 towns included 27 in London, seven in Leeds, four in Liverpool, and four in Manchester. No fatal case of small-pox was registered in any of the 33 towns last week; two small-pox patients were admitted into the Metropolitan Asylums hospitals during the week, and six remained under treatment on Saturday, July 6th. The number of scarlet fever patients in these hospitals and in the London Fever Hospital at the end of the week was 2895, against numbers increasing from 1522 to 2821 on the ten preceding Saturdays; 363 new cases were admitted during the week, against 323, 369, and 408 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had declined from 240 to 141 in the five preceding weeks, rose again last week to 165, but were 46 below the corrected average. The causes of 28, or 0 9 per cent., of the deaths in the 33 towns were not certified, either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Bristol, Manchester, Bradford, Leeds, Newcastle, and in 15 other smaller towns; the largest proportions of uncertified deaths were registered in Liverpool, Sheffield, and Gateshead.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 18·6 and 17·3 per 1000 in the two preceding weeks, rose again to 19·0 per 1000 during the week ending July 6th, and showed an excess of 3·9 per 1000 over the mean rate during the same period in the 33 large English towns. The rates in the eight Scotch towns ranged from 6·3 in Perth and 15·1 in Dundee to 20·6 in Glasgow and 24·8 in Leith. The 606 deaths in these towns included 25 which were referred to measles, 25 to whooping-cough, 19 to diarrhœa, seven to scarlet fever, three to diphtheria, one to small-pox, and one to "fever." In all, 81 deaths resulted from these principal zymotic diseases last week, against 97 and 86 in the two preceding weeks. These 81 deaths were equal to an annual rate of 2·5 per 1000, which was 0·5 per 1000 above the zymotic death-rate last week in the 33 large English towns. The fatal cases of measles, which had been 25 in each of the two preceding weeks, were again 25 last week and included 16 in Glasgow, four in Dundee, two in Edinburgh, and two in Leith. The deaths from whooping-cough, which had been 44 and 30 in the two preceding weeks, further declined last week to 25, of which 12 were registered in Glasgow, four in Edinburgh, three in Dundee, three in Leith, and two in Paisley. The fatal cases of diarrhœa, which had been 17, 13, and 24 in the three preceding weeks, declined again to 19 last week, and included seven in Glasgow, four in Dundee, three in Leith, and three in Greenock, The deaths from scarlet fever, which had been eight and two in the two preceding weeks, rose again last week to seven, of which four occurred in Glasgow, where the three deaths from diphtheria and the fatal case of small-pox were also recorded. The deaths referred to diseases of the respiratory organs in these towns, which had been 92 and 95 in the two preceding weeks, were again 95 last week, and showed an excess of 23 over the number in the corresponding period of last year. The causes of 24, or nearly 4 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The annual rate of mortality in Dublin, which had been 20·2 and 18·2 per 1000 in the two preceding weeks, rose again to 20·7 during the week ending July 6th. During the past four weeks the death-rate has averaged 19·7 per 1000, the rates during the same period being 14·0 in London and 17·5 in Edinburgh. The 149 deaths of persons belonging to Dublin registered during the week under notice were 18 in excess of the number in the preceding week, and included seven which were referred to the principal zymotic diseases, against 10 and five in the two preceding weeks; of these three resulted from diphtheria, two from whooping-cough, one from "fever," and one from diarrhœa. These seven deaths were equal to an annual rate of 1·0 per 1000, the zymotic death-rate during the same period being 1·8 in London and 1·5 in Edinburgh. The three fatal cases of diphtheria showed an *excess over the number recorded in any recent week.* The deaths from whooping-cough, which had declined from five to two in the four preceding weeks, were again two last week. The 149 deaths in Dublin last week included 21 of children under one year of age and 41 of persons aged upwards of 60 years; the deaths of infants showed a slight decline, while those of elderly persons corresponded with the number in the preceding week. Eleven inquest cases and six deaths from violence were registered; and 58, *or more than one-third, of the deaths* occurred in public institutions. The causes of nine, or more than 6 per cent, *of the deaths in Dublin last week were not certified.*

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE

THE following appointments are notified:—Fleet Surgeon G. Kirker to Haslar Hospital. Staff Surgeons: F. J. Burns to the *Trafalgar* and R W. Anderson to the *Andromache.* Surgeons: E. A. Shaw to the *Apollo;* C. T. Baxter to the *Repulse;* H. V. Wills to the *Niobe;* and P. T. Sutcliffe to the *Duke of Wellington.*

MILITIA MEDICAL STAFF CORPS.

Surgeon-Lieutenant W. Fletcher, D.S.O., to be Surgeon-Captain, and to remain seconded. The undermentioned officers are seconded for service with the Royal Army Medical Corps in South Africa:—Surgeon-Captain A. H. Benson and Surgeon-Lieutenant J. Clerke.

VOLUNTEER CORPS.

Rifle: 24th Middlesex: Surgeon-Captain A. Eddowes resigns his commission.

VOLUNTEER MEDICAL STAFF CORPS.

The Glasgow Companies:—To be Surgeon-Lieutenants: Samuel Macfarlane Sloan, Hugh Wright Thomson, and Archibald Young.

SOUTH AFRICAN WAR NOTES.

The transport *Montfort*, which went ashore on Hampstead Ledge, Newtown, Isle of Wight, on July 5th, and which was subsequently refloated, had on board, returning from South Africa, Civil Surgeons Hodge and Holt.

Major O'Callaghan, Major Hale, D.S.O., and Civil Surgeons A. Strange, H. Y. Taylor, and Boyd are on passage home.

MENTIONED IN DESPATCHES.

The *London Gazette* of July 9th contains a long despatch from Lord Kitchener in which the following officers are mentioned:—

In connexion with the action near Lombert's Bay, Cape Colony, March 1st, 1901, Captain L J. Weatherbe, attached, Royal Army Medical Corps, medical officer, of Paget's Horse, is referred to as having rendered valuable service throughout the day. He took out an ambulance twice under heavy fire. Captain A. H. Sturdee, Victorian Imperial Regiment, medical officer at Middelwater, Cape Colony, on April 22nd, rode half a mile under fire to a donga near the enemy's position in which were some wounded men who needed medical aid. Lieutenant J. H. Patterson (medical officer) in an action near Rhenoster Kop on May 7th proceeded under fire to within 70 yards of the enemy in order to assist wounded men and remained under close fire for over two hours, and, though constantly shot at, continued to attend the wounded and remained behind with them when the patrol withdrew, though he was without red cross brassard.

DEATHS IN THE SERVICES.

Surgeon John Gallagher Corry, R.N., of H.M. cruiser *Niobe*, one of the ships of the Channel Squadron, on July 7th, from phthisis, at the Royal Naval Hospital, Stonehouse. Surgeon Corry, who received his medical education at Queen's College, Galway, and Edinburgh University, graduated M.B, B.Ch, and B A.O. of the Royal University of Ireland in 1897 He entered the Royal Navy as a surgeon on May 23rd, 1898, and was appointed to the *Niobe* on April 23rd last. Surgeon Corry was only a few weeks ago replaced in the *Niobe* by Surgeon P. T. Sutcliffe in order that he might have the benefit of hospital treatment. The deceased was very popular amongst his brother officers and much regret is felt at his early death.

Fleet Surgeon Matthew Fletcher Ryan, R.N., retired, died suddenly at the Junior Army and Navy Club on July 5th from heart disease He entered the service in 1868 and retired with the rank of Fleet Surgeon in 1898.

THE NEW NAVAL HOSPITAL AT KEYHAM.

Rapid progress in being made with the naval hospital attached to the Royal Naval Barracks at Keyham. The new building which, it is hoped, will be ready for occupation by January next, will provide accommodation for 40 patients. The hospital, which will be used solely by the medical staff *at the general depôt, will greatly relieve the heavy demands* made on the resources of the Royal Naval Hospital at Stonehouse.

Correspondence.

"Audi alteram partem."

VIRCHOW'S EIGHTIETH BIRTHDAY.

To the Editors of THE LANCET.

SIRS,—I learn from Professor Waldeyer that Virchow's eightieth birthday will be celebrated in Berlin on Saturday, Oct. 12th, when he will personally receive delegates with congratulatory addresses from various scientific bodies, foreign as well as German.

A preliminary notice of the intended celebration was given by Sir William Turner at the meeting of the General Medical Council last November to the representatives of the universities and medical corporations on that body; and if such of them as desire to be represented on the occasion will kindly send to me as soon as convenient the names of the delegates appointed I will communicate them to Professor Waldeyer who is the president of the executive committee. Further particulars as to arrangements will be furnished later. The insertion of this letter in your columns would oblige

Yours truly,
LISTER.

12, Park-crescent, Portland-place, W., July 6th, 1901.

"UNBOILED v. BOILED MILK."

To the Editors of THE LANCET.

SIRS,—The kind and forcible criticisms which my letter has evoked and the substantial agreement with my views which other correspondents express, equally make it evident that in this question I have hit the nail on the head. From the interest shown in the subject it is clear, too, that the time has arrived for the profession to exert its influence in practice.

That epidemics arise from impure milk there can be no doubt, and that infants and children suffer from tainted and fermented milk is likewise certain. But this latter difficulty should be met by the sterilisation or boiling of the milk for *infants during the few hot days* we experience in this country, when milk is likely to become sour. It is the habitual use of sterilised and boiled milk, and *all that series of prepared*

REBOUND

milk which are similarly treated, which is answerable for such disastrous consequences.

When a man of the calibre of Dr. F. J. Smith, of great experience at the London Hospital in connexion with boiled milk in the East-end of London concurs with me who reside in *the country* it is not unreasonable to think that the arguments and assertions of my generous critics are refuted by this conjoint experience and the conclusion based thereon. I would only point out that the remedy for poisoned milk is not the increase of the evil by boiling, but the provision that the milk is issued safely to the public by a thorough organisation of the inspection of dairies and dairy cows with adequate penalties for failure. True, the dairyman is punished for diminishing the nutritive value of milk by adding water when a rare conviction can be secured; but this is insufficient. Ignorance, criminal carelessness, and fraud are practised in the sale of milk more extensively than in any other article of food. The trade is one of the most lucrative, as shown by the position of even small traders, so that it can well afford the compulsion of more intelligence, greater care, and stricter honesty. When the profound influence of purity in this universal article of food upon the physical vigour, and consequently the mental power, of the nation is considered the subject assumes an infinitely more serious aspect and demands the united and persistent action of the profession in securing legislative measures of a thoroughly searching and vigorous character. I am, Sirs, yours faithfully,

Rugby, July 8th, 1901. CLEMENT DUKES.

To the Editors of THE LANCET.

SIRS,—I am glad to see that such an able authority as Dr. Clement Dukes has taken up this question and that his experience leads him to advocate the use of unboiled milk. For a considerable time I have employed fresh unboiled milk in the feeding of infants. I was led to adopt this line of treatment because of two successive cases, one of scurvy and another of severe malnutrition, which occurred in my practice as the result of continuous feeding on boiled milk. Other cases I can now recall which I am satisfied were due to the regular employment of boiled milk. But although I have been ten years in practice I can recall no case of tuberculosis amongst infants and the larger proportion of my patients must have been brought up on unboiled milk. The fact is, that in my experience tuberculous disease of the glands and peritoneum in children is more frequent after the child has passed the purely milk stage.

The question arises, Why does boiled milk cause scurvy and other diseases of malnutrition? Dr. Corlette some 12 months ago gave it as his opinion (based on experimental and other evidence) that scurvy in infants was due to loss of citric acid in the boiled milk. He said that the disease could be cured by giving fresh milk, or lemon or orange juice, all of which contained citric acid. But scurvy can be cured by fresh vegetables which contain no trace of citric acid or allied body. The fact is, that boiling alters the whole composition and constitution of milk. The same may be said of pasteurising. Either process drives off the gases, the flavouring principle and the fats are changed and rendered less ready of digestion, the proteids are altered, and the salts in general are altered and become deposited in great part either on the bottom or on the sides of the vessel. In short, the whole nutritional value of the milk is changed. Instead of boiling the milk we should insist upon having it pure, and if we cannot have it pure then let us behead either the medical officer of health or the cowkeeper, for one or the other is guilty. I am, Sirs, yours faithfully,

Leeds, July 4th, 1901. GORDON SHARP.

To the Editors of THE LANCET.

SIRS,—There are three questions regarding milk about which differences of opinion exist and require definite settlement: 1. Is the nutritious quality of milk altered by boiling? 2. Is the tubercle bacillus, together with other disease germs, killed by boiling? 3. Is the milk of tuberculous cows a common cause of tuberculosis? In reply to the first question Dr. Corlette, connected with the department of pathological chemistry, University College, London, says: "Citric acid is present in fresh milk, notably diminished in sterilised, but less so in pasteurised milk. It is abundant in lime-juice. With this it is found that infantile scurvy does not occur under a sufficiency of fresh milk, does occur with sterilised, and does not, or very rarely so, with pasteurised milk." Dr. Kerr, late examiner in chemistry and medical jurisprudence, Aberdeen University, says: "The *chemical* result of boiling is to kill all the living cells and coagulate all the albuminoid constituents. Milk after boiling is thicker than it was before. The *physiological* results are that all the constituents of the milk must be digested before it can be absorbed into the system." Therefore there is a distinct loss of utility in the milk, because the living cells of fresh milk do not enter into the circulation direct as living protoplasm and build up the tissues direct as they would do in unboiled milk. In practice it will have been noticed by most medical practitioners that there is a very appreciable lowered vitality in infants fed on boiled milk.

The next point for consideration is, Are disease germs which may chance to be present in milk destroyed by boiling? Dr. Fayel stated some time ago in the *L'Année Médicale de Caen* that he did not believe the tubercle bacillus was destroyed by boiling, since experiments at the Physiological Institute showed that the degree of ebullition of milk never exceeds 100° C., whereas the tubercle bacillus is only killed at a temperature of from 110° C. to 115° C. Mr. Watson Cheyne, of King's College, said: The temperature necessary to kill bacteria depends upon whether they are in the adult or spore condition. In the spore condition in milk it would need somewhat prolonged exposure to a boiling temperature in a warm bath to destroy them, but when I worked with these things I found the only successful way was to boil for 10 or 15 minutes, on three successive days, thus giving the spores a chance of sprouting in the interval and catching them as adults. The last point is to whether the raw milk of tuberculous cows commonly produces tubercle in the human being by its regular use. Well, the veterinary department of the Board of Agriculture put forward the statement some time ago that the results of their experiments with the unboiled milk of tuberculous cows were entirely negative, and Dr. Vivian Poore's evidence on this point is certainly very striking, as is also that of Dr. Clement Dukes. The evidence on the other side will be awaited with interest, but it must be very strong to be convincing.—I am, Sirs, yours faithfully,

Bexhill-on-Sea, July 9th, 1901. F. P. ATKINSON.

To the Editors of THE LANCET.

SIRS,—The main objection which Dr. Dukes and others raise to the boiling or sterilising of milk appears to be that its nutritive value is greatly impaired by the process. Unfortunately, however, in three letters strongly condemning the practice no direct evidence of this diminished nutritive power is given, and the indirect evidence is most meagre and indefinite and only relates to boiled milk. In spite of this lack of direct evidence there appears to be a general consensus of opinion that milk may be so altered in the process of sterilisation as to lead to rickets or infantile scurvy in the consumer. If this is so it is important to learn something of the nature of the change and whether it is an essential part of the process of sterilisation or merely an accident which may be avoided. The chief dietetic cause of rickets is undoubtedly deficiency of fat, that of infantile scurvy some remote and little understood change in the food. While it is impossible to trace the effect of boiling on the antiscorbutic constituent of milk it is not difficult to see the effect produced on the fat and to suggest one connecting link between boiled milk and rickets. When milk is boiled in an open vessel the cream rises pretty rapidly and a large proportion of it becomes entangled in the skin which forms on the surface, thus being lost to the consumer. In addition to this the minute globules of fat coalesce into larger masses and are rendered less easy of absorption. These plain physical facts go far to explain the loss of nutritive power in boiled milk, but they form no essential part of the process of sterilisation. If milk is heated rapidly in covered vessels to a temperature just short of boiling point, the vessels then sealed and cooled rapidly from below upwards, this separation of the fat can be largely prevented and the milk retains much nutritive power that would otherwise be lost. At the same time, all the more dangerous organisms that are known to be commonly present in milk are destroyed. This process is simple and forms a reasonable compromise between boiling or complete sterilisation on the one hand and the use of raw milk on the other.

I have only seen one case of rickets which I could attribute to the use of boiled milk. I questioned the mother as to her methods and was informed that the milk was boiled in an open pan, the skin which formed on the surface being taken off and thrown away As by this means the child was being fed on skimmed milk the onset of rickets was not surprising Is it not possible that many of the evils attributed to sterilised milk are really due to this unnecessary separation and rejection of the fat?

I am, Sirs, yours faithfully,

Prescot, July 9th, 1891 LEONARD YOUATT, M B Vict

THE CASE OF THE LATE MR. R. B. ANDERSON.

To the Editors of THE LANCET

SIRS,—We shall feel much obliged if you will give us your powerful aid in bringing before the medical profession and the public the following facts in connexion with the late Mr R. B Anderson, F.R C.S Eng, whose widow and two orphan sons are now living in Tobago and are in the most straitened circumstances A strong representative committee—with power to add to their number—has been formed with the view of appealing for assistance to those members of the medical profession and of the public who knew and sympathised with the hard case of Mr Anderson which aroused more interest and sympathy than any other *professional case of recent years* and raised a most vital point in medical ethics Shortly, the history of this case is that after being for some time in attendance on a private patient in Tobago Mr Anderson refused to continue his attendance owing to her husband's personal rudeness to himself On this an action was brought against him by the patient and her husband, and Chief Justice Gorrie (of Trinidad and Tobago) gave damages against Mr Anderson for neglect in retiring from the case, although the attendance of another medical man had been immediately secured and no injury to the patient was proved. Mr Anderson resisted this judgment; excessive bail was demanded from him, and in default he was imprisoned and in the end ruined by this and other illegal acts of judicial oppression Mr Anderson then came to England, a committee was formed to assist him in carrying the West Indian judgments in appeal to the Privy Council, and Mr Anderson in person brought an action before the late Lord Chief Justice Coleridge in the Queen's Bench for the recovery *of damages against the colonial judges An English special* jury gave a general verdict in his favour with £500 against one of the judges (Chief Justice Gorrie having died just prior to the trial), but Lord Coleridge gave judgment for the judge against Mr Anderson and the verdict in his favour on the ground that no civil action for damages would lie against judges for acts done in their judicial capacity This judgment was confirmed on appeal, and from want of funds a further appeal to the House of Lords and the proposed colonial appeal to the Privy Council were rendered impossible Finding his legal remedies unsuccessful, owing to the insufficient support which he received from the corporations and associations of the profession, Mr Anderson began an active campaign of medical reform, by which means alone he saw any hope of proving the justice of his case and securing for the future the rights of the profession which were involved in his case, together with others which, in his opinion, required protection His life terminated suddenly from heart disease, under pathetic circumstances, on Nov 8th last, and our committee feel that many in the profession, as well as others, will be ready—whether or not they were in agreement with Mr Anderson's views and methods—to respond to this appeal on behalf of his necessitous family Donations "for the Late R B Anderson Fund" sent and made payable to the Manager, Union Bank of London, Chancery-lane, London, will be duly acknowledged and the amount subscribed will be dealt with as our committee, by resolution, may decide.

We are, Sirs, yours faithfully,

STAMFORD,
Chairman
TIMOTHY HOLMES,
Honorary Secretary

July, 1901.

Mr W Monnington, who is acting as secretary of the fund, announces the present list of subscriptions.—

	£	s	d		£	s	d
The Earl of Stamford (chairman)	10	0	0	Dr Higham Hill	1	1	0
				Dr Lorimer Hart	1	1	0
Mr Timothy Holmes, F R C S (honorary treasurer)	5	0	0	Dr. Alfred Cox	1	1	0
				Dr Wheeler O Bryen	0	10	6
				Dr Milner Browne	0	10	6
Mr H B Juler, F R C S	2	2	0	Mr Walter Monnington	1	1	0

THE CIVIL SURGEON AT THE WAR.

To the Editors of THE LANCET.

SIRS,—I received a letter from my husband yesterday from South Africa in which he asked me to ventilate in your columns certain grievances under which he, in common with all other civil surgeons, is labouring When they sign a contract with the War Office which binds them to a year's service they are given a cheque for one month's salary and 90 days' field pay. As no allowance is made for uniform or camp outfit the whole of this money is swallowed up in providing these necessaries and the civil surgeon starts South African life practically in debt He ranks as a captain All other captains, nursing sisters, civilian veterinary surgeons, and officers of the line are given a colonial allowance The civil surgeon has only a field allowance of 3*s* 6*d* a day, 1*s* 6*d* for his servant, and nothing more, whereas the above mentioned officers receive the same field allowance, together with an extra 3*s*. per day as colonial allowance My husband has to pay 4*s* per day for mess, so that it will be easily seen that his field allowance does not cover his expenses. When one reflects that beer is 1*s* 3*d* a bottle and eggs 9*s* 6*d* a dozen not much margin is allowed for luxury The wear-and-tear to clothes, too, is very great, and the civil surgeon who starts on "trek" with a field allowance of 3*s* 6*d* a day is likely to be a good deal out of pocket Although my husband took up his duties at Aldershot on April 6th up to the date of writing he had not received one penny of his pay.

I am, Sirs, yours faithfully,

July 9th, 1901 E L F.

BRITISH MEDICAL MEN AND GERMAN WATERING-PLACES.

(FROM A CORRESPONDENT)

BAD NAUHEIM has been visited within this last week by an association from England of about 32 medical men and one lady doctor who have gone the round of nearly all the German watering-places in order to be in a position to speak positively as to the properties of the various baths and waters after a personal examination on the spot

They have been most handsomely entertained by the local medical men and the various district authorities in each centre Many of them left England with a certain amount of scepticism and misgiving as to what had been said in the medical and lay press as to the various reputed properties of certain waters I cannot help thinking that if visits of this kind were more frequently undertaken by medical men in the pursuit of science and knowledge it would tend to open our minds to a correct appreciation of the benefits to be derived from a visit to districts where Providence has placed within our reach waters containing certain salts and minerals which undoubtedly are of benefit to the human race when properly used under the direction and supervision of local medical men who have devoted themselves to the study of certain diseases and of the proper application of the waters externally in the form of baths and also internally in the form of table waters, and of waters taken in the early morning at the springs The early rising so much *practised at all watering-places*, with a certain amount of exercise and attention to eating, drinking, and smoking all tend to improvement in suitable cases.

The medical visitors arrived in Bad Nauheim on Wednesday evening, June 26th On Thursday morning Dr Schott met them at his private house and again at the baths in the forenoon He explained to them the properties of the various springs and waters, the cases for which they proved so remarkably successful, and his reasons for believing in their virtues On the same evening I had the pleasure of being one of those who met by invitation of Dr Schott at his house He gave us a very excellent address founded on his ripe experience of the effects of the sprudel waters of Nauheim on the motor and sensory nerves He also laid great stress on the injurious effects of excess in cycling, football, running, rowing, and the abuse of tobacco—in fact, the serious effects on the heart from any serious and violent strain. The progressive and insidious character of the heart trouble when, without any previous ill-effects being observed, a sudden collapse takes place was insisted upon by him

He explained the uses and mode of application of what is now known as the Schott method of exercises. He deprecated all mechanical aids as not being subject to proper supervision by a professional assistant. He then divided the party into groups of six in as many rooms where his own medical assistant and five or six other qualified masseurs gave practical demonstrations of the Schott method of exercises on the medical men present. The pulse was carefully noted by some of the other medical men and a comparison was drawn between the rate and the volume of the pulse when the exercise was properly and judiciously applied as against that when it was violently and jerkingly done. The medical visitors were invited to ask him any question in regard to anything and everything they had seen in the place. Many of them availed themselves of the opportunity. They expressed themselves as being very pleased with the demonstrations and grateful to Dr. Schott for giving up so much (about four hours) of his valuable time to explain and to instruct them in the chief uses and benefits to be derived from a visit to Bad Nauheim. I can only say for myself that after a sojourn here of about a month I have seen a great many cases of heart disease treated by Dr. Schott with most marked benefit and relief.

July 1st.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The Decline of the Plague.—Increase of Famine.—Precautions with regard to Drinking-water.

A GREAT drop took place in the plague mortality last week, only 829 deaths being recorded for the whole of India. The Bombay Presidency had 402 deaths, the Punjab 146, Bombay city 100, and Bengal 50. The outbreak has declined at Karachi, but more cases have occurred at Poona. The number of cases continues about the same in Calcutta.

The latest famine returns show an increase of 17,200 in British districts in Bombay and of 9500 in Bombay native States. There are now 483,870 persons on the lists, of whom 106,500 are receiving gratuitous relief.

It has been decided to roof in all drinking-water reservoirs connected with cantonments in India, and the work is to be taken in hand as funds become available.

June 15th.

The Plague Epidemic.—Medical Allowances and Fees.—The Training of Sanitary Inspectors.—The Malaria Scientific Commission.—The St. John Ambulance Association.—The Jails of Bengal.

THE downward course of the plague epidemic throughout India has suddenly stopped. During the past week 847 deaths have been recorded, as against 829 for the previous week, and small increases are reported in the Bombay Presidency, Calcutta, and the Punjab. On the other hand, Bombay city, Karachi, the Bengal districts, and Kashmir show a slight diminution. At Belgaum alone has there been any marked change and here there is recorded a rise from 153 to 176. During the corresponding week of last year there were only 319 deaths from plague throughout the whole of India. The health of Calcutta has markedly improved during the past few weeks and were it not for plague the death-rate would be below the average. The death-rate in Bombay city has also considerably improved.

A diminution of allowances to medical officers seems to be the order of the day. It is notified in the *Gazette of India* that the usual report to the Government is dispensed with in the case of medical officers attending native chiefs and gentry when the fee charged does not exceed 50 rupees a visit or 1000 rupees in the aggregate during the year. It is difficult to understand wh[illegible] [illegible]lation of this sort is imposed on the medical service. [illegible] opinion[illegible] certainly tend to make the Indian Medical Service unp[illegible]ous. Again, the Government of Bombay has sanctioned conveyance allowance of 25 rupees per mensem to military and medical officers specially deputed on plague duty, who are in consequence of such employment compelled to make use of a carriage or horse. This amount is usually granted to quite subordinate officers and would only cover half the expenses necessarily incurred. In the early days of plague duty in the Bombay Presidency 50 rupees a month were granted. Surely there is no reason why this allowance should be now made so small.

The training of sanitary inspectors is at last being taken up. Following the lead of Madras the Bombay Government has appointed a committee to prepare a scheme for carrying out a course of practical study in sanitary science. It will be adapted for students who have passed through the medical and engineering colleges.

The delegates of the Malaria Committee of the Royal Society, Dr. J. W. W. Stephens and Dr. S. R. Christophers, are about to investigate cases of blackwater fever which have been reported from the Duars and Sylhet and other malarious places in India. Dr. Christophers will first go to Mian Mir and Amritsar and work in coöperation with the medical officers of military cantonments against malaria. On the return of Captain James from China this scientific Commission will go to Darjeeling, Terai, and the Duars to investigate blackwater fever.

A native who was bitten by a jackal was sent to the Pasteur Institute at Kasauli. He went through the treatment and was discharged well. A portion of the brain of the jackal preserved in glycerine was sent to Kasauli and experiments were made with this on a rabbit with the result that the rabbit died from typical rabies.

The organisation of the work of the St. John Ambulance Association seems to be proceeding very rapidly. An influential committee has been formed in Bombay and a large staff of lecturers has been appointed. Steps will be immediately taken for the formation of several classes. At Simla also the work of the Association is being actively pushed. In Calcutta several classes have been already held and many others are in course of formation. The work in the Mofussil is also being organised and classes are to be formed at the principal stations.

A resolution of the Bengal Government on the report on the administration of the jail department for the year 1900 has just been issued. There has been a great increase in, and especially of short term, prisoners. The average convict population (excluding the sick) was 17,332. The mortality throughout the province was unusually high—the death-rate having risen from 23·4 to 40·3 per 1000. The report is silent as to the causes of this rise. The year was an unhealthy one and the higher price of grain is thought to have driven many of the poor and half starved to crime. The death-rate among prisoners less than six months in jail was 54·7 per 1000. Cholera again was prevalent and added to the mortality and was especially common amongst the "under-trial" prisoners. This disease alone caused a death-rate of 4·2 per 1000. Deaths from phthisis and pneumonia still continue to form a large proportion. Overcrowding and defective ventilation owing to the unusual number of convicts, which kept most of the jails filled almost to the limit of their capacity, are put down as the chief contributory causes. The recall to military duty of many officers left the charge to military assistant surgeons and native assistant surgeons. The jail report is conspicuous for its shortness and cardinal points in the administration of the department are noted to have escaped mention by the reporter.

June 20th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

The Liverpool University Question.

AT its meeting on July 3rd the City Council enthusiastically endorsed the movement of the governors of University College in favour of creating a University for Liverpool, some members strongly advising monetary support from the council should the project become an accomplished fact. Mr. Alderman Burgess proposed the following motion:—

> That this council has observed with much satisfaction the growth and progress of University College, and in view of the fact that the college authorities are taking steps to procure the establishment of a separate university for Liverpool, records its opinion that it is desirable in the interests of higher education in the city that such a university should be founded.

The motion had derived additional interest from the attitude of the court of governors of the Victoria University, the meeting of which was held at Owens College, Manchester, on June 29th, and which was adverse to the aspirations of the governors of University College. Be that as it may, Liverpool has made up its mind to have a university of its own, and opponents in other places must only bow gracefully to the inevitable. Alderman Burgess, in a sympathetic speech in support of his motion, said that there were some things so obviously for the public advantage that they did not admit of dispute, and a university for Liverpool was one of them. Anything which made the acquisition of knowledge more available and more attractive concerned the public University College, when founded in 1881, began with six professors, five lecturers, and 45 students In 1900 it had 25 professors, 40 lecturers, 490 science and art students, and 166 medical stude[illegible] and classes [illegible] nearly £500,0[illegible] College declai[illegible] doing until it stood alone, and when the council of the college was unanimous in its opin[illegible] be established in Liverpool, the [illegible] the institution to attain a position [illegible] distinction. Those associated with Victoria University who opposed the scheme knew nothing of the conditions and requirements of Liverpool. It was evident that the appointment by the court of Victoria University of a committee of 15, among whom were only four representatives of Liverpool, was not a satisfactory way of dealing with the question. A university in Liverpool would permeate the whole educational system of the city, and as Liverpool had a world wide celebrity as a centre of commerce, why should it not be destined to have a world-wide influence as a centre of intellectual activity? The motion was warmly supported by Sir William Forwood, who said that during his visits to the United States he had been much impressed by the great work done there by the 60 universities in educating the masses It was also pointed out that the success of the Scottish educational system and of the people themselves was largely due to the influence of their four universities The motion was carried unanimously Public opinion in Liverpool is practically unanimous in favour of the project which has been in the air for a considerable time.

The Birkenhead Guardians and the Lady Doctor Question

The Birkenhead guardians have again found a difficulty in procuring a male resident medical officer for the Birkenhead workhouse In THE LANCET of June 29th, p 1865, the refusal of the guardians to sanction the appointment of a qualified lady to the post was commented upon It now appears that the board's second advertisement inviting applications for the post from male candidates received no response from individuals of that sex It thus became a matter of "Hobson's [illegible] who had [illegible] as there [illegible] of £120

July 9th

WALES AND WESTERN COUNTIES

(FROM OUR OWN CORRESPONDENTS)

Conviction under the Infectious Diseases (Notification) Act

AT the Merthyr Police court an assistant to a colliery surgeon at Treharris was recently fined 10*s* and ordered to pay the costs of the proceedings for neglecting to notify a case of scarlet fever which had occurred among his patients The defence raised was that the case was a doubtful one and might have been German measles although it was admitted that the parents of the patient were told that she was suffering from scarlet fever in order that extra care might be taken In the course of the hearing before the stipendiary magistrate it was stated that it was the custom in the Merthyr district for the principal and not his assistant to notify all cases, whether he had seen them or not. This is by no means the universal practice in other colliery districts of South Wales, where the assistants very commonly notify cases which they see and, as a matter of course, receive the fees Scarlet fever has been very prevalent in Merthyr during the whole year, in the first quarter there were 149 cases of the disease notified and in April and May there were 212 cases The population of Merthyr at the last census was 69,227—an increase of about 10,000 upon the previous census

Death under Chloroform

On June 30th a death occurred at Barry during the administration of chloroform. A woman, aged 32 years, had miscarried during the previous week, and with the intention of clearing out the contents of the uterus the medical attendant, with the assistance of a colleague, placed the patient under chloroform It was noticed that the breathing stopped in less than three minutes from the commencement of inhalation

Swansea Poor-Law Appointments

Upon the rearrangement of the medical appointments of the Swansea Union it was decided to appoint a medical officer for No 1 district and for the workhouse at a salary of £450 per annum, and an assistant medical officer for the workhouse at a salary of £200 yearly For the former post there were 24 candidates, and Dr R J Lloyd Edwards has been appointed For the position of assistant medical officer only two applications were received and these were subsequently withdrawn The board of guardians has therefore decided again to advertise the post

Society of Medical Officers of Health

At the meeting of the West of England and South Wales Branch of the Incorporated Society of Medical Officers of Health, held at Taunton on July 4th, Dr H J Alford called attention to certain defects in the Infectious Diseases (Notification) Act, especially as regards doubtful diagnosis and dual notification, and insisted upon the necessity for providing a sufficient number of observation wards in connexion with isolation hospitals Mr J C Heaven of Bristol was elected president of the branch for the ensuing year

Death of Mr R. C Hunter, L R C P Edin, M R.C S. Eng, of Pontypridd

By the death, on July 3rd, of Mr Robert Charles Hunter the county of Glamorgan loses one of its most prominent medical practitioners. Mr Hunter began to practise in Pontypridd early in the "sixties" when the colliery districts were being opened out. For many years he was surgeon to the Taff Vale Railway Company, and upon the passing of the Workmen's Compensation Act, 1897, he was appointed medical referee under the Act, a position which he retained only for a short time

The Housing of Quarrymen

Dr Le Neve Foster, His Majesty's Principal Inspector of Mines, in his reports for the years 1886, 1888, and 1892 drew attention to the unsatisfactory manner in which the quarrymen of some of the Welsh slate mines were housed and he returns to the subject in his report for the year 1900 The men frequently sleep two in a bed upon straw and are covered with a single sheet which is rarely washed, and they eat, drink, and sleep in the same room The manner in which the Italians who work in the Frongoch mines near Aberystwith are treated by their employers is very different, for each man has a separate bed and sleeps upon a woollen mattress on a spring mattress and the employers pay for the frequent washing of the bed-clothing A separate room is also provided in which the men can take their meals At the waterworks undertaking of the Birmingham Corporation the navvies sleep in separate cubicles, of which there are eight in one ward, and there are three wards in each hut In connexion with the construction of several waterworks in Glamorgan the discarded broad gauge carriages of the Great Western Railway Company have been converted into workmen's huts When these are connected by corrugated iron roofing they adapt themselves very readily to the purpose of temporary lodging houses the compartments of the coaches becoming cubicles and the roofed-in spaces being used as kitchens and meal rooms

Brentry Homes for Inebriates

At the meeting of the Somerset County Council held on July 1st it was reported that the authorities at the Brentry Homes found great difficulty arising from the character of the male patients sent to them Out of 22 male patients at the home on June 17th two had absconded after first attempting a revolt five were under orders to be sent to Cardiff Gaol, with the sanction of the Home Secretary, and several more were being removed, so that only six patients would remain A meeting of the committee of the Homes was held on July 24th and the conclusion was arrived at that it was impossible for the Brentry homes to be carried on if they were obliged to admit male cases The men were very riotous and some had served terms of penal servitude The committee had written to the Home Secretary to see if some means could be adopted of meeting the difficulty by a grant of money or by some special warders being sent if the homes were required to continue to receive male patients

University College of South Wales and Monmouthshire

At a largely attended meeting of the court of governors of the University College of South Wales and Monmouthshire, held on July 1st, it was decided that Lord Tredegar and Mr. Alfred Thomas should represent the court and Senate and should approach Dr. Isambard Owen with a view to his acceptance of the principalship of the College.

July 8th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Notification of Tuberculosis.

AT a quarterly meeting of the Corporation of Dublin held on July 1st Mr. Bergin proposed that a report of the Public Health Committee should be adopted recommending, on the strength of Sir Charles Cameron's opinion, that tuberculosis should be added to the schedule of notifiable diseases as a tentative measure for 12 months. Sir Thomas Pile, in seconding the adoption of the report, said that the disease in question was one of the greatest scourges of the city and did far more injury than typhoid fever. After a long discussion the report was rejected by 40 votes to 19.

Catholic University Medical School.

At a meeting of the governing body held on July 8th a report from the medical faculty was read in which the great increase in the number of students which has taken place recently was dwelt upon. This increase—nearly 30 per cent.—places the medical school in the premier position as regards the number of its pupils among the schools of Ireland.

Health of Dublin.

At a meeting of the governors of the Cork-street Fever Hospital and Home of Recovery held on July 4th the registrar reported that the admissions during the month of June were numerous on account of the continued prevalence of scarlet fever, diphtheria, and pneumonia, while the number of enteric fever cases had decreased. The report of the Public Health Committee for the last week of June shows that a vast change for the better has recently taken place, the average death-rate for the month being only 19·5, as compared with figures between 30 and 40 registered during the winter and spring.

The Heat-wave in Belfast.

During the past 10 days an extraordinary heat-wave has been experienced in Belfast. Thursday, July 4th, was the hottest day, the temperature registering 77° F. in the commercial news-room of the city, this being the highest temperature ever recorded in that public room which has a northern aspect. The peculiarity of the weather is the very great heat at night. Of course, this weather is admirable for the country districts where hay-making and other farming occupations are in full swing.

The Health of the City of Belfast during 1900.

Dr. H. Whitaker, medical superintendent of the city of Belfast, has just issued his annual report for the year 1900. There were 7642 deaths from all causes during 1900, the number being less than in either of the preceding years. Of these 2899 were attributed to chest affections and 737 to zymotic diseases—making a total of 3636, or nearly one half of those registered as having died from all causes. As to the causes of death, of the other 4006 the medical officer of health regrets he has not the information to give. He knows nothing of where any deaths take place except from the Registrar-General's returns, which merely state that so many deaths occur in a certain district. Of the 2899 deaths reported from chest affections 1784 were attributed to diseases of the respiratory organs and 1115 to phthisis. Of the zymotic diseases, typhoid fever has occasioned the greatest mortality. 1777 cases were reported during the year and there were 261 deaths. Diarrhœa caused 241 deaths, whooping-cough 115, diphtheria 54, and measles 42. The deaths of infants under one year old per 1000 births were 152. The death-rate in Belfast from all causes was 21·3, that from zymotic disease being 2·1, and from chest affections 8·1, while the birth-rate was 31·2. The great blots on the health of Belfast are the terrible mortality from phthisis and the continued prevalence of typhoid fever. No attempt has yet been made to grapple with these two problems, as has been done in other cities and towns.

July 9th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Law as to the Practice of Pharmacy.

IN 1899 a Bill dealing with the practice of pharmacy was introduced into the Chamber of Deputies by M. Astier, M. Morel, M. Bernard, and M. Bachimond. The committee upon trade and industries is at present occupied in hearing evidence upon this Bill given by the various persons interested. Moreover, an opposition Bill has been introduced, backed by the superior schools of pharmacy, which proposes to introduce some important modifications. The chief one must be considered as the beginning of a campaign undertaken against proprietary medicines, a campaign originally initiated by a majority of retail pharmacists who some time back gave out that they were going to fight against proprietary articles. The law as at present declares that if a proprietary preparation is not in the Codex the label must contain the names of the active substances which go to make up the medicine. The Bill introduced by the schools of pharmacy demands that the label shall bear the name of every substance, active or not, which goes to make up the medicine. If this Bill is passed it will have a disastrous effect upon the manufacture of pharmaceutical specialities, for the essence of these consists in their having a particular mode of preparation, for the purpose of either making the medicine more agreeable to take or of bringing about some intricate chemical action, a matter which is jealously guarded by the maker, for in this way his preparation is better protected than by any amount of trade-marks. If the method of preparation has to be made public in every detail imitations of the best-known and most appreciated products will become common, and that industry which is so flourishing in France of making pharmaceutical specialities will be markedly affected. It is obvious that the pharmacists who are engineering this project have foreseen this result, for the prosperous condition of the wholesale manufacturers excites their jealousy, more especially as their own profits have been getting smaller. The retail pharmacists are only too ready to lay the responsibility for the present state of affairs at the doors of the medical profession, the members of which they say are too ignorant to write a prescription and so prefer simply to order some special preparation. On the other hand, the members of the medical profession say that the reason why they so often order special preparations is that many pharmacists only keep in their shops a very inferior quality of drugs so as to make bigger profits; so lest their patients should come across such a pharmacy they prefer to order a mixture of known composition and good quality. However, the lists are open and the discussion about to take place in the Chamber will show which of the two parties is to have the advantage.

The Electrical Treatment of Gonorrhœal Arthritis.

At the meeting of the Therapeutical Society held on June 26th M. Mathieu said that everybody knew how rebellious to ordinary treatment was gonorrhœal arthritis. M. Delherm, however, had been trying a new therapeutic treatment in M. Mathieu's wards—namely, electricity. He had found that gonorrhœal arthritis could be aborted in three or four days' time by means of electricity applied to the affected parts. The treatment was tried upon six patients with 13 joints acutely affected, some of which also showed periarticular swellings. M. Delherm used a battery worked by bisulphate of manganese or of mercury cells and large electrodes, sometimes made of clay, which were applied on either side of the affected joint. A current strong enough to pass through the joint was used, the intensity varying from 20 to 50 milliampères. The sittings lasted for 15 minutes, two being given on the first day and afterwards one per diem. The effects of this treatment were very remarkable. Appreciable benefit was noticed within three hours of the commencement of the treatment and was particularly marked on the following day. The patient had passed a good night and the pains were much less; the swelling had gone down and the joint had acquired increased mobility. In most cases a complete cure was obtained in from two to six sittings, but in one case 14 sittings were necessary. There was no after-stiffness of the joint or atrophy of the muscles, as is so frequently seen in gonorrhœal arthritis. The chief point of interest, however, was the rapidity of the cure. M.

Delherm also tried the interrupted current from a coil, but the results were very inferior to the constant current from the cell.

Educational Medical Expeditions to French Mineral Watering Places and other Health Resorts.

The object of these expeditions is to afford opportunities to medical men, both French and foreign, of visiting the various health resorts of France. The French mineral water springs are grouped in various districts, and those some of the most picturesque to be found in France, hence a visit to them, as well as being instructive, is a source of pleasure. Special advantages are offered to medical students as well as to medical men who in making these expeditions subserve their own interests as well as those of their patients. The organiser of the expedition for this year is M. Carron de la Carrière, 2, Rue Lincoln. The expedition will commence on Sept. 1st and will terminate on Sept. 12th. The districts visited will comprise Dauphiny and Savoy and the various places will be visited in the following order: Uriage, La Motte, Allevard, Salins-Moutiers, Brides, Pralognan, Challes, Aix, Le Revard, Marlioz, Hauteville (sanatorium), Divonne, Saint Gervais, Chamonix, Thonon, and Évian. In 1899 the first expedition was organised, the district chosen being Auvergne and Central France. In 1900 the Pyrenees were visited. The scientific head of this year's trip will, as in the two former years, be Dr. Landouzy, Professor at the Paris Faculty of Medicine, who will deliver lectures at each station upon hydro-therapeutics. The railway companies give a reduction of 50 per cent., in the case of Frenchmen, on the ticket between the member's place of residence and Uriage, while for foreigners the reduction commences from the place of entry into the country. The same reduction is given for the return journey to the station which served as a starting-place from the last visited station, Évian. French and foreign medical men and medical students alone are eligible, but the wives of medical men may go with their husbands. The names of those intending to take part in the expedition can be received up to August 15th. They must send their names and addresses, the station from which they start, or in the case of foreigners their place of entry into France, the date of their arrival at Uriage, and their subscription (300 francs) to the Director of the Crédit Lyonnais, agence B., compte V.E.M., Place de la Bourse, Paris.

July 9th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

The Practitioners' Association and the Medical Union.

THE annual meeting of the German Practitioners' Association (Deutscher Aerztevereins-Bund) was held on June 28th and 29th at Hildesheim, Professor Loebker of Bochum being in the chair. In his inaugural address the President pointed out that the new regulations with respect to the medical curriculum and medical examinations were not in accordance with the wishes of the profession and that the amendments proposed by that association had not been adopted by the Government and the Federal Council. His remarks were directed especially to the facilities for becoming medical students now afforded to the pupils of Realschulen where Latin was not taught. The position of medical officers to clubs continued, he said, to be very bad and he exhorted the members to present a united front and to refrain from joining other newly founded societies, the objects of which might be antagonistic to those of the old-established Practitioners' Association. If certain members were of opinion that the work of the association was not all that could be desired it was open to them to endeavour to amend its principles and methods, but they ought not to attempt to break up the association. It was then resolved that local committees should be formed for the purpose of dealing with unqualified practice. The association will also establish an office at Hamburg where German practitioners may obtain information as to practice in foreign countries and as to vacancies for medical officers on board ship. The most important question discussed at the meeting was connected with the newly founded Medical Union (Verband der Aerzte Deutschlands zur Wahrung ihrer Wirthschaftlichen Interessen) which at the outset was diametrically antagonistic to the Practitioners' Association. The founders of the Medical Union were of opinion that the Practitioners' Association did not deal adequately with club practice. Their idea was to follow the example of the trade unions by forming a strike fund and beginning a general strike as soon as a sufficient sum had been collected. As the terms of membership were somewhat high, being one mark per week or £2 12*s*. per annum, the promoters of the movement believed that sufficient funds would soon be in hand, but unfortunately members did not come forward very quickly and the attitude of the committee by degrees became less confident. There was not now any question of a general strike; the union would only support members who had got into difficulties with a club and would take means to make the general public acquainted with the unremunerative nature of medical practice, so that a young man might not enter on a medical career without due consideration of all the circumstances. There was, therefore, now no great difference between the aims of both the old Practitioners' Association and the new Medical Union, and, indeed, the President of the latter, Dr. Hartmann of Leipsic, was present at the meeting of the Practitioners' Association in connexion with a scheme for enabling the two societies to arrive at an amicable understanding. After a long and animated discussion it was agreed that the Practitioners' Association should send a delegate to the committee of the Medical Union for the joint administration of the finances. A motion that the Practitioners' Association should recommend their members to become members of the Medical Union also was lost Another subject of discussion related to the position of medical experts in law-courts. There have been some sensational cases in which the law-courts have completely disregarded the opinion of the medical experts. In one instance an obviously insane officer had killed a comrade, and though the medical experts had declared the prisoner to be irresponsible for his actions the military court found him guilty and he was condemned to 12 years' imprisonment. The medical experts were treated after a similar fashion in a trial of malingerers at Elberfeld. On the motion of Dr. Pfalz of Düsseldorf it was unanimously resolved that the association desired to draw the attention of the Government to the position of medical experts at certain law-courts and to the scant attention which they received from the judicial authorities. The value of the Swiss preliminary examinations "for Germany" and some other subjects of less importance were also discussed.

Medical Excursions to German Spas.

Following the example of France a committee has been formed for the organising of excursions of medical practitioners to the principal spas and health-resorts of Germany. The president of the committee is Professor E. von Leyden of Berlin. The first of these excursions will be made to the health-resorts on the coasts of the North Sea and will take place after the congress of the German Association of Naturalists and Medical Men has been held at Altona. Another excursion will be made to the principal mineral water bathing-places of Germany, including Nauheim, Kreuznach, Kissingen, Homburg, Kösen, &c. The visitors will be personally conducted by Professor Baginsky, whilst the local medical men will, of course, give every information relative to the bathing and sanitary arrangements of the respective spas.[1]

July 8th.

ROME.

(FROM OUR OWN CORRESPONDENT.)

The Anopheles as Host of a Trematode.

WHILE examining specimens of anopheles during the past winter in order to see whether the malarial parasite is preserved in the stomach and salivary glands of hybernating mosquitoes, Martirano[2] has made the curious observation that many of these insects act as hosts of a small trematode worm of the distomida family. The number of infected mosquitoes increases from the month of March onwards, being at first from 10 to 20 per cent., but later, in May and June, reaching as much as 50 per cent., of insects examined. It is rare to find only one worm; in the greater number of cases there are from five to 10 worms in every mosquito. They occur mostly in the posterior segment of the abdomen, sometimes also in the salivary glands; in the majority of instances the small distoma was encysted, but at other times it was free in the thorax and abdomen. The small cysts were adherent to the interior of the abdominal wall and were scarcely visible to the naked eye, appearing as white shining points varying in size from 150 μ to 230 μ. The free worm measured 1·3 millimetres in length and 0·20 millimetre in thickness. Each cyst contained only one distoma of a flat leaf-like form, oval, somewhat elongated, becoming during its active progressive movements after its liberation from the cyst narrow and ribbon-like in shape. The cuticle was thick and smooth. There were two suckers, one placed at the anterior end and another about the middle of the body on the ventral aspect. The digestive tube began at the larger anterior sucker and divided into two branches, terminating blindly. At the sides of the body two large sexual organs were generally visible, containing numerous small, rounded, yellowish-brown ova, but in many specimens these were absent. Several of the mosquitoes containing this distoma were also severely infected with filaria which were found in the Malpighian tubes. Although it is a matter of speculation both as to how these mosquitoes came to harbour the distoma and as to what the further life of the parasite may be, yet the fact of its presence in the mosquito is interesting as offering a possible explanation of the mode of infection, still obscure, of some human parasitic diseases—such, for instance, as those produced by the distoma Ringeri and the Bilharzia hæmatobia. In regard to the chief object of his inquiries Martirano found that while up to March 15th mosquitoes were infected with malarial parasites in the proportion of from 1 to 5 per cent., after that date and up to the end of May his search for infected specimens of anopheles was invariably unsuccessful.

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[1] Further information as to the forthcoming excursion will be found on p. 94.—ED. L.

[2] Il Policlinico, Sezione pratica, Fasc. 35, June 29th, 1901.

A Case of Xiphopagus or Double Monster.

At a recent meeting of the Royal Medico-Chirurgical Academy of Naples, Corrado and Landi described a case of monomphalic monstrosity in which two female children were united to each other by a good part of the anterior surface of their bodies from the extremity of the sternum to the umbilicus, the latter being common to both. They were born on April 14th last at the village of Marianella, of young parents who had been married for one year, but the duration of the pregnancy could not be definitely ascertained. The labour was normal, the presentation was occipital in both cases, and no instruments were required. There was one placenta without any trace of division, and the cords, although really double, were united by an amniotic sheath. The children were quite lively and behaved like ordinary newly-born babies. Usually when one slept the other slept also, and when one cried the other did the same. On the seventh or eighth day of their life the child first born showed signs of suffering and a greenish diarrhœa set in, the other child at first not appearing to be affected. On the tenth day the former died and a few moments later the other, in whom similar symptoms had latterly appeared, also expired. The bodies were preserved in formalin and after being injected with different coloured injection fluids they were carefully dissected. The two thoracic cavities were found to be independent, the connexions at this point being limited to adhesions between the last costal margins. The two diaphragms were continuous and the abdominal cavities were united into one. The livers were fused at their anterior borders but each had its own gall-bladder. There were two stomachs and two duodena, the latter uniting, however, at their lower ends into a single intestine having a double line of attachment of mesentery to indicate the fusion. At the commencement of the lower fourths of the ilea the two canals again became distinct and remained so for the rest of their course.

International Congress of Physiology.

The Fifth International Congress of Physiology will take place at Turin from Sept. 17th to Sept. 20th next, when it is expected that many distinguished scientific men will gather under the presidency of the genial and versatile Dr. Mosso, professor of physiology in the Turin University. A novel and important feature of this congress will be the rule that all communications must be accompanied by experiments and demonstrations. It is proposed to devote one sitting exclusively to experimental psychology. At the last sitting Professor Marey will present the report of the International Committee appointed to control all registering instruments and to introduce uniformity into physiological methods in general. The Managing Committee consists of the following members: Mosso of Turin (President), Bohr of Copenhagen, Bowditch of Boston, U.S.A., Dastre of Paris, Hèger of Brussels, Kronecker of Berne, and Wedensky of St. Petersburg. The general secretaries are Fano of Florence, Fredericq of Lieges, Grützner of Tübingen, and Sherrington of Liverpool.

July 7th.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Reorganisation of the American Medical Association.

THE meeting of the American Medical Association recently held in St. Paul, Minnesota, was in all respects a great success. The subject of reorganising that body created the greatest amount of interest and was the main topic of discussion. The committee appointed to draw up a report containing suggestions and recommendation for reorganisation seem to have accomplished this task to the satisfaction of almost all of those concerned. In the first instance it is proposed that a business section shall be constituted, to be known as the "House of Delegates," which shall proportionately represent the State societies in accordance with their numerical strength. It is suggested that the present representation for the State societies should be fixed at one delegate to every 500 members. The committee summarises the objections to the existing methods of representation as follows. 1. It is not representative. 2. It detracts from the scientific value of the annual meeting, wasting the time of those who are not interested in medico-political subjects. 3. The time devoted to the general sessions does not give opportunity for deliberate consideration of the living problems of the profession of the country. 4. The body as now constituted has become so large and unwieldy that it is impossible for it to transact business deliberately and calmly and to take up and to consider the important questions affecting the medical profession. The committee then recommend that both State and county medical societies should be uniformly organised and pertinently affirm that "no successful organisation of the profession is possible without the mutual coöperation of the national and State societies." From the temper in which the State delegates at St. Paul received these recommendations it would seem that the propositions set forth by the committee will be carried into effect in course of time. The report of the committee was accepted almost unanimously.

Congress of Christian Scientists at Boston.

There has been held recently in Boston a very remarkable meeting of Christian Scientists from all parts of the world. The gathering was cosmopolitan to a degree and representative of all grades of society. Members of the sect were present from Great Britain, Australia, New Zealand, and from other far-away parts of the globe, and earls and ladies rubbed shoulders with "persons of no account." The congress was especially important in that Mrs. Eddy showed her face to her faithful followers for the first time within several years; she also delivered an oration which was chiefly distinguished by its brevity and its obscurity. Nevertheless, her oracular sayings met with the full approbation of her audience and were, indeed, received with enthusiasm. The figures given of the growth of the "mother church" reveal an astonishing and significant state of affairs. The membership in Boston alone reaches the respectable total of 21,631—a gain of 2496 since November. In all America the cult has more than 500 organised churches, the congregations of many of which have erected really imposing structures at great cost, notably in New York and Chicago. The progress of Christian Science is perhaps the most remarkable of any religious movement during the last few years and is mainly impressive for the reason that educated and otherwise sane individuals are eagerly embracing its tenets. Undoubtedly Christian Science in America is pressing heavily upon an already severely handicapped medical profession, but that any restriction will be placed upon its teaching by legislation would seem in the present temper of the American public to be an illusive hope.

Gift to Harvard Medical School.

American multi-millionaires and millionaires seem to have developed of late a healthy emulation in giving for the purpose of education. Spurred on, perhaps, by the example of Mr. Carnegie, in quick succession Mr. Rockefeller and Mr. J. Pierpoint Morgan have made magnificent gifts for the advancement of medical science. At the annual dinner of the Alumni Association in Memorial Hall at Cambridge, Mass., on June 27th, President Eliot read a cable message from Mr. Pierpoint Morgan in which he promised to provide funds for the erection of the new buildings needed by the Harvard Medical School. The three buildings in question are intended as a memorial to Mr. J. S. Morgan who commenced his business career as a merchant in Boston and who died a merchant in London. It is said that the buildings will cost $1,000,000 (£200,000). The outlay on the entire new medical plant will reach the large sum of $2,000,000 (£400,000). The money provided by Mr. Morgan is to be expended for the furtherance of applied biological research.

Small-pox in the United States.

This disease is very prevalent more or less throughout the United States. The epidemic has been and is still of a mild type, as is shown by the fact that although the cases are far more numerous than at the same period of last year the mortality is less. In Minnesota in the week ended June 15th 4679 cases were reported; in Tennessee, 4323; in Kansas, 4078; in Colorado, 2197; in Ohio, 1965; in New York, 1219; in North Carolina, 845; in Indiana, 834; and in Nebraska, 790. The total number of cases reported in the week ended June 15th was 28,257 with 486 deaths. In the same period in 1900 there were 12,092 cases with 642 deaths.

July 2nd.

Medical News.

UNIVERSITY OF BIRMINGHAM.—The following candidates were successful at examinations held in the Faculty of Medicine in June:—

1.—FOR THE DEGREES OF BACHELOR OF MEDICINE AND BACHELOR OF SURGERY.

(a) *Associates.*—Henry William Langley-Browne, Edward Cureton, Charles Leedham-Green, Jordan Lloyd, David Charles Lloyd-Owen, Priestley Smith, Thomas Law Webb, and Edmond Bancks Whitcombe.

(b) *Past Students of the Birmingham Medical School.*—George Clement Belcher, Reginald Shirley Burd, Arthur Cant, Gilbert William Charsley, Arthur Emery, Thomas Webb Fowler, John Edward Godson, Frederick James Vincent Hall, Charles Harold Harcourt, Arthur Hawley, George Leonard Hill, Wilfrid Anthony [illegible] Arthur Wilkes.

(c) *Under Ordinary Regulations.*—Michael Joseph Quirke.

2.—FOR THE DEGREE OF BACHELOR OF DENTAL SURGERY.

(a) *Associate.*—John Dencer Whittles.

(b) *Past Student of the Birmingham Dental School.*—Harold Round.

3.—FOR THE DIPLOMA OF PUBLIC HEALTH.

Robert Arthur Lyster and Robert Turner.

FIRST EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICINE AND BACHELOR OF SURGERY.

Elementary Biology (Part I.).—Henry Neville Crowe, Harvey Atkins Evans, Richard Stuart Wathen Hunt, George Frederick Jothan, and Norman Valentine Williams.

Chemistry and Physics (Part II.).—*Class I.:* Francis Reginald D'Alton Glissan and Norman John Lancelot Rollason. *Class II.:* Robert Wallace Aitken, Reginald Hudson Astbury, Edward Lancelot Bunting, Helen Gertrude Greener, Leonard Leigh Hadley, William Claude Horton, William Cuthbert Houghton, and Henry Percy Pickerill.

SPECIAL SECOND EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICINE AND BACHELOR OF SURGERY.

Class I.—Alfred Ernest Remmett Weaver and Frederick Wilkinson.

Class II.—William George Aviss, William Cook, Cuthbert Keay Gettings, Robert Beatson Dennis Hird, Leonard George Joseph Mackey, and Edmund Wilkinson.

SOCIETY OF APOTHECARIES OF LONDON.—At the primary examination held recently the following candidates passed in the subjects indicated:—

PART I.

Biology.—G. E. Austin, Royal Free Hospital; F. C. M. Gabites, Edinburgh; and C. A. Sampson, Charing Cross Hospital.

Chemistry.—G. E. Austin, Royal Free Hospital; and F. C. M. Gabites, Edinburgh.

Materia Medica and Pharmacy.—A. Bernfeld, Royal Free Hospital; A. G. Gamble, Leeds; G. B. Messenger, Liverpool; C. A. Sampson, Charing Cross Hospital; C. J. Taylor, Bristol; and B. B. Westlake, Guy's Hospital.

PART II.

Anatomy.—A. J. Ambrose, Westminster Hospital; G. C. M. Davies, Charing-cross Hospital; B. C. Ghosh, and T. W. S. Hills Cambridge; H. M. Huggins, St. Bartholomew's Hospital; C. Kellgren, Royal Free Hospital; G. Nunn, Guy's Hospital; C. H. Osmond, Glasgow; O. P. N. Pearn, Westminster Hospital; E. H. Price, Birmingham; R. C. Richards, University College Hospital; R. J. S. Verity, Charing-cross Hospital; and S. J. Weinberg, Manchester.

Physiology.—H. Bacon, Cambridge and Guy's Hospital; G. C. M. Davies, Charing Cross Hospital; B. C. Ghosh and T. W. S. Hills, Cambridge; H. M. Huggins, St. Bartholomew's Hospital; A. C. Jenkins, London Hospital; T. L. A. Jones, Cardiff; C. Kellgren, Royal Free Hospital; G. Nunn, Guy's Hospital; O. P. N. Pearn, Westminster Hospital; E. H. Price, Birmingham; G. H. Rains, Westminster Hospital; R. C. Richards, University College Hospital; and S. H. Sugden and S. J. Weinberg, Manchester.

FOREIGN UNIVERSITY INTELLIGENCE.—*Bordeaux:* Dr. Sigalas, *agrégé*, has been appointed to the new chair of Pharmaceutical Physics. Dr. Gentès and Dr. Cavalié have been appointed *professeurs agrégés* of Anatomy; Dr. Benech, *professeur agrégé* of Chemistry; and Dr. Dupony, *professeur agrégé* of Pharmacy.—*Cracow:* Dr. Karl Klecki, Extraordinary Professor of General and Experimental Pathology, has been appointed Ordinary Professor.—*Freiburg:* Dr. Wilhelm Manz, Professor of Ophthalmology, is retiring from his chair.—*Lille:* Dr. Gérard has been appointed *professeur agrégé* of Anatomy.—*Lyons:* Dr. Regaud has been appointed *professeur agrégé* of Anatomy.—*Marburg:* Dr. Borrmann, first assistant in the Anatomical Institute, has been recognised as *privat-docent.*—*Montpellier:* Dr. Poujol has been appointed *professeur agrégé* of Physiology.—*Paris:* Dr. Rieffel and Dr. Cunéo have been appointed *professeurs agrégés* of Anatomy, Dr. Guiart *professeur agrégé* of Natural History, and Dr. Richaud *professeur agrégé* of Pharmacy.—*Prague (Bohemian University):* Dr. Okukula has been appointed Extraordinary Professor of Surgery.—*Rostock:* Dr. Keller of Breslau has been appointed Extraordinary Professor of Children's Diseases.—*Toulouse:* Dr. Cluzet has been appointed *professeur agrégé* of Medical Physics.—*Vienna:* Dr F. von Sölder has been recognised as *privat-docent* of Psychiatry and Neurology.

CERTIFICATION OF LUNATICS.—A meeting of the magistrates of the Taunton Petty Sessional Division was held on June 22nd to consider a report from one of the magistrates in reference to a case of lunacy which had come under his notice. This stated that a relieving officer called upon this magistrate recently with a request that he would sign an order for the detention of a lady in a lunatic asylum. The officer said that two medical men had already certified the lady to be insane and added that he "must sign" the order, and "that if he should not do so he would be answerable for the lady's life if anything happened to her." The magistrate then consulted the magistrates' clerk who found that this mode of procedure was irregular because the relieving officer had not obtained from a magistrate the formal necessary orders directing two medical practitioners to examine the patient and had asked the justice to sign the order for removal, it being not only necessary for the medical men to certify insanity, but the justice himself must be satisfied with the evidence. The bench of magistrates decided that in future they would not sign any such order unless the law had been fully complied with. The clerk to the guardians said that the relieving officers had been in the habit of calling in medical practitioners and getting their certificates, and the magistrates had until now been satisfied with those certificates

LITERARY INTELLIGENCE.—The Syndics of the Cambridge University Press have undertaken the publication of the first part of the "Index Animalium," to the preparation of which Mr. C. Davies Sherborn has devoted so many years. The object of the index is to provide zoologists with a complete list of all generic and specific names given by authors to animals, both recent and fossil, since Jan 1st, 1758, the date of the tenth edition of Linnæus's *Systema Naturæ*. With each name will be given an exact date and a reference intelligible to the layman as well as to the specialist. The British Association appointed a special committee to watch over the inception and progress of the work, the preparation of which was undertaken in 1890 Financial support has been given by the British Association, the Royal Society, and the Zoological Society, while the authorities of the British Museum have afforded continual assistance. The work will be to the student of animal life what the "Index Kewensis" is to the botanist, and indeed far more, as the last-named work refers only to phanerogams, whereas the "Index Animalium" will include all groups of animals and both recent and fossil forms. The portion of the work already completed and in the press covers the period from 1758 to 1800 and consists of 61,600 entries.

Society for the Study of Disease in Children.—Some 70 members and visitors attended the provincial meeting of this society, which was held on June 29th at the Medical Institution, Liverpool, under the presidency of Mr. Robert Jones, surgeon to the Royal Southern Hospital. 31 new members were elected. Many interesting clinical cases were shown and papers were read by Dr. Henry Ashby, Dr. George Carpenter, Mr. Sydney Stephenson, Dr. D. M. Hutton, Mr. K. W. Monsarrat, Dr Richard Caton, Dr. C. J. Macalister, Mr. R. Clement Lucas, Dr. John H. Bryant, Dr. John McCaw, and Dr. James Carmichael. In the evening the members dined together at the Adelphi Hotel, Dr. A. Ernest Sansom being in the chair. The toast of "The Society" was proposed by Dr. William Carter, physician to the Royal Southern Hospital. On the following day the members drove to Heswell for the purpose of inspecting the new building of the Liverpool Country Hospital for Chronic Diseases of Children, and afterwards they lunched with Mr. Robert Jones.

Presentations to Medical Practitioners.—At Totnes railway station on July 5th, after the distribution of certificates and badges awarded to the members of the Totnes and Brent branch of the St. John Ambulance Association, which consists of the employés of the Great Western Railway Company, Mr. H. Adye, the divisional superintendent, on behalf of the class, presented Mr. W. Richardson Edmond, M.B. C.M., L.R.C.P. Edin., M.R.C.S. Eng., and Mr. J. William Wyncoll, M.B., C.M. Edin., with a case of pipes and a silver-mounted walking-stick, respectively, in appreciation of their services as honorary instructors.

The late Dr. A. L. Wade.—Dr. Arthur Law Wade, who has been for several years physician and superintendent at the Somerset County Asylum, near Wells, died suddenly on July 1st. Dr. Wade, who graduated M.D. of Dublin in 1873, had formerly held the appointments of senior assistant medical officer at the Kent County Asylum and at the Warwick County Asylum, of surgeon to the Royal Isle of Wight Infirmary, and of assistant medical officer at the Laverstock House Asylum, Salisbury. Dr. Wade, who was well known in Wells and the neighbourhood, was held in high esteem by all classes and much regret is felt at his death.

Weston-super-Mare Hospital.—A successful *fête* was held on July 3rd and 4th in aid of the funds of the Weston-super-Mare Hospital and it is thought that the institution will benefit to the extent of about £600.

Deaths of Eminent Foreign Medical Men.—The deaths of the following eminent foreign medical men are announced:—Dr. Julius von Siklossy, ophthalmic surgeon to the St. Rochus Hospital, Budapest.—Dr. Gino Ciaccio, Professor of Comparative Anatomy in Bologna.

Medical Magistrate.—Dr. William Moxon of Matlock Bridge has been placed on the Commission of the Peace for the county of Derby.

Parliamentary Intelligence.

HOUSE OF COMMONS.

THURSDAY, JULY 4TH.

The Army Medical Service.

DR. FARQUHARSON asked the Secretary of State for War whether the Committee on the Army Medical Department would take evidence and whether it would be allowed to suggest alternative schemes to that proposed by the chairman; and whether its proceedings would be public.—Mr. BRODRICK replied: No; so far as at present arranged the committee will not take evidence and its proceedings will be private. It will, of course, be open to any member of the committee to submit alternative proposals.

Sir CHARLES DILKE asked the Secretary of State for War whether the committee of experts to consider the future organisation of the Army Medical Service would take into consideration the arrangements to be made in time of peace for utilising in time of war the services of civil surgeons and trained civilian nurses in connexion with the Army Medical Service; and would he state what would be the reference to the committee.—Mr. BRODRICK replied: The committee will be invited to consider the general medical requirements of the army. The committee is a consultative committee, and I do not propose to publish terms of reference.

FRIDAY, JULY 5TH.

Hospital Ship for the Mediterranean.

In the course of a debate on the shipbuilding vote for the Navy it was announced that the Admiralty had intended to hire a hospital ship for the Mediterranean Squadron, but it would not be necessary to do so now owing to the gift to the nation of the hospital ship *Maine*, which in due course would take her place as the hospital ship of the Mediterranean. The Admiralty, however, were taking money for the provision of a large amount of equipment for hospital ships in the event of war. The view of the Admiralty was that they should not actually equip more hospital ships than were necessary in time of peace.

Royal Commission on Sewage Disposal.

Mr. WALTER LONG, in reply to a question, said that he understood the Royal Commission on Sewage Disposal had agreed to an interim report and he hoped that this report would be issued very shortly.

MONDAY, JULY 8TH.

Sickness among the Troops in South Africa.

Lord STANLEY, in reply to Mr. MACNEILL, said that there are 251,000 troops in South Africa of whom about 14,000 are sick. There were no returns which enabled him to give any detailed information.

TUESDAY, JULY 9TH.

First Aid and Home Nursing in Evening Schools.

Dr. MACNAMARA asked the Vice-President of the Committee of Council on Education whether he would state why the subjects of first-aid, home nursing, and physical exercises, including gymnastics and swimming, had been *dropped* in the Evening Schools Minute of July 3rd.—Sir JOHN GORST replied: Because of the abuses to which the inclusion of "suitable physical exercises" has given rise. Some of the subjects mentioned in the question would probably be sanctioned under the fifth head of Group VIII.

THE NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC.

SPECIAL GENERAL MEETING OF GOVERNORS AND SUBSCRIBERS.

THE governors and subscribers of the National Hospital for the Paralysed and Epileptic held a special general meeting on Saturday last, July 6th, in the hospital to receive and to consider the report of the committee of inquiry appointed pursuant to the resolutions passed on March 23rd. The chair was taken by Mr. PEARMAN and he was supported by a few members only of the Board. The attendance of governors and subscribers of the charity was not so great as on March 23rd, numbering about 70.

The CHAIRMAN having invited Mr. Melvill Green to propose the motion, of which notice had been given, Mr. MELVILL GREEN commenced by moving the thanks of the meeting to the *gentlemen* who had made the report. He proposed that the best thanks of the governors be given to Sir Edward Fry, Lord Wolverton, Mr. W. W. Carslake, Mr. Timothy Holmes, and Mr. Cecil Henry Russell, together with Mr. John Danvers Power, the honorary secretary, for their valuable services in conducting the *inquiry* of *investigation*.—The motion was seconded by Mr. WALFORD and put to the meeting and carried unanimously.

Mr. MELVILL GREEN: I come to the duty which has been imposed upon me of moving the first of three motions of which notice has been given—namely, that the report of the committee of inquiry be adopted. For that *motion*, of course, the committee of which I am a member are responsible. What I say now of the report is that for which I am only *responsible*. I hope I shall not offend anyone, for I contemplate reading certain portions of the report so as to make intelligible my remarks. I should like to read first of all Clause 13 in which the committee say that they have inquired into the truth of the several allegations complained of in the statement of the medical staff and they find that some of the most important of them are true, that some have a foundation of fact but are exaggerated, and that others are unsupported by any sufficient evidence. And then I should like to read Clause 53: "We can find no foundation for the fears entertained that the character of the hospital as a religious and philanthropic institution will be imperilled by the presence of two medical men on the Board of Management, and we are therefore quite unable to concur with the present Board when they characterise the demands of the medical staff as 'encroachments calculated to destroy the religious and philanthropic character of the hospitals, and to subordinate to purely professional objects institutions maintained by the benevolent for benevolent purposes.'" In Clauses 50 and 51 they say this, and this is a very important topic: "Another of the objections urged to the direct representation of the medical staff on the Board of Management is that it would give undue influence to the scientific elements in the hospital and will tend to subordinate the immediate benefit of the patient to the pursuit of medical knowledge." They inves- [illegible] nothing was adduced [illegible] or the action of the [illegible] suspicion suggested as [illegible] is our opinion that the defects in management to which attention was drawn by the statement were deserving of notice and correction; but that they were never *sufficient in magnitude and frequency to render the treatment in the* hospital otherwise than good as a whole." These four passages seem to me to show that what I ventured to say last August in a very much thinner meeting than we have here to-day is quite true—namely, that both sides had exaggerated but that there was truth with both. But they are very satisfactory statements to us as governors—very satisfactory indeed, because they show both that fears are unfounded and that the amount of mischief done to the hospital is not of an important character. It is trivial. I should like also to refer to the subject of finance. When it is mentioned that there are irregularities in finance people are apt to get frightened. It is true there were irregularities in finance. There ought to be three trustees and there are only two—that is a mere technical detail. A sum of money has been placed to one account that ought to have been placed to another—that is to say, it has been invested in what it ought not to have been, but the matter of finance is absolutely all right in the popular sense of the word. I must come now to the business of the day. The object of this report is to effect a very great and important change in the manner of managing this hospital and I trust you are going to—I am told there will be no difficulty on the matter—adopt the motion unanimously. I think it is inevitable that we shall do so The supervision of the affairs of the hospital by the Board of Management has not been adequate to the needs of the institution. The report says so and by adopting the report we say so. The rule of the hospital is *that there shall not be less than 12 members of the Board.* There are no more, but one or two members, in consequence of their personal distinction or their past services, in consequence in fact of most excellent reasons have been retained upon the Board when they have not been able to give attention to its affairs Most institutions have gentlemen of that kind on the Board. There are two, or more than two, courses open You can have a large committee of management and put asterisks against the honorary members or you can have a body of vice- [illegible] when they like; but the [illegible] the names of gentleme [illegible] of allowing their owner- [illegible] men on whom the ma [illegible] years to be able to giv [illegible] system and one of the [illegible] brings me to the two m [illegible] In Clause 55 we have [illegible] the report, "that the Board of Management be increased by the addition of two members chosen by the medical committee from the medical staff." And in Clause 48, "we are of opinion that the mode of representation desired by the medical staff is a very proper one and is the smallest concession which is reasonable." By carrying the motion that I am submitting to you [illegible] these must be altered at some subsequent [illegible] ond motion which is to be put before [illegible] prepare this alteration. By adopting the report I hope it is quite understood that we decide beyond all controversy and question that the medical staff shall be represented by two of its members elected by itself on the Board. The second [illegible] as follows: [illegible] in the hos- [illegible] there is such [illegible] ch an office. [illegible] a appointed with that title. I do not think that after receiving the resignation of Mr. Burford Rawlings which we have already in our hands, [illegible] that there be no secretary-director [illegible] this office and the appointment of [illegible] to seats upon the Board of Management are two subjects that have been in controversy for 15 or more years. They are the two main points of the controversy. The report shows you how fit it is that these reforms should take place In Clause 67 the action alike of the secretary-director and of th [illegible] to hinder the free acce [illegible] the Board. That is [illegible] 69 we have extraor [illegible] point, and I will t [illegible] *forcibly than the* [illegible] he pursued in the case dealt [illegible] dealings with the medical [illegible] the Board of Management" [illegible] proves this—"that, in our [illegible] manner which he thought to [illegible] of the instruction which he received from the Board; and that on them rather than on him rests the responsibility for the attitude he assumed towards the medical staff". My whole soul goes with that clause. There is nothing to blame Mr. Burford Rawlings for except that he did not perceive the falseness of his position He acted according to his directions and did what the Board wanted him to do and the blame, if blame there be, rests with the Board. I feel very sorry about the situation. Here is a gentleman who, with mistakes or without (it does not matter), has devoted the best of his life to the service of the hospital and who has done for it a great deal of very excellent work, who has devoted to it his life and whose heart has been in it. And yet we are obliged to take such a course that he must retire. It is pathetic; I feel very sorry about it; but I ask [illegible] I understand that the members [illegible] give us an explanation whic [illegible] does not appear to have bee [illegible] of inquiry. I do not want to say anything disagreeable. I do not want to suggest that the members of the Board should resign. I do not want to suggest that you, the governors, should say so, because the governors have no power. They can only elect two members, after three months' notice, before an annual meeting the date of which you do not know. In the course of six years you can change the Board and in the course of four years you can change the majority. That is one of the things which has to be altered in the rules. The members of the Board have told us for some time with great vigour that it would be quite [illegible] *members of the medical staff* [illegible] members of the staff would d [illegible] have to give way to the staff [illegible] that they cannot so conduct [illegible] withstanding the opinions that they have entertained and expressed so strongly, are willing still to govern the hospital with rather more industry, though, perhaps, not with more heart, than formerly I have nothing to say to it and certainly the report says nothing. The medical staff should now elect two members to the Board. There should be no secretary-director. The rules have to be revised from beginning to end. In Clause 107 [illegible] revising and the one or two claus [illegible] There are several matters which [illegible] some day—for example, payme [illegible] proxy There are questions alsc [illegible] many of these things will right themselves by the presence of two of the medical staff on the Board. I do not wish to refer to other details. I hope you are going to vote for the adoption of the report and so absolutely decide the three points: that the staff shall be represented on the Board, that the office of secretary-director shall be abolished, and that the rules shall be revised.

Sir JAMES CRICHTON BROWNE: I beg to second the adoption of the report. The committee have performed the duty assigned to them in the [illegible] practicable It is impossible thoroughly to grasp the significance of this report without comparing paragraph by paragraph the statement of the medical staff made in 1890 with the report of the sub-committee of management appointed to inquire into the complaints made in that report. Any such minute and detailed comparison, however, is [illegible] able, for it cannot [illegible] al staff have been [illegible] the sources from [illegible] pital have arisen. As far as possible we should avoid recrimination. There should be no [illegible] order that it may be restored we have to give it our support at a [illegible] sure every membe [illegible] in so many other [illegible] views and have [illegible] unfortunately ha [illegible] upon the gratitu [illegible] Mr. Melvill Green says, been a devoted servant to the hospital for 33 year [illegible] service, and has drawn [illegible] pecuniary support. And if [illegible] you owe a tenfold debt o [illegible] ave not only given their p [illegible] ave saved it from ruin. [illegible] re would have been [illegible] committee of inquiry there [illegible] hese abuses which have been [illegible] This must have resulted in [illegible] of this hospital into a posi- [illegible] I beg leave to second the [illegible]

[illegible] to ask permission to say a few [illegible] before the meeting, and to exp [illegible] the opinion of a great number [illegible] unfortunately not here to-day [illegible] may remark that to call a meeting of this kind of such very great importance on a day like this, on a Saturday and at this hour, makes it almost impossible for a great number of the subscribers to be present and it requires a certain amount of sacrifice for those who are here to be present We are here to-day to receive the report from the committee of inquiry who have, I doubt not, taken the very greatest pains to carry out the mandate given to them and we are told that it is our bounden duty to receive it without discussion, to adopt it entirely, and consequently to adopt every recommendation that is in it. I do not think that even the majority of the whole of the supporters of this charity would hold that view. As far as my own opinion goes it has always been that for the Board to maintain that the addition of two members of the medical staff to its numbers—two out of 12—would involve the predominance of medical influence on that Board was ridiculous. But it is not the business of the medical staff to govern the lay affairs of the hospital. Mr. Burford Rawlings is a man of obviously great ability and I for one would be very sorry if the adoption of this report should involve the severance of his name from the hospital, for good men are not so very easily found, and when we get them, even though with some faults which require to be amended, the way to get out of the difficulty is not by their dismissal. The working of a hospital is a large business and there is no business in the world that could be carried on successfully by a Board of 12. At one meeting some would attend, at the next others would attend, and so on, consequently there would be no sequence or method in the way in which the administration of the hospital was conducted. How could that plan possibly succeed? Is it not necessary that the Board should be represented by somebody who shall gather together the wishes of the management and see that they are carried out? I really cannot see how a Board can conduct a large business and deal with the many questions that must inevitably come before the hospital. The other alternative is to appoint a medical man, as I take it, as the head of the whole hospital and let him have the power (loud cries of "No, no").

Mr. **Walford**: It seems to me that it is not for us to discuss these points which are for the committee to be appointed.

The **Chairman**: It appears to me that the speaker is dealing with a paragraph of the report and is in order.

Mr. **Nelson**: I understand that some medical gentleman is practically to take the place that Mr. Burford Rawlings is about to vacate. (Renewed cries of dissent.) *What I want to insist upon is that if we* adopt this motion we are not bound to carry out all the recommendations contained in the report. We are not pledged to do that but we are pledged to consider it.

Dr. **Bastian**: There is no definite recommendation made, but there are two alternative schemes. It lies obviously with the committee that is about to be appointed to look into the details and when the committee have arrived at their conclusions their report will come before a subsequent meeting of the governors.

The **Chairman**: I quite agree with you.

Mr. **Melvill Green**: The second motion is: "That a committee be appointed to represent the governors in ma[illegible] may be necessary for dealing with all matt[illegible] arising out of, the adoption of the previous [illegible] widely worded. Of course, it means first that the committee will consider the whole management and constitution of the hospital and that they will at another meeting of the governors consider such alterations in the rules or such other matters as may require their decision; but I think the motion goes a little further. It does not say that the committee be appointed only to do that, but to represent the governors in making such arrangements as may be necessary for dealing with all *matters consequential* upon, or arising out of, the adoption of the previous resolution. I am not quite sure what it does do. It may be that it confers upon the committee we are about to appoint power to do temporarily what the governors do permanently in the interval. It seems to be a matter of considerable importance. It is quite impossible for the governors to meet again before October at the very earliest—it is out of all practical question; and I think this committee have conferred upon them a very great amount of power. That is my construction of the resolution, and I take this opportunity of pointing it out. You can see the words for yourselves and can judge. This motion seems necessary and I think the Board agree with us that a wide resolution of this kind is better. You must trust the committee you nominate [illegible]gs out of the governors' hands which would [illegible] position. I propose this motion.

[illegible] I second the motion subject to the addition of one or two words that are absolutely necessary. These words must be added, "reporting their recommendations to the governors." Surely what is to be done in the shape of reconstituting the constitution of the hospital must be done by a decision at a meeting of the governors; and while the governors certainly could not grapple with such a large subject you will agree with me that the committee should certainly report to the governors their recommendations.

Mr. **Melvill Green**: Certainly, if anyone thinks it is desirable, but the words are absolutely unnecessary. This meeting has not the power to rescind rules, much less can a committee appointed by it have power to rescind rules. The rules can only be rescinded by a meeting of the governors called for that purpose. That is quite certain and goes without saying.

A **Governor**: If so, why not say it?

Sir **Sydney Waterlow**: If you accept the words "reporting to the governors their recommendations and actions" I second the motion. I do not think I need say anything more except to congratulate the Board of Management and the governors generally upon the decision at which we have arrived after a long, wearying, and to me a very unpleasant and tiresome discussion. I hope that the committee that is to be appointed will frame such a new constitution as will be a permanent benefit to the institution and will bring into harmony the staff and the governing body.

Mr. **Victor Horsley**: May I ask a question relative to the duties of the committee? It is with regard to the expenses of the inquiry. I am anxious on behalf of the charity that this charity should not be [illegible] taxed for this horrible dispute.

The **Chairman**: I think the question is *hardly in order* on this reso[illegible]. This proposal has nothing to do with these expenses.

Mr. **Victor Horsley**: I was going to ask whether the committee [illegible] going to take into consideration that paragraph in the report that [illegible]fers to the expenses of this inquiry? The medical staff have not put [illegible]he hospital to a single halfpenny of expense and the Board have involved and are involving it in the expenditure of hundreds of pounds. I want to know on behalf of the patients for whom the hospital is carried on whether the charity is going to be taxed or not; that is my point.

The **Chairman**: I do not wish to interrupt you; I do not think you are in order at this moment. You are addressing yourself to a recommendation of the committee of inquiry.

Mr. **Victor Horsley**: Excuse me, sir, I am simply asking whether the committee of organisation will deal with this paragraph 109 and bring it before a general meeting.

The **Chairman**: It will deal with the whole of the report.

Mr. **Victor Horsley**: Very well, that answers my question.

Sir **John R. Paget**: May I point out that Clauses 103 and 109 of the report deal specifically with the matter. It is perfectly open to Mr. Victor Horsley or anybody else to bring up before this meeting the question of the expense of the inquiry.

Mr. **Melvill Green**: *I think* that the proper motion for Mr. Horsley would be to suggest that these costs should be taxed.

Mr. **Bowers**: I have given an undertaking to the committee of inquiry, being the solicitor in question, to agree that my bill shall be taxed if necessary. *They requested me to write a note to that effect,* and I said "Certainly." I did so at once. If there is the slightest indication on the part of any governor that the bill should be taxed I shall be glad if that course is taken without debate.

Mr. **Nelson**: Has Mr. Rawlings sent in his resignation to the Board?

The **Chairman**: Mr. Rawlings has notified his resignation for the next meeting of the Board.

Mr. **Nelson**: Is it open for the Board to consider its acceptance?

Mr. **Wigan**: I cannot assent to that.

The **Chairman**: *The Board are in the hands of the governors and* the Board would undoubtedly feel bound by any decision to which the governors may arrive at at a special general meeting, but speaking generally the Board are in a position to accept or to refuse the resignation.

Mr. **Melvill Green**: Technically that is so. I have talked the matter over with Mr. Bowers and we both came to the conclusion that it was quite impossible to retain Mr. Rawlings's services, anxious though I am that this should be done, but there was no mode possible by which it could be done.

Mr. **Bowers**: That is so.

The **Chairman**: I think it is very undesirable that any actual decision of this sort should be come to at this meeting. It is a subject for discussion connected with the report.

Mr. **Wigan**: I must again say that I understood that in adopting the report we accepted Mr. Rawlings's resignation. I do not want there to be any misunderstanding about that.

The **Chairman**: I think there must be some misunderstanding and I will clear it up. The Board a short time ago had a meeting with the committee of selection and it was then arranged after talking the matter over that in order to bring peace into this institution—a condition of things which has been absent from it some time—that it would be well, if the governors thought proper, that the Board should assent to the recommendation of the committee of inquiry so far as it related, first of all, to the admission of two members of the medical staff to the Board and, secondly, to the abolition of the office of secretary-director. That, I take it, is the main part of the report. There are other recommendations. There are other things which more or less, perhaps, look like condemnations. I have heard with some surprise that a good deal of blame has been attached to the Board and that the committee of inquiry have thrown on them more blame than on Mr. Rawlings. I think you will find if you will refer to the report of the committee of inquiry that upon the whole their opinion as to the condition of the hospital is good, that the management has been satisfactory (cries of "No, no"). Well, I will read the report as I hear somebody dissent: "Two surprise visits to the hospital have been paid by members of our committee, and we have thus made a personal inspection of the whole of the institution and instituted inquiries on the spot into various matters connected with its management. Generally speaking, the hospital was in good order." That is one clause. In another clause, which I cannot put my hand on this *moment, I think you will find they say, "We have inquired into the* truth of the several allegations made by the medical staff, contained in the statement of the staff, and we find that some of the most important of them are true, that some of them have a foundation of facts, that some are exaggerated, and that others are unsupported by any sufficient evidence. It is our opinion that the defects of the management to which attention was drawn by the statement were deserving of notice and correction but they were never sufficient in magnitude and frequency to render the treatment of the hospital otherwise than good as a whole." In other words, this hospital, like all other human institutions, had its failings. I have no doubt it had. The Board certainly do not profess to be immaculate. They do not claim that their management is absolutely perfect in every respect, but they do claim, and I think that they also have some right to claim, that the hospital is what it is in consequence largely of the action of the Board of Management. Some 25 to 30 years ago, when I was introduced to this institution by one of the founders, the charity was carried on in two little houses in Queen-square. Mr. Rawlings, of whom so much has been said, was then the secretary to the institution. From that time to this the hospital has continued to advance. The medical staff, whatever their feelings may be as to various matters, will not deny that they have from time to time and from year to year, when we have had our festival dinners expressed themselves as perfectly satisfied with the conditions of the hospital and with its advance. There has certainly been no hospital in this country which has increased at a greater rate or attained a greater name than this. No doubt that great name is largely due to the eminence of its medical staff. I for one should be very sorry to attempt to deny the medical staff the honour which is their due, but, on the other hand, the Board of Management claim that some credit is due to them even for the appointment of the medical staff. *It is a very important matter to appoint a medical staff,* and the Board of Management claim that in their selection they have chosen men who have been a credit to the institution. I think you would find that if an investigation were made in respect of any charity in this country, where the prosecution, if I may term it so, was undertaken by the medical staff, who have an intimate knowledge of all matters of the hospital, if every detail of management were questioned, if every fault that could be pointed out were pointed out to a committee of inquiry composed as this committee of inquiry was, I think that you would find that no institution would come out of that inquiry with a better report than this. I fully expect the medical staff will agree with me in what I say (cries of "No, no"). The defects, such as they are, which have been pointed out by the committee of inquiry, the most important of them at least, are those which were not brought to the knowledge of the Board (cries of "Oh"). I do think that, notwithstanding what is said by the committee of inquiry, and I can hardly think the medical staff themselves can be disposed to deny much that they ought to have brought these matters before the Board (loud cries of "We did"). All I can say is this, speaking for myself as one member of the Board of Management who has attended practically regularly for the last 35 years that these defects were not brought to my knowledge and I cannot help feeling that if they had been brought to the knowledge of the Board as a whole that it is absolutely impossible that I should not have heard of it. I do not propose to delay the meeting with any long expression of opinion on my part. The governors are proposing—and it is quite a proper course—to defer the questions which have been decided to a committee of their own number, and I will therefore put the resolution unless any other governor would like to address the meeting.

Mr. Victor Horsley: In the name of the staff I beg to protest against [illegible] to the [illegible] matter [illegible] inspire [illegible] Pearman comes here and has the [illegible] ical staff has not done this very [illegible] f the medical staff against your [illegible]

The Chairman: In replying to Mr. Horsley, I hope he will not suggest that I intended to be disingenuous. What I said was if any notice of these complaints had been given to the Board I do not see how it was possible that I, as a constant attendant, did not know of it and I individually did not know of it.

Mr. Victor Horsley: I must accept your explanation, but I do not consider it satisfactory.

The Chairman: Excuse me a moment. Though I do not think it desirable to continue the discussion I should like to read the thirty-ninth clause of the report.

Sir Sydney Waterlow: I rise to call the meeting to order. Does this discussion arise out of the motion for the appointment of the committee?

The Chairman: Though we are somewhat irregular I will ask you as a personal matter to allow me to read this thirty-ninth clause of the [illegible] that the Board of Management have [illegible] of sufficient bed-linen, and that the [illegible] ieral director has been directly drawn [illegible] o the condition, care, and treatment [illegible] s have been taken to remove them. [illegible] gment, not been proved." [illegible] have no further discussion which is [illegible] l with the past, let it be dead. We cannot alter it, we are concerned with the future that is in our hands

Sir James Crichton Browne: Clause No. 77 should be read also, otherwise it is unfair to Mr. Rawlings, whose case will come up for consideration, and one is bound to point out that the Board have for [illegible] the appr [illegible] opinion [illegible] be his du [illegible] received from the Board, and that on them rather than on him rests the responsibility for the attitude he assumed towards the medical staff."

The motion was put to the meeting in the amended form and carried unanimously.

Mr. Melvill Green: The third motion is that such committee consist of nine persons, three [illegible] Management, two by the [illegible] appointed on March 23rd, a [illegible] not propose that they shou [illegible] perhaps be surprised that [illegible] Board has the power of no [illegible] say it is desirable to keep t [illegible] have expressed themselves a [illegible] Board it has been suppose [illegible] number on the committee.

Sir Sydney Waterlow: I second this.

Mr. Melvill Green: Some alterations have been suggested by Mr. Bowers which are an improvement. He suggests that such committee consist of nine persons, three of whom shall be appointed, not [illegible] he appointment is [illegible] to the governors, [illegible] appointment was [illegible]

Sir Felix Semon: May I say one word before voting on behalf of the medical staff? We agree to this very much against our wish and we agree to it really in the interests of peace. It would have been better if this committee had been constituted by the governors without any delegates from the Board or medical staff, just in the same way as the committee of selection was appointed. It would have been open to that committee to ask for technical references from the Board and from the staff. We very much fear that a Board constituted in the manner proposed will simply be a repetition of what has happened on previous occasions. We hope that the gentlemen appointed by the governors will hold the scale. Otherwise it would have been better to simply have a committee nominated by the committee of selection without reference to the Board of Management.

Mr Wigan: I should like to know whether the Board are prepared to nominate three members to-day. I might say that our committee are prepared to do so and I hope the medical staff will be prepared also. It would be much wiser if the Board were in that position.

The Chairman: The Board are not in a position to nominate their members to-day. Next Tuesday, after their meeting, they will be in [illegible] with hospital matters as a [illegible] tal and upon the matters [illegible] o what he means, but it [illegible] n of the committee will be satisfactory.

Mr. Melvill Green. I did not draw the attention of the governors to one fact. The motion [illegible] governors" and [illegible] o gentlemen on [illegible] ld be very com- [illegible] on as it has been moved. I came here and I have learnt a good deal to-day, but I do not feel competent to choose who shall be on this committee to take charge of this hospital until it is reconstituted. Directly they are brought together the management of the hospital will be in their hands. I think it a wise course, which I hope they will follow, to utilise the existing management until some fresh constitution has been accepted by the governors. I hope the governors will not be called upon either to nominate or to appoint persons. I do not feel that they are competent to judge who are the best people to put on the committee.

The motion in its amended form was then put to the meeting and carried unanimously.

Mr. Wigan: I think before we separate, even if the Board are not disposed to nominate their members, we are, and I think the medical staff also, so that we shall not be the cause of the delay. As everyone will shortly be going out of town it seems to me a great mistake not to decide the matter now.

Sir John Paget: Mr. [illegible] men to fill the posts for [illegible] are also ready with the n [illegible] not. Although the Bo [illegible] meeting I sug [illegible] the names of [illegible]

Mr. Melvi [illegible] give the name [illegible] tion? (Loud [illegible] the signatories to the report, Mr. Power, who has acted as secretary, Mr. James Wigan, and myself.

Dr. Bastian. The medical staff have appointed Dr. Ormerod and Sir Felix Semon.

Mr. Wigan. I strongly urge the Board to make up their mind.

The Chairman The Board nominate Mr. Campbell, Mr. George Russell, and myself as members of the committee.

Mr. Melvill Green: We have done all we can do to-day. I will conclude by expressing our thanks to the chairman for the way in which he has performed his duties.

This was seconded by Dr. Bastian and carried.

The Chairman. I only wish that we had had a more satisfactory [illegible] ult will be satisfactory to [illegible]

BOOKS, ETC., RECEIVED.

Baillière, Tindall, and Cox, Strand, London.
Handbook of Public Health, Laboratory Work, and Food Inspection. By O. W. Andrews. Price 7*s.* 6*d.*

Black, Adam and Charles, London.
Sexual Dimorphism in the Animal Kingdom. By J. T. Cunningham, M.A. Price 12*s.* 6*d.*

Braumüller, Wilhelm, Wien and Leipzig.
Malaria: ihr Wesen, ihre Entstehung und ihre Verhütung. By Dr. Fritz Kerschbaumer. Price 7 marks.

Cassell and Co., London.
Surgical Diseases of the Kidney and Ureter. By Henry Morris, M.A., M.B., &c. Two vols. Price 42*s.*

Churchill, J. and A., Great Marlborough-street, London.
Epilepsy and other Chronic Convulsive Diseases. By Sir W. R. Gowers, M.D., &c. Second edition. Price 10*s.* 6*d.*
Operative and Inoperative Tumours of the Urinary Bladder. By E. Hurry Fenwick, F.R.C.S. Price 5*s.*

Fischer, Gustav, Jena.
Allgemeine Physiologie. By Max Verworn, M.D. Price 15 marks.
Das Wachstum und die Verbreitungswege des Magencarcinoms. By Dr. Robert Borrmann. Price 16 marks.

Fowler and Co., Imperial Arcade, Ludgate-circus, London.
Your Mesmeric Forces and How to Develop Them. By Frank Randall. Price 2*s.* 6*d*

Gregory, E., William street, Brisbane.
Intercolonial Medical Congress of Australia. Transactions of the Fifth Session, September, 1899. Price not stated.

Hirschwald, August, Berlin.
Die Entzundlichen Erkrankungen des Darms in der Regio ileocoecalis und ihre Folgen. By Dr. Richard Lenzmann. Price 10 marks.

Karger, S., Berlin.
Pemphigus des Auges. By Dr. E. Pergens. Price 2 marks.

Kegan Paul, Trench, Trübner, and Co., London.
Hypnotism and Suggestion in Therapeutics, Education, and Reform. By R. Osgood Mason, A.M., M.D. Price 6*s.*

Kimpton, Henry, Furnival-street, London.
Progressive Medicine A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., and H. R. M. Landis, M.D. Price not stated.

Kündig, Henry, Genève
Formes Cliniques de la Tuberculose Pulmonaire. By Dr. L. Bard. Price 1 mark 60 pfennige.
Gynæcologia Helvetica By Dr. O. Beuttner. Price 3 marks.

Longmans, Green and Co., Paternoster-row, London.
A Manual of Surgical Treatment. By W. Watson Cheyne and F. F. Burghard. Part V. Price 18*s*

Maclehose and Sons, Glasgow.
Glasgow Hospital Reports. Vol. III. Price not stated.

MACMILLAN AND Co., London.
School Hygiene. By E. R. Shaw. Price 4*s.* 6*d.*

NAUD, C., Rue Racine, Paris.
Les Processus Généraux. By MM. A. Chantemesse and W. W. Podwyssotsky. Price not stated.
Cliniques Médicales Iconographiques. By MM. P. Haushalter and others. Price 50 francs.

PENTLAND, YOUNG J., Edinburgh and London.
A Practical Guide to Meat Inspection (Walley). Rewritten and enlarged by Stewart Stockman, M.R.C.V.S. Price not stated.
The Edinburgh Medical Journal. Edited by Dr. G. A. Gibson. Vol. ix. Price not stated.

PHILIP AND SON, Fleet-street, London.
Rhodes's Steamship Guide. Edited by Thomas Rhodes. Price not stated.

STEINHEIL, GEORGE, Rue Casimir Delavigne, Paris.
De l'Obésité. By Dr. G. Leven. Price not stated.
Chirurgie Gastro-Intestinale. By Henri Hartmann. Price not stated.

SWAN SONNENSCHEIN AND Co., Paternoster-square, London.
A Treatise on Plague. By Major G. S. Thomson and Dr. J. Thomson. Price 7*s.* 6*d.*

UNIVERSITY PRESS, Cambridge.
A Manual of School Hygiene. Written for the Guidance of Teachers in Day Schools. By E. W. Hope, M.D., and E. A. Browne, F.R.C.S.E. Price 3*s.* 6*d.*

UNWIN, T. FISHER, Paternoster-square, London.
The Gods, Some Mortals, and Lord Wickenham. By John Oliver Hobbes. Price 2*s.*
Sister Teresa. By George Moore. Price 6*s.*
Evelyn Innes. By George Moore. Price 6*d.*

VIGOT FRÈRES, Paris.
Thérapeutique Chirurgicale et Chirurgie Journalière. By G. Phocas. Price not stated.

WAHR, GEORGE, Ann Arbor, Michigan.
Laboratory Work in Histology. By G. Carl Huber, M.D. Price not stated.

WILSON, EFFINGHAM, Royal Exchange, London.
Executors and Administrators: their Functions and Liabilities, "How to Prove a Will." By G. F. Emery, LL.M. Second edition. Price 2*s.*

WRIGHT AND Co., Bristol.
Golden Rules of Hygiene. By F. J. Waldo, M.A., M.D., &c. Price 1*s.*

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.*

ANDERSON, A. J., M.B. Oxon., M.R.C.S. Eng., D.P.H. Cantab., has been appointed Medical Officer of Health of Cape Town.

ANDERTON, J. E., L.R.C.P. Edin., has been re-appointed Medical Officer of Health of the New Mills (Derbyshire) Urban Sanitary District.

BADCOCK, G. W., L.D.S. Eng., has been appointed Dental House Surgeon at Guy's Hospital.

BAMFORD, T., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Medical Officer of Health of the Uttoxeter (Staffordshire), Urban Sanitary District.

BARLOW, T. W. N., M.R.C.S. Eng., L.R.C.P. Lond., D.P.H. Camb., has been appointed Medical Officer of Health of the Borough of Bootle, Visiting Medical Officer of the Linacre Hospital, and Surgeon to the Police and Fire Brigade.

BOSTOCK, A. S., M.R.C.S. Eng., has been re-appointed Medical Officer of Health of Westhampnett (Chichester) Rural Sanitary District.

BROWN, R. C., M.B., B.C. Camb., has been appointed Medical Officer of Health of Diss (Norfolk) Urban Sanitary District.

BURNETT, W. E. S., L.R.C.P., L.R.C.S. Edin., has been re-appointed Medical Officer of Health of Hollingworth Urban District.

CLOGG, A. H., L.D.S. Eng., has been appointed Dental House Surgeon at Guy's Hospital.

CONNON, MIDDLETON, M.B., C.M. Aberd., has been appointed Medical Officer of Montrose Prison.

COOPER, LUDFORD, L.R.C.P. Lond., M.[illegible], has been appointed Assistant Ophthalmic Surgeon t[illegible]w's Hospital, Rochester.

DUNN, P. H., L.R.C.P. Lond., M.R.C[illegible] Medical Officer of Health of Ste[illegible]pointed [illegible] Urban Sanitary District.

EDWARDS, R. J. Ll., M.B., C.M. Glasg., [illegible] Medical Officer for No. 1 District and for [illegible] Swansea Union.

GARDNER, A., M.B., C.M. Edin., has been re[illegible] Medical Officer of Health of Kirby Moorside (Yorkshire), [illegible]itary District.

GRAY, W. G., L.R.C.P. Edin., M.R.C.S. Eng., has been re-appointed Medical Officer of Health of Holsworthy (Devon) Urban Sanitary District.

GRIFFIN, W. WATSON, M.B. New Zealand, F.R.C.S. Eng., has been appointed Ophthalmic Surgeon to the Sussex County Hospital, Brighton.

HUGHES, JAMES BRIERLEY, M.R.C.S. Eng., L.S.A., has been appointed Consulting Medical Officer of the Macclesfield General Infirmary.

HUGHES, JOHN BRIERLEY, M.B., B.C. Cantab., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed a member of the Honorary Medical Staff of the Macclesfield General Infirmary.

MACDONALD, G. B. D., M.B., C.M. Aberd., has been appointed Vaccinator at Branxholme, Victoria.

MEIKLE, R. H., M.B., C.M. Glasg., has been appointed Medical Officer of Health of the Darlington Rural District.

MORRIS, E. W., L.R.C.P. Lond., M.R.C.S. Eng., has been appointed Assistant Health Officer at Port Adelaide, South Australia.

PONDER, C. F., M.B., Ch.M. Edin., has been appointed Vaccinator at Mathinna, Tasmania.

PROBYN-WILLIAMS, R. J., M.D. Durh., has been appointed Lecturer and Instructor in Anæsthetics at the London Hospital.

ROBERTSON, W., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Vaccinator at Tapanui, New Zealand.

ROBINSON, T. H., M.D., Ch.M. Edin., has been appointed District Medical Officer and Vaccinator at Albany, Western Australia.

STANG, T., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Acting Health Officer of the Shire of Echuca, Victoria, and Acting Vaccinator at Rochester, Victoria.

WADE, CHARLES, L.R.C.P. Lond., M.R.C.S. Eng., has been appointed Medical Officer for the Boscastle District of the Camelford Union, vice Arthur Wade, M.R.C.S. Eng., L.S.A., J.P., resigned.

WITHERS, OLIVER, M.D. Durh., L.R.C.P. Lond., M.R.C.S. Eng., has been appointed Medical Officer of Health of Sale, Cheshire.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BELFAST DISTRICT LUNATIC ASYLUM.—Locum Tenens. Salary £3 3s. per week, with residence and allowances.

BRIGHTON, HOVE, AND SUSSEX THROAT AND EAR HOSPITAL, Church-street, Queen's-road, Brighton.—House Surgeon for six months. Salary at rate of £75 per annum.

BRISTOL ROYAL INFIRMARY.—Anæsthetist and Junior House Surgeon. Also Casualty Officer. Both for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

BROWNLOW HILL WORKHOUSE, Liverpool.—Assistant Medical Officer. Salary £80 per annum, with rations and allowances.

CARLISLE DISPENSARY.—Resident Surgeon, unmarried. Salary £150 per annum, with apartments.

CHESHIRE COUNTY ASYLUM, Macclesfield.—Locum Tenens for two months. Terms £3 3s. per week, with railway fare both ways.

CHESTER GENERAL INFIRMARY.—House Physician. Salary £90 per annum, with residence and maintenance.

CUMBERLAND AND WESTMORLAND ASYLUM, Garlands, Carlisle.—Senior Assistant Medical Officer, unmarried. Salary £150 a year, rising to £180, with board, lodging, &c.

DAVID LEWIS NORTHERN HOSPITAL, Liverpool.—Assistant House Surgeon. Salary £70 per annum, with residence and maintenance.

DENBIGHSHIRE INFIRMARY, Denbigh.—House Surgeon. Salary £100, with board residence, and washing.

DEVON COUNTY ASYLUM, Exminster, near Exeter.—Third Assistant Medical Officer. Salary £125, rising to £150, with board, lodging, &c.

DEVONSHIRE HOSPITAL, Buxton, Derbyshire.—Assistant House Surgeon. Salary £50 per annum, with furnished apartments board, and washing.

EAST SUFFOLK AND IPSWICH HOSPITAL.—Second House Surgeon, unmarried. Salary £80 per annum, with board, lodging, and washing.

ESSEX COUNTY ASYLUM, Brentwood.—Junior Assistant Medical Officer. Salary £120 per annum.

FISHERTON ASYLUM.—Assistant Medical Officer. Salary £150 per annum, with board, lodging, and washing.

GERMAN HOSPITAL, Dalston.—Honorary Assistant Physician and Honorary Assistant Surgeon.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway, N.—House Physician and Junior House Physician, both for six months. Salary of the former at the rate of £60, of the latter at the rate of £30 per annum, with board, lodging, and washing. Also Non-Resident Assistant House Surgeon for six months. Salary at the rate of £30 per annum, and luncheon and dinner.

HOSPITAL FOR DISEASES OF THE SKIN, Stamford-street, Blackfriars, S.E.—Hon. Assistant Physician or Assistant Surgeon.

Hospital for Sick Children, Newcastle-on-Tyne.—Resident Medical Officer. Salary £100, with board, lodgings, and laundry.

Hull Royal Infirmary.—Casualty Officer. Salary £60 per annum, with board and lodging.

Hulme Dispensary, Manchester.—Honorary Physician.

Indian Mining Association, Bengal.—Assistant Medical Officer, unmarried. Salary Rs 300 per mensem, with house, horse, and travelling allowance.

Kent and Canterbury Hospital.—Assistant House Surgeon, unmarried. Salary £60 a year, with board and lodging.

Leicester Infirmary.—Clinical Clerk and Dresser. Honorarium £10 10s. for six months, with apartments, board, and washing.

Liverpool Dispensaries.—Assistant Surgeon, unmarried. Salary £100 per annum, with board and apartments.

Liverpool Port Sanitary Authority.—Assistant Medical Officer of Health. Salary £300 per annum.

London Hospital, Whitechapel, E.—Assistant Director of the Pathological Institute. Salary £200 per annum.

London Lock Hospital, 91, Dean street, W.—House Surgeon to the Male Hospital. Salary £60 per annum, with board, lodging, and washing.

London Medical Mission, 33, Short's gardens, Endell street, W.C.—Medical Superintendent.

Manchester Royal Eye Hospital.—Junior House Surgeon. Salary £80, with residence, board, and washing.

Newcastle upon Tyne City Lunatic Asylum.—Second Assistant Medical Officer, unmarried. Salary £140 a year, rising to £160.

North London Hospital for Consumption, Hampstead.—Junior Resident Medical Officer for six months. Honorarium at rate of £60 per annum.

North Staffordshire Infirmary and Eye Hospital, Hartshill, Stoke-upon-Trent.—Assistant House Surgeon for six months. Board, apartments and washing and at least £10 at the end of six months.

North West London Hospital.—Assistant Physician.

[illegible] Senior Resident S[illegible] Salary [illegible] ant [illegible] by [illegible] and [illegible]

Oldham Infirmary.—Senior House Surgeon. Salary £100 per annum, with board, washing, and residence; also Junior, £75 per annum, with board, residence, and washing.

Owens College, Manchester.—Senior and Junior Demonstrator in Physiology. Stipends £150, rising to £200, and £100, rising to £150 respectively.

Parish of St. Giles, Camberwell.—Assistant Medical Superintendent for the Infirmary and Workhouse. Salary £150 per annum, with apartments, board, and washing.

Royal Albert Hospital, Devonport.—Assistant House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

Royal Cornwall Infirmary.—House Surgeon, unmarried. Salary £100, increasing by £10 a year, with board (excluding stimulants) and apartments.

Royal Hospital for Children and Women, Waterloo Bridge-road, S.E.—Assistant Surgeon.

Royal Hospital for Diseases of the Chest, City road, E.C.—*House Physician for six months. Salary at rate of £50 per annum,* with furnished apartments, board, and washing.

Royal Sea Bathing Hospital, Margate.—Assistant Resident Surgeon. Salary £70 per annum, with board and residence.

Royal South Hants and Southampton Hospital.—Junior House Surgeon for six months. Salary at rate of £50 per annum, with rooms, board, and washing.

Royal Surrey County Hospital, Guildford.—Assistant House Surgeon. Salary £75, with board, residence, and laundry.

Rural District Council of Auckland.—Medical Officer of Health. Salary £350 per annum.

St. George's Retreat, Burgess Hill, Sussex.—Resident Assistant.

Salop Infirmary.—Assistant House Surgeon. Salary at the rate of £40 per annum, with board and washing.

Taunton and Somerset Hospital, Taunton.—Assistant House Surgeon for six months. Salary at the rate of £60 per annum, with board, lodging, and washing.

University of Sydney, New South Wales.—Professor of Pathology. Salary £900 per annum. Pension £400 per annum after twenty years service. £100 allowed for passage.

West Bromwich District Hospital.—House Surgeon, unmarried. Salary £100 per annum, with board, residence and washing.

West Ham Hospital, Stratford, E.—Junior House Surgeon. Salary £75 per annum, with board, residence, &c.

West Riding Asylum, Wadsley, near Sheffield.—Third Assist[illegible] Medical Officer [illegible] to £200. Also [illegible] Salary £140 p[illegible] to £160.

[illegible] lical [illegible] lary [illegible]

Wolverhampton and Staffordshire General Hospital.—Assistant House Physician for six months. Honorarium at rate of £75 per annum, with board, lodging, and washing. Also Assistant House Surgeon for six months. Honorarium at rate of £75 per annum, with board, lodging, and washing.

Worksop Dispensary and Victoria Hospital.—House Surgeon and Dispenser, unmarried. Salary £150 per annum, with rooms and attendance.

York Dispensary.—Resident Medical Officer, unmarried. Salary £110 a year, with board, lodging, and attendance.

Births, Marriages, and Deaths.

BIRTHS

Bennetts.—On July 1st, at Bozeat, Northants, the wife of F. Bennetts, M.R.C.S., L.R.C.P., of a daughter.

Collier.—On July 7th, the wife of H. W. Collier, M.B., B.S. Lond., of Lee Park, Blackheath, of a son.

Cooper.—On July 4th, at Shirley road, Southampton, the wife of W. F. Cooper, L.R.C.P., L.R.C.S., of a son.

Corkery.—On July 2nd, at Alfreton, Derbyshire, the wife of T. Corkery, M.D., of a son.

Gross.—On July 3rd, at Commercial street, E., the wife of Phineas Gross, L.R.C.P. Lond., M.R.C.S. Eng., of a son.

Joy.—On July 2nd, at Bradfield, near Reading, Berkshire, the wife of Norman H. Joy, M.R.C.S., of a daughter.

Nichol.—On July 6th, 1901, at 11, Ethelbert-terrace, Margate, the wife of Frank Edward Nichol, of a daughter.

Pollard.—On July 5th, at Stanley road, Liverpool, the wife of G. W. [illegible] urne [illegible]

Whitelocke.—On July 8th and 9th (midnight), at Banbury road, Oxford, the wife of Richard Henry Anglin Whitelocke, M.B., M.Ch., F.R.C.S. Eng., of twin daughters.

MARRIAGES

Andrews—Horner.—On July 4th, at the parish church, Tonbridge, by the Rev. C. G. Baskerville, Henry Arthur Andrews, M.R.C.S., of Tonbridge, to Amy Diana Frances, daughter of the late A. C. Horner, M.R.C.S., of Tonbridge.

Archdall—Bayley.—On July 3rd, at St. Edmund's, Northampton, by the Rev. J. E. Hopkins, Mervyn T. Archdall, L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., of Rickmansworth, to Maude, daughter of J. Bayley, M.R.C.S. Eng., L.S.A.

Bull—Crook.—On July 3rd, at the Church of St. Peter and St. Paul, Weobley, Herefordshire, by the Rev. R. S. P. Chesshire, Harry Ashworth Bull, M.R.C.S. Eng., L.R.C.P. Lond., to Edith Marian, daughter of the Rev. James Crook.

Charles—Hodgson.—On July 8th, at the parish church, Handsworth, Staffordshire, by the Right Rev. the Bishop of Shrewsbury, John Roger Charles, M.D., to Alice Mary Gertrude, daughter of the Venble. Robert Hodgson, rector of the parish and Archdeacon of Stafford.

Dupont—Purchase.—On July 2nd, at St. Mary's, Oatlands, by the Rev. A. Prosser, assisted by the Rev. H. Townend, G. H. Dupont, M.D., of Twickenham, to Emily Mabel, youngest daughter of A. E. Purchase, of Rosslyn Lodge, Weybridge, Surrey.

Fooks—Appleton.—On June 20th, at St. Paul's Church, Shanklin, Isle of White, by the Rev. A. W. Stockley, Walter Pemberton Fooks, M.A., M.B., B.C. Cantab., of Isleworth, to Maud Mary, fourth daughter of Lieut.-Col. Appleton, of Alresford Lodge, Shanklin, Isle of Wight.

Fox—Hughes.—On July 4th, at Holy Trinity Church, East Finchley, by the Rev. A. Hughes, Hugh Watson, M.R.C.S., L.R.C.P., to Flora Rosalind Ada Crawford, daughter of Walter Hughes.

Hewitson—Woolley.—On July 6th, at the Methodist Free Church, Foxhill Bank, Accrington, by the Rev. W. C. Rank, the [illegible]

[illegible] A. E. Cicely Poole. [illegible] W[illegible]ton-super-Mare, [illegible] [illegible]CS., L.R.C.P., [illegible] urch, Ranmoor, [illegible] tanley Riseley, [illegible] s Muriel, only [illegible] er, of Rutland Park, Sheffield.

Stokes—Grey.—On July 9th, at the Church of St. Michael and All Angels, Bedford park, by the Rev. Arthur Stokes, John Wilfred Stokes, M.R.C.S., L.R.C.P. Eng., to Doris Louisa, daughter of Mr. and Mrs. Gray.

Thorpe—Veale.—On July 6th, at Emmanuel Church, Plymouth, by the Rev. G. B. Berry, William George Thorpe, M.D., to Alice Rose, daughter of the late William E. L. Veale.

DEATHS

Bagot.—On July 7th, at Leinster-square, Dublin, Edward Bagot, F.R.C.S.I., late of Enniskillen.

De[illegible]

Ha[illegible]

Kn[illegible]

Purchas.—On July 6th, Thomas Beswick Purchas, M.D., Dep.-Insp.-Gen. R.N., aged 76 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE MART FOR BEAUTY.

It was James Thomson, the poet of "The Seasons," who remarked that "Loveliness needs not the foreign aid of ornament, but is when unadorned adorned the most." A study of the advertisement columns of the *Morning Post* for July 10th shows that loveliness if guiltless of ornament can apparently only be won by a great deal of trouble and a large expenditure of money. Is a lady too fat, then let her use Slenderine, which never causes irritation even if used to reduce a double chin. Mrs. Delia P. Watson has proof of the accuracy of this statement in her possession. Or she may consult Miss Johnson who desires to draw special attention to the new Zobeide treatment for obesity, hip reduction a special feature. The freaks of fashion are past understanding, for last year, if we remember rightly, or the year before, every woman with any pretensions to beauty wore artificial hips of portentous size. Should either of these treatments fail the too-stout sufferer can try anti-obesity pastilles, to be obtained from Mrs. Barry; or, again, Mrs. Gallop will reduce her five or six pounds weekly. Let us now consider the case of women who are thin and wrinkled. Madam Adair has introduced a wonderful Eastern oil which, according to Mrs. Deborah Primrose, fills up hollows, makes the skin smooth and white, removes all sorts of lines, while the skin tonic removes puffiness under the eyes. Its cost, we note, is but small—£1 10*s*. 6*d*. per bottle, or a sample for 10*s*. 6*d*. We gather, however, that this wonderful oil does not always succeed, for Madame (with an *e* this time) has another card to play. Wrinkles, she points out, are absolutely removed by the new Strapping Massage. Finally, we come to a lady who goes in for no half measures. Matthews Duncan used to say, "If you don't believe in yourself nobody else will," and the lady in question has evidently heard this saying, for we read: "Sister Hope Raymond (late of a well-known London hospital). New Scientific Treatment Daily: Unfailing remedy for all diseases; recommended by the medical profession."

We do not suppose that any of the above treatments would do any actual harm, and if anyone is fool enough to pay one and a half guineas for a bottle of oil the cost price of which is probably one and a half shillings or less, let them do it. But they may all do potential harm by preventing people from seeking skilled advice and the advertisements are misleading. But of Sister Hope Raymond's statement we can only say one thing—it is a lie. There is no such thing as an unfailing remedy for all diseases, neither has one been recommended by the medical profession. Quacks will continue to flourish so long as there are fools who go to them, but it is sad to see the columns of a respectable journal such as the *Morning Post* given up to spreading such trash abroad.

EXPENSES AT CARLSBAD AND HOMBURG.

To the Editors of The Lancet.

Sirs,—Could you inform me through the medium of The Lancet the probable cost of one month's stay at Carlsbad or Homburg for a bachelor in August or September?

I am, Sirs, yours faithfully,

July 5th, 1901. L.R.C.P. Edin.

*** The question is somewhat difficult to answer, as expenses depend so much upon the kind of accommodation. We should think, however, that from 12*s*. to 24*s*. per diem would cover expenses. But our correspondent had better write to some of the hotels and ask.—Ed. L.

THE FREAKS OF MEMORY.

To the Editors of The Lancet.

Sirs,—The following appeared some time ago in the *Standard*. A sailor, speaking French and Portuguese, had an accident to his head which caused him entirely to lose the faculty of speech. Unable to continue his work as a sailor, he got work to do at a market gardener's not far from Portsmouth and remained with this man for 15 years. One day when he had been near the guns when practising was going on and the noise had been great and sudden he regained his speech, but could speak *only* English, having completely forgotten both French and Portuguese. Perhaps you may have had a note of this case, or if not if you will be good enough to insert this in your journal one of your readers may be able to substantiate the case and perhaps to direct me where I could find further details.—I am, Sirs, yours faithfully,

Zurich, July 7th, 1901. A. Pariss.

"MEDICAL TESTIMONIALS."

To the Editors of The Lancet.

Sirs,—I note that your attention has been called to a circular issued by the Quadrant Cycle Company containing a letter from me together with my name. I wish you to know that on learning that this circular had been issued I at once requested the Quadrant Company to withdraw it, and explained to them that the use of a medical man's name is contrary to professional custom. They wrote me: "We hasten to express to you our deep regret that we should have infringed, unknowingly, the etiquette of the medical profession by the publication of your testimonial in the form in which it appears. ...... The fact that the circular is addressed by us to medical men shows how unconscious we were of any breach of professional usage." It appears that the company understood from their local representative that I had given him verbal permission to use my letter as a testimonial. In this, however, they were misinformed, as what I really said was that I had no objection to my letter being used *provided that my name did not appear*. I blame the company for using my name without writing for permission to do so, which would, of course, have been refused. I also blame myself for sending the letter without at the same time stating in writing that my name must not be used.

I am, Sirs yours faithfully,

July 8th, 1901. W. E. Fothergill.

PS.—At my request by telegram the editor of the *C. T. C. Gazette* wired instructions to the printer to remove my name, &c., from the Quadrant advertisement in the *Gazette* for July. He was, however, too late, the advertisement sheets having been printed already. An explanation of the mistake will be sent for publication in the next number of the *Gazette*.—W. E. F.

"HOMES FOR INEBRIATES."

The Principal of Tower House, Westgate-on-Sea, informs "Phenad" that such an arrangement as he suggests might be made with the authorities of the same. He invites particulars.

"THE TREATMENT OF ACNE."

To the Editors of The Lancet.

Sirs,—In reply to your correspondent "Acne" in The Lancet of July 6th, p. 63, who desires the best treatment for acne, I think if he will carefully consider the items of his diet he may find the cause lying therein, and he ought immediately to abstain from the "food" which to him may be a "poison." Examples of this are well known in such things as tomatoes, crayfish, gooseberries, vinegar, highly seasoned dishes, &c. Meanwhile, let him put himself on a course of the following medicine, taking particular care that it is taken on an "almost empty" stomach before meals: four grains of sulphate of iron, from a half to one drachm of sulphate of magnesia, 10 minims of dilute sulphuric acid, 10 minims of tincture of ginger, five minims of glycerine of carbolic acid, and one ounce of chloroform water. Two tablespoonfuls twice a day to be taken on an almost empty stomach one hour before meals (i.e., at 12 noon and 4 P.M. if he breakfasts at 9 A.M. and has luncheon at 1 P.M.).

I am, Sirs, yours faithfully,

A. Alison Bradburne.

"ANTI-RHEUMATIC RINGS."

To the Editors of The Lancet.

Sirs,—I am assailed on all sides with the wonders these magic rings produce. Has any reader of your paper been curious enough to analyse the yellow substance that is stated to be deposited at *only* certain periods beneath the ring, and has also the composition of the ring been examined? I have always maintained that the ring was iron and the deposit rust. Not having been enterprising enough to analyse the substances myself I should be glad to learn if this is so, as I want to be able to pulverise those people who fondly imagine that of all things the deposit is uric acid. I am, Sirs, yours faithfully,

July 2nd, 1901. M.D.

*** Our correspondent will find an analysis of an "anti-rheumatic ring" given in The Lancet of March 2nd, 1901, page 676.—Ed. L.

◆

J. L.—No. 1 Radam Microbe Killer contained 0·072 gramme free sulphur dioxide in 100 cubic centimetres, also 0·045 gramme salts and 0·5 gramme sulphuric acid. The rest was water. Radam's Microbe Killer No. 2 contained 0·07 gramme free sulphur dioxide, 0·03 gram salts, and 0·60 gramme sulphuric acid in 100 cubic centimetres. The rest was water. It is probable that both these liquids were originally stronger in sulphur dioxide, which to some extent has disappeared in favour of sulphuric acid, its oxidation product. As our correspondent knows, sulphur dioxide is a strong antiseptic and bleaching agent, and according to some authorities has been used with success as an anti-fermentative in dyspepsia.

M.D. has not stated the case with sufficient clearness. We cannot understand what position B held towards A. The whole matter, however, appears to be very small and it would be a great pity to allow any disagreement between professional colleagues to arise from it. As there is much to be said for both views why should not the fee be halved?

Clara.—The proceeding may have had some permanent effect. This, however, is not likely. The question is one that may well be put to our correspondent's family medical man.

Communications not noticed in our present issue will receive attention in our next.

During the week marked copies of the following newspapers have been received:—*Bristol Mercury, Liverpool Daily Post, Yorkshire Post, Hertfordshire Mercury, Mining Journal, Windsor and Eton Express, South African News, Leeds Mercury, Reading Mercury, Surrey Advertiser North Wales Chronicle, Weekly Free Press* (*Aberdeen*), &c.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a m by Steward's Instruments.)

THE LANCET Office, July 11th, 1901.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radia in Vacuo	Maximum Temp. Shade	Min Temp	Wet Bulb	Dry Bulb.	Remarks at 8.30 A. M.
July 5	30·09	N.W.	...	125	87	62	65	71	Hazy
" 6	30·08	N.W.	...	110	75	64	64	68	Hazy
" 7	30·20	N.E.	...	93	69	58	60	61	Overcast
" 8	30 21	E.	...	124	78	55	58	63	Hazy
" 9	30·05	E.	...	105	80	55	57	62	Cloudy
" 10	30·05	E.	..	122	85	58	60	65	Hazy
" 11	30·09	ENE	...	121	86	59	63	68	Hazy

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (15th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M.).

TUESDAY (16th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.).

WEDNESDAY (17th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.).

THURSDAY (18th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.).

FRIDAY (19th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.).

SATURDAY (20th).—Royal Free (9 A.M. and 2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), University College (9.15 A.M.), Charing-cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), London Throat (2 P.M.), Throat, Golden-square (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEDNESDAY (17th).—HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (Brompton).—4 P.M. Dr. Latham: Cardiac Pain.

LONDON HOSPITAL MEDICAL COLLEGE (Anatomical Theatre of the College).—4 P.M. Mr. Jonathan Hutchinson: Fatty Tumours and General Adiposity.

THURSDAY (18th).—THE HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M. Mr. Lister: Demonstration of Ophthalmic Cases.

EDITORIAL NOTICES.

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It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

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We cannot prescribe or recommend practitioners

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1901, which was completed with the issue of June 29th, and the Title-page to the Volume, were given in THE LANCET of July 6th.

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Clinical Lectures

ON

THE PATHOLOGY OF HYSTERIA.

Delivered at the West End Hospital for Diseases of the Nervous System, Welbeck-street, W.,

BY THOMAS D. SAVILL, M.D. LOND.,

PHYSICIAN TO THE HOSPITAL.

I.—HYSTERICAL ATTACKS.

GENTLEMEN,—At one of our previous meetings I drew your attention to some of the important consequences which may result from disturbances of the vaso-motor and sympathetic systems,[1] and I promised to return to the subject on a future occasion. That promise I propose to redeem to-day, *apropos* of the pathology of that strange and protean disorder hysteria. The two most striking and most constant clinical features of hysterical disorders which affect the nervous system—hysterical paralysis for instance—are first, the remarkable similarity there is between the latter and a corresponding paralysis due to organic disease; and secondly, the suddenness with which the paralysis (or other malady) may appear in a person to all appearance in perfect health, and the equally sudden way in which it may disappear, without rhyme or reason, and without leaving any trace behind it.

The first of these features, the resemblance to organic disease, is often so great that it may give rise to very considerable difficulty in diagnosis. This resemblance, or mimicry as it has been thought to be by some, is so marked that one of the greatest clinical observers of the last century, Sir James Paget,[2] suggested that the prefix "neuromimetic" should be used for these cases instead of hysterical—e.g., neuromimetic paralysis, neuromimetic joint-disease, and so on. That these affections should be due to mimicry is not an idea which can for one moment be maintained, and I hardly think that Sir James Paget could have intended to use this adjective in the strictly etymological sense. It would endow the patient with a very vast and accurate anatomical knowledge and an infinitude of cunning. There is, in short, only one tenable explanation—viz, that the *same anatomical part* of the nervous system is the seat of some kind of damage, some lesion which is sudden in its onset and equally sudden in its disappearance.

It was the second of these features which led me to what I believe to be the true nature of the lesion. The sudden onset of paralysis always suggests a vascular lesion, and in point of fact the anatomical change is, in my view, a vascular one (at least so far as concerns the manifestations due to lesions of the central nervous system; as regards other hysterical disorders I shall have more to say by and by), a sudden dilatation or contraction, as the case may be, of the arterioles of a given area, accompanied in some instances by exudation, or, at any rate, disturbance of nutrition in that part of the nervous system the function of which is deranged. Just as subjects of the hysterical diathesis are liable to attacks of flushing or pallor of the skin, so also, in my belief, are they liable to attacks of flushing or pallor of various parts of the interior of the body.

To establish the truth of a proposition like this, the ordinary experimental methods of the laboratory are not applicable, for we cannot [illegible] nor are ordinary anatomical [illegible]s rarely or never die from [illegible]ore have recourse to purely clinical methods, and see how the many and varied phenomena of hysteria tally with this hypothesis, and then employ the method of analogy. I will ask your attention, first, to a case of hysterical syncope presenting some of the data on which my theory is based; secondly, to the evidences of the hysterical diathesis; and thirdly, to the causes of hysteria. We shall then, I hope, be in a position to take a broad general view of the whole subject, and on a future occasion I will ask you to study with me a complete list of hysterical disorders, the features which they present in common, and their explanations. To-day I propose to confine myself to the pathology of hysterical "attacks" or seizures, as exemplified by hysterical syncope.

The patient who will shortly come before you is suffering from an extremely common complaint, but a close scrutiny of her case will, I believe, afford us some most instructive lessons. This young woman is now 22 years of age and she has been subject, ever since puberty, to "fainting attacks" of greater or less severity, sometimes as often as two or three times a week, the frequency depending to some extent on the presence or absence of a determining cause. The attacks are always more frequent and severe about the menstrual period, when they may last for an hour; at other times they may last for only a few moments. The face and limbs become pale, and if we could see it probably the rest of the surface of the body also, and then with a sigh she sinks back, sometimes becoming completely unconscious and sometimes only partially. After a short time the surface again becomes pink and she gradually resumes her normal condition. The process of recovery, she tells us, is often attended by "a rumbling" in the abdomen and sometimes by the eructation of wind. These attacks sometimes come on without *apparent* reason, but they are far oftener determined by some trivial cause, such as an emotional upset or something which startles her. She presents the phenomenon of "ovarian tenderness" in its complete form, which I shall shortly describe to you, and firm pressure in the inguinal region very often produces a fainting attack. She spontaneously informs us that after the attacks she invariably passes a large quantity of almost colourless urine—an occurrence frequently met with in such cases. She has derived much benefit from static electricity, and, for the attacks, assafœtida.

This is a very typical case of hysterical syncope, and I want you to observe that the most interesting clinical features of these "nervous faints," all of which are present in this patient, are as follows. 1. That whereas the great majority of persons never faint, such attacks are liable to occur many times during the lifetime of certain individuals, on more or less provocation. There may be very many years' interval between the attacks, but one of the means of diagnosing the condition is a history of its previous occurrence. In other words, there seems to be an inherent, innate, or inherited quality in some part of the nervous or neuro-vascular system of these persons which does not exist in other people. 2. The sufferers from these attacks are almost always of the female sex. 3. The determining cause of an attack is very frequently of an emotional kind, such as fear, grief, fright, and the like, or some kind of shock. 4 On inquiry, it will generally be found that these same subjects are liable, on the occurrence of the same causes which produce the "faints," to flushes or flush-storms, and perhaps to one or other of the many various forms of hysterical attack which I shall mention shortly, and that these flushes and the other seizures are interchangeable with one another and with the "faints." For instance, another patient now under my care, aged 27 years, is liable at all times to flushings, but the same causes which determine these will, at the catamenial period, result in syncopal attacks. 5 Pallor of the surface marks the initial stage, and lasts during the attack. This is almost certainly due to vaso-motor disturbance—that is to say, a contraction of the surface vessels, which may be primary or secondary to dilatation of the internal vessels, e.g., the arterioles of the splanchnic area. Some suggest that it is due to cardiac failure, but that the other explanation is the more probable, and that the pallor of the surface is secondary to dilatation of the internal vessels, is rendered far more likely by consideration of my next point. 6. Copious urination of pale, highly watery urine follows these syncopal attacks, and this seems to indicate that there has been during the faint a corresponding dilatation of the arterioles of the splanchnic area. This same copious flow of watery urine follows other hysterical seizures, and we have here a very important clue to their pathology. The kidney is extremely sensitive to any alteration in the blood-pressure, as Roy's experiments have shown. The secretion of the watery constituent of the urine, which largely depends on the blood-pressure in the glomeruli, may be increased by (1) any increase in the general blood-pressure such as may be produced by (*a*) increased force of the heart beat, or (*b*) constriction of the arterioles of the skin or other large vascular area; or (2) relaxation of the renal artery. No wonder, then, that there is a copious secretion of urine, for we know that there is marked constriction of the arterioles of the skin; this we can see, and there are very good reasons for believing that there is a dilatation of the splanchnic arteries which are supplied from the same sympathetic centre as the renal arteries, and therefore the latter are most probably relaxed also. 7. These (and other) attacks are very often preceded (at least according to the report of observant patients) by a curious, indefinable, but extremely disagreeable sensation in the region of "the stomach"; some patients describe it as "a throbbing," a "sinking" or "relaxed feeling" in the abdomen. The same kind of feeling, this patient tells us, may be produced by the emotions of fright, fear, or terror; moreover, very much the same kind of sensation, this patient also spontaneously tells us, may be produced by pressure in the inguinal region and may be then followed by a fainting attack.

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[1] Vide THE LANCET, June 1st, 1901, p. 1513.

[2] Sir James Paget: Clinical Lectures and Essays, edited by Howard J. Marsh. London: Longmans, 1879.

It seems to me that sufficient attention is not always paid to the details which I have just mentioned. We now know, thanks to the researches of Dr. Leonard Hill,[3] that the blood-pressure in the cerebral arteries is very largely, if not entirely, regulated by the amount of blood in the splanchnic area, and that the arterioles of this area are capable of an enormous amount of expansion and contraction; indeed, it has been stated that they are capable of containing nearly half of the total blood in the body at one time. If therefore the splanchnic area suddenly dilates cerebral anæmia immediately results, and *vice versâ*. We know also that cerebral anæmia will produce syncope and even convulsions.[4] The inference from the foregoing facts is that the essential lesion of these nervous faints is to be sought in the abdominal sympathetic, and that this lesion, whatever it may be, gives rise to a rapid dilatation of the splanchnic arteries and consequently to cerebral anæmia.

To carry this line of argument a step further, there is very good reason to believe that the pallor of the surface which accompanies the emotion of fear is due to a similar splanchnic dilatation It seems highly probable, therefore, that the nervous apparatus of the splanchnic area—i.e., the abdominal sympathetic—in these individuals is unduly susceptible and that it is readily influenced by fright, grief, anger, and other emotional causes—emotional conditions, be it observed, which are particularly apt to be met with in hysterical persons and in the female sex.

II.—The Hysterical Diathesis.

The *hysterical diathesis* and the symptoms by which it is recognised next claim our attention. There are two objections to the use of the term "hysteria,"—one is the opprobrium attaching to it and the other is its ambiguity. Its use has been sanctioned by such long-established custom that it cannot be discarded. The term is often applied very loosely either to the inherent tendency—i.e., the diathesis—which may exist in an individual to the development of certain symptoms—paralysis, anæsthesia, syncope, convulsions, joint disease, &c., or else to those symptoms themselves.[5] The hysterical diathesis may, I believe, be defined as a peculiar condition of the nervous system, inherent in the individual and for the most part inherited, consisting in its *psychical* aspect of a want of self-control and emotional instability, and in its *physical* aspect of a tendency throughout life to the development of various sensory, motor, visceral, or neuro-vascular disturbances unconnected with any definite organic lesion discoverable by our present means of investigation. That there is an organic change I firmly believe, and the chief purpose of our studies to-day is to ascertain its probable nature and position.

Older authors used to describe a special expression of face as belonging to subjects of the hysterical diathesis, but I have never found any one type of facies uniformly attaching to the condition. The mental and physical peculiarities, however, are certainly of such a kind that, given adequate opportunity, one may, I believe, recognise them. The leading features of the *hysterical order of mind* are (1) a lack of will-power or persistence of thought and action and (2) an emotional instability. The intellect may be, but it is not necessarily, below par—a fact on which most observers are now agreed; indeed, some of the brightest and most refined intellects in history have been found amongst hysterical women, especially when they have had an incentive (such as dire necessity) to the evolution of sufficient steadiness of purpose and self-control. The will-power, I believe, may sometimes be cultivated by educated women to such an extent as to deceive the physician for a long time, and thus he may even be led to believe that he has to deal with a masculine type of woman. Sooner or later, however, it is generally by the emotional instability that we recognise the diathesis. These patients in ordinary circumstances are easily roused to violent expressions of feeling, to hasty judgments, to impulsive actions, and to passionate exhibitions of various kinds. One moment they are angry (or pleased) because a thing is going to be done; the next moment they are cross (or pleased) because it has not been done. I do not believe that the emotions are necessarily in excess, but these, like the centre controlling the splanchnic area in our patient, are unstable and hyper-sensitive. Little things affect these people because of this instability. And this leads me to refer to a subject on which I believe there is sometimes a grievous misunderstanding. I can find no real grounds for believing that the sexual desire in hysterical females is either more or less than in other persons, but the fact is this, that their normal desires are not under normal control and thus they may be led sometimes to an excess or deficiency of modesty in their demeanour. The unrestrained and ill-regulated sexual emotions of these subjects lead them sometimes to assume a bearing in the presence of the other sex which has, unfortunately, led many otherwise discriminating physicians to assume, not only that excessive sexual desire is a symptom of the diathesis, but that the gratification of it will lead to its cure. Never, I believe, was there a greater mistake. I shall have to refer to this subject again, and we must now pass to the physical evidences of the diathesis which more immediately concerns us now.

Three *physical peculiarities* have I found to be very constantly associated with the hysterical diathesis. Firstly, there is a marked tendency to "flushing," with very little, and sometimes apparently without any, provocation. These flushes occur in parts that are exposed, like the face and neck, and also in parts that are unexposed. Sometimes they take the form of an erythema or even an urticaria, usually very transient, sometimes more enduring. I have several patients now under treatment who can from time to time show me "red marks," as they call them (small localised patches of congestion), which come out "when they are nervous." They are extremely fugitive and are, I find, hardly known among physicians; indeed, the patients themselves very often overlook them for they give rise to no inconvenience unless, as in four or five cases which I have seen at the Hospital for Diseases of the Skin, they come on the face or neck, when they seek advice. For the "blushings," "flushings," and "flush-storms," to which these subjects are so liable, I would refer you to the excellent description and analysis by my colleague, Dr. Harry Campbell,[6] though they have been often observed by others,[7] and I need not dwell further upon them, except to remark that they indicate once more an instability of the various vaso-motor reflex centres.

Secondly, in a large proportion of these people the superficial and deep reflexes are slightly, though perceptibly, increased. As to the superficial reflexes it is a notorious fact that these subjects are what is called "very ticklish"—i.e., their superficial reflexes are hyper-sensitive. It is also a fact, though not so well known, that their patellar and other tendon reflexes are unduly marked. I have often called your attention to very marked instances of this.

Thirdly, there is, about all their vital phenomena, whether healthy or morbid, a variable or paroxysmal character, a change from day to day, which seems quite peculiar to them I must not dwell longer upon them, but these are the chief characteristics of the hysterical diathesis or temperament Individually these qualities may not be very distinctive, but collectively—the deficient will-power, the emotional instability, the ready flushing, the excitable reflexes, and the variability of the vital phenomena—they are so far distinctive as to enable a careful observer to recognise the condition readily enough in the female sex They may become more marked at one time than another, especially when the patient is out of health and particularly at the evolution and involution of a woman's sexual life, but I will ask you to notice that these symptoms or characteristics exist as innate qualities throughout the life of the individual who is the subject of the diathesis

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[3] The Physiology and Pathology of the Cerebral Circulation. London: Churchill, 1896.

[4] Kussmaul: New Sydenham's Society's publications, vol. v., 1859.

[5] The Greek word διαθεσις means a disposition or tendency, and the rheumatic, scrofulous, hæmorrhagic, or calculous diatheses severally indicate a tendency to the development of rheumatism, tubercle, hæmorrhage, or stone. These are strictly comparable to the hysterical diathesis, and one might just as well talk of tuberculous peritonitis being an attack of "struma" as to speak of hysterical syncope or convulsions being an attack of hysteria. It is too vague.

[6] "Flushing and Morbid Blushing." London, 1890.

[7] Sir James Paget remarks, "The distribution of blood is, in many of the mimic cases, greatly affected. Heat and cold of the same part, rapidly succeeding one another, flushing and pallor, turgidity and collapse—all of these are frequent, striking, and capricious in the nervous mimicries."—The Lancet, Oct. 11th, 1873, p. 512.

Sooner or later, however, generally before the age of 25 or 30 years,[8] a large proportion of these subjects exhibit some more decisive manifestation in the shape of an *hysterical disorder* Of these there are, as we shall see, an infinite variety, but there are some which are of such common occurrence in hysterical individuals that they are sometimes spoken of as hysterical stigmata, though this name ought more properly to be reserved for the five characteristics which I have just described. Certainly the most frequent of these is some kind of "nervous attack" ("*attaques des nerfs*," as they are termed in France) These may consist of syncope, as in our patient, or "emotional attacks" of crying or laughter without adequate cause ("hysterics"), or any of the other kinds to be mentioned shortly Sometimes they occur, to all appearances, spontaneously, but more often they are determined by some emotional upset, and they may in many instances be determined by pressure on the inguinal region Perhaps the next most frequent hysterical disorder is hemi-*anæsthesia, or some other perversion of sensation, or patches* of anæsthesia, the existence of which may be unknown to the patient until medical examination reveals it Thus we have discovered for the first time that our patient has several patches of anæsthesia on the legs All the other physical manifestations, and so far as can be judged the mental peculiarities, are also present in this young woman. The hysterical diathesis is strongly marked in her

III —CAUSES OF HYSTERIA

Let us now turn to the *etiology of hysteria* This patient is a typical example in this respect also Her paternal grandmother was "hysterical" and though her mother was said to have been free from any neurosis, both her parents were addicted to alcohol I want to draw a well marked distinction between the *predisposing* causes, the *contributory* or exciting causes, and the causes which may *determine* an attack. The predisposing causes are practically only two in number, Sex and Heredity The far greater liability of the female sex is so well known and admitted that this need not detain us Out of 336 cases which I have collected only 26 were males But what I want to emphasise is that the hysterical diathesis is essentially something that is inherited or inherent in the individual, and that without it both *exciting and determining* causes are, in all ordinary circumstances, unable to act This has been insisted on by many of the ablest observers such as Guinon, Charcot, and Briquet[9] There are three ways in which heredity may come into operation First, there may be a *direct* inheritance of the hysterical diathesis, and one or more of the children of an hysterical mother or grandmother—the influence is far more potent on the mother's side—are almost sure to be hysterical themselves I have shown you many instances of this Quite as frequently, however, there is an *indirect* hereditary influence in the shape of a general neuropathy This is particularly the case when insanity is present in the family history—a fact which shows once more the close relationship between hysteria and mental disorder Finally, and this is a point which has not, so far as I am aware, been sufficiently insisted upon [10] alcoholic parents, whose family may be free from any kind of neuropathic taint, will often propagate children afflicted with the hysterical diathesis. Our patient, therefore, derives the hysterical diathesis from the first and third of these sources

As regards age, undoubtedly puberty and the climacteric offer a predisposition, and our patient's troubles date from the former

Among the contributory or exciting causes are many conditions which lower the mental or bodily strength, the will-power, or the emotional stability Continuous emotional strain such as grief, repeated attempts at hypnotisation, infectious or exhausting maladies, hæmorrhages and similar conditions leading to general debility, physical or mental overwork, venereal excess, anæmia, plumbism, mercurialism, alcoholism, syphilis, pregnancy, parturition, organic diseases of the nervous system are some of the causes which I have found in operation and which are capable of exciting an outbreak of some kind of hysterical disorder But as Guinon[11] truly points out these are only contributing causes and are only capable, under ordinary circumstances, of acting "in a person predisposed by heredity and sex."

The question whether celibacy and unsatisfied sexual desire are contributory causes of hysteria is an important one, but it is not easy to settle absolutely Personally, I cannot find anything in support of this view, and I have just now mentioned what I believe to be the true explanation of the immodest bearing sometimes observed in hysterical females—namely, that their emotions and desires, though normal in amount, are not under normal self control Nevertheless, there are some observers who argue from this and other circumstances that celibacy and sexual continence are potent causes both of the hysterical diathesis and of hysterical disorders It is true that matrimony sometimes leads to a temporary disappearance of certain hysterical symptoms, but this is readily explained by the fact that the patient has newer and wider interests which take her out of herself; moreover, removal from the surroundings under which a hysterical disorder arose will often of itself lead to recovery, as I have shown you in several instances Some years ago I collected statistics which show that the incidence of hysterical phenomena was very nearly the same among married and unmarried females of the same age-periods other things being equal These data also revealed the fact that many happily married women are attacked by hysterical disorders quite as grave as their unmarried sisters I may also refer to the researches of Briquet in this matter which did not come to my notice until after I had independently arrived at the same conclusions He found on inquiry that hysteria was not more common in those religious sisterhoods where the law of celibacy was followed than amongst communities where celibacy was not observed An exhaustive inquiry into three large social classes—religious sisterhoods, domestic servants, and prostitutes—led him to the undoubted conclusion that "continence is not a cause of hysteria."[12]

The conditions of a person's environment undoubtedly influence the occurrence of hysterical manifestations and are capable of greatly promoting their cure when they have appeared This is only what one would expect in a disease so much dependent on emotional states, and a condition of affluence in which a young woman has no interest in life beyond her own health undoubtedly fosters, but it does not produce, hysteria.

Education, therefore and social position no doubt count for something in the causation of hysteria, but not as much as one would think. When I first went to the Paddington Infirmary I expected to be deprived of the field which the better classes of hospital practice afforded, but it was not so I found that hysteria was very nearly as rife among the poor and destitute as among the wage-earners and the affluent I have been at some considerable pains to ascertain the relative incidence, because it is rather a favourite dictum with some that hysteria is entirely the outcome of a lazy, self-indulgent life Supposing we divide a community into three classes (1) those in easy circumstances not obliged to work; (2) those who work for their living; and (3) those who are destitute The first might be represented by private practice, the second by hospital patients, and the third by workhouse infirmary patients I collected without selection 1000 patients from each class and found that the proportion of hysterical complaints among the first class was 67 per 1000, among the second it was 53 per 1000, while among the third it was 60 per 1000 However, I am inclined to think that faulty education combined with an absence of any necessity to earn their daily bread may act as contributory factors, and also afford the patient abundant opportunity to pay attention to the more trivial ailments which would swell the category of hysteria. These factors would tend to increase the number of cases in Class 1. On the other hand, alcoholism in the parents would tend to increase the numbers in Classes 2 and 3, so that these two considerations would tend to balance each other. It is very difficult, if not impossible, to obtain statistics on these matters which shall be free from fallacy.

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[8] Briquet says that hysterical disorders *always* appear for the first time before the age of 30—Traité de l'Hystérie Clinique et Thérapeutique Paris: 1859

[9] Guinon: Agents Provocateurs de l'Hystérie, Charcot: Leçons sur les Maladies du Système Nerveux, Briquet: Loc. cit

[10] Charcot however frequently refers to the powerful part which alcoholism plays in the production of general neuropathic heredity

[11] Guinon: Loc cit

[12] Briquet: Loc. cit

Before concluding the subject of exciting or contributory causes of hysteria I should like, in passing, to mention a fact but little known which was first revealed by that painstaking observer Briquet, whom I have already quoted. A most exhaustive inquiry into the family histories of hysterical and non-hysterical mothers lead him to the conclusion (p. 527) that "infants, born of hysterical mothers, present a much greater fatality and die at a much younger age than those who are born of non-hysterical mothers" Possibly the former do not know how to take care of their children so well as the latter. But whatever the explanation may be, hysteria, being so largely an hereditary complaint, ought in the course of many generations to die out from amongst us. In point of fact, if one can rely on ancient records[13] the cases which are met with in the present day are in general terms less severe than formerly. We have no means of ascertaining exact facts as to frequency, but I fear that alcoholism in the parents, being such a perennial source, would counterbalance any diminution of the disease in the process of evolution.

It now only remains for us to consider the third group of causes—namely, those which actually *determine* a paroxysm or attack of some hysterical symptom—severe enough, perhaps, while they last, but usually transient, such as syncope, catalepsy, convulsions, somnolence, &c. The manifold ways in which this may be brought about are doubtless so familiar to you that I need not dwell upon them. Practically these can nearly always be traced to some emotional disturbance or instability. Some of you may remember the case of the woman whose symptoms dated from a cataleptic seizure which supervened after going to the theatre to see a performance of "The Sign of the Cross" I have shown you from time to time many illustrations of how anger, grief, fear, joy, traumatism (i.e., fright), &c., may act in this way. But this cause, like the last group, is powerless unless a predisposition (i.e., the diathesis) exists. Moreover, the degree of emotional disturbance necessary to produce an attack varies inversely with the degree of the predisposition present in the patient. In the patient whom you have just seen the predisposition is fairly marked, and when to this is added the exciting condition of the menstrual period the determining cause necessary was so slight that it would escape notice and the "faints" appeared to come on almost spontaneously. In one of the patients I saw in the late Professor Charcot's clinique in 1888, the slamming of a door was sufficient to determine a cataleptic seizure; and the patient, a girl, 17 years of age, would remain rigidly fixed in whatever position she happened to be at that moment, until someone who knew the secret came and pressed on one of her numerous hysterogenic zones and released her from her uncomfortable position.

IV.—PATHOLOGY OF THE HYSTEROGENIC PHENOMENON.

There is still one determining cause of these attacks which deserves our very careful consideration. Hysterical attacks differ from all other kinds of seizure in one very remarkable way—viz., that they can be produced in a large number of instances at will by pressing firmly and steadily on some part of the patient's body, usually the inguinal region. In our patient you have seen that pressure on the inguinal region on either side produced either a complete syncopal attack or the same disagreeable sensations which formed its initial stage, and which are collectively known as the "aura" It produces, she says, a feeling of "painful suffocation" or the "sinking in the stomach like you get on the switchback railway, only worse." This sensation then rapidly rises up from the groin and the abdomen towards the chest and throat and terminates in the feeling as of a ball in the throat (globus hystericus). Sometimes the bystanders can hear the patient make a gurgling attempt to swallow "the ball." In other subjects pressure in this region produces sighing and a feeling of "faintness and sinking in the abdomen." The series of sensations so produced is generally called in England "ovarian tenderness," but nothing could be more misleading. It has not the slightest resemblance to the tendernes which you or I feel when pressure is exerted in this region. It is best to call it as the French do, the "*ovarie*," or better, perhaps, the "inguinal or hysterogenic phenomenon," for it may exist, as I have shown you, in a very complete form in hysterical males. It only exists, in my experience, when the patient is, or has been, the subject of some form of h terical attack. It may thus terminate in rigidity of t limbs (one man whom I showed you assumed the position o opisthotonos), or tremor, catalepsy, or convulsions, local o general. The points, pressure upon which will produce the sensations just described, are called in France "hysterogenic zones," and though the inguinal region is the most frequent, the submammary region is another situation, and altogether there may be, in some cases, a score of hysterogenic zones, in different parts of the trunk; never on the limbs.[14] In some patients in whom a number of such zones exist pressure upon one of the will produce an attack, while pressure upon another point or a second pressure upon the same point, will stop it. Some of you will remember my showing you a young woman (a patient under the care of my colleague Dr. T. Outterson Wood) in whom pressure on the submammary region produced a violent attack of clonic spasms of the head and neck, while pressure on the ovarian region stopped them—a fact of which the patient and her friends were not slow avail themselves, for these spasms when unchecked were great violence and caused the perspiration to drip from he forehead.

Gentlemen, if these phenomena have anything to do with the ovary, how is it that they occur in the male, for undoubtedly they do, and in a very marked manner? Nor are they connected with the testicle apparently, for in male hysterical subjects this organ is only very occasionally the seat of "ovarian tenderness," and then in all the cases I have seen *this organ has been undescended*. By far the commo position of hysterogenic zone in male patients is the ingui region, the region which is supplied by the ilio-hypogast (and sometimes, less or more in different subjects, by the ili inguinal) nerve. This nerve is entirely cutaneous or centri petal. It starts from the skin over the buttock and the skin in the inguinal region, and passing into the abdominal cavity it joins the first lumbar nerve-trunk, where it comes into very intimate relation with the solar plexus, the largest mass of sympathetic ganglia and fibres, not only in the abdomen, but in the body.

We have seen good reasons for believing that attacks such as those in this patient are due to the sudden dilatation of the abdominal vessels, and if this line of reasoning be corre we can now understand how it is that pressure in th inguinal region may produce the aura and all the succeeding phenomena of an attack. The ilio-hypogastric nerve is apparently the centripetal depressor nerve of the abdominal sympathetic, and irritation of it by pressure in this region produces dilatation of the splanchnic area and consequently cerebral anæmia. There may, apparently, be other depressor nerves in patients who present other hysterogenic zones.

This explains many of the strange and apparently inconsistent features of these and other hysterical attacks, if we look upon the splanchnic area as the point whence they start. And thus we see that the abdominal sympathetic may be influenced (*a*) through the ilio-hypogastric nerve (or the nerve from some other hysterogenic zone) or (*b*) through the brain by some emotional influence. There is nothing new or strange in the emotions influencing the sympathetic nerves. Does not the sight of food induce secretion of gastric juice? I shall submit further proofs at our next meeting. Moreover, we can now understand how it is that these attack can be produced, or at any rate, aggravated, by (*c*) flatulent distension of the bowel—i.e., by irritation of other centripetal branches of the abdominal sympathetic. Have you not often heard the patient's friends remark: "Directly she brings up the wind she gets better" (it was so in the case before you), and that is, no doubt, why anti-spasmodic remedies such as assafœtida, valerian, or even peppermint, will often give speedy relief. There are no doubt other centi petal tracts, but I must defer these until our next meeting.

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[13] See numerous contributions by Dr. Henri Miege in the Nouvelle Iconographie de la Salpêtrière; and also a separate work by Professor Charcot, "Les Démoniaques dans l'Art."

[14] In very rare instances they may occur on the upper or lower extremities. Thus M. Gaube (Recherches sur les Zones Hystérogènes, Thèse de Bordeaux, 1882) mentions a case of that kind.

SOME FURTHER CASES OF ETHYL CHLORIDE NARCOSIS

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THERE was recently published in THE LANCET[1] a paper in which I gave short notes of some cases of ethyl chloride narcosis and I am now recounting my experience of some more cases in the hope that it may be a help to others who wish to make trial of ethyl chloride as a general anæsthetic One case is of interest because the patient died about an hour after the administration, another case because of the development of a rash (which I had not previously seen described as following the use of the drug) during anæsthesia, and yet another case because the accompanying muscular excitement made full anæsthesia and operation impossible The longest operative anæsthesia lasted for from 16 to 17 minutes and the result in every way was excellent although according to her medical attendant, the patient had had very serious symptoms when he had once before given her chloroform. The administrations for removal of tonsils and adenoids in many of the selected cases gave excellent results A study of the subjoined list of cases both successes and failures, will best give an idea of the possibilities of ethyl chloride.

CASE 1 *Operation for abscess of the leg scraping &c* —The patient was a boy, six years old He was pale but had no cough The chest was not examined The patient was prepared for operation and took about one minute to go under anæsthesia The reflex was not lost As the Breuer's inhaler, which was used was too large it was difficult to keep level anæsthesia and as I gave too little of the drug the patient at intervals cried and moved. His respiration when properly under anæsthesia was regular His colour was always good and his pupils were of moderate size There were no after effects and the patient remembered nothing The operative anæsthesia was five minutes The lad awoke too soon to consciousness of pain if he had had chloroform or ether he might have slept all night instead of crying during most of it

CASE 2. *Amputation of the finger* —The patient was a girl six years of age, a bonny rosy child The chest was not examined She was prepared for operation and the course of the anæsthesia was much the same as in Case 1 The patient only phonated two or three times during the operation There was a moderate amount of mucus, the colour was heightened throughout The child made a perfect recovery and remembered nothing afterwards The induction of anæsthesia took one and a half minutes The operative anæsthesia was over five minutes The patient was quite well afterwards and ate a good meal in half an hour after the operation

CASE 3 *Suppurating bursa patellæ* —The patient was a woman, aged 35 years The case was of an ordinary type The chest examination revealed nothing. She was prepared for operation and was under anæsthesia in two minutes She had a very good colour throughout but there was slight phonation at times There was nearly always a brisk reflex this was only once abolished There was always very slight rigidity which was not, however inconvenient When phonating the pulse was rather quick otherwise it was about normal Respiration was always good and vigorous The pupils were moderately or well contracted When the dressings were being applied the patient cried out that she was being hurt, but she afterwards declared that she felt and remembered nothing Recovery took place in less than one minute The operative anæsthesia was fully four and a half minutes From eight to 10 cubic centimetres were used in three or four doses This was a very satisfactory case The patient had pleasant and peculiar dreams which she would not tell

CASE 4 *Perineal abscess* —The patient was a strong man aged 28 years He was prepared for an anæsthetic He was put in the lithotomy position and went under anæsthesia quietly In two minutes the conjunctival reflex was very dull and the operation was begun There was a very slight, but not inconvenient, rigidity, with little movement of the legs The breathing was regular and vigorous the colour was good, and the pupils were moderately or well contracted throughout Altogether 14 or 15 cubic centimetres were used in three or four doses Rapid recovery ensued in less than one minute There were no after effects, the patient talking as he was being wheeled away He was very pleased with the effects of the "gas" as he called it The operative anæsthesia was about four and a half minutes There was a large remainder of ethyl chloride on the inhaler

CASE 5 *Exploring a lump in the axilla* —The patient was a youth, aged 15 years, who showed a good deal of malaise but was otherwise healthy and sturdy He was placed in bed and there was no preparation for the anæsthetic Five cubic centimetres were poured on for the first dose The patient breathed quietly and deeply and was under anæsthesia in one minute The reflex was very much dulled when the incision was made and there was no movement The pupils were well contracted and there were heightened colour and vigorous respiration throughout, also slight conjunctival reflex The operative anæsthesia was over in four minutes There was perfect recovery, in less than one minute the patient was talking rationally He was sick once about an hour afterwards this was probably due to malaise

CASE 6 *Scraping gland and skin of the neck* —The patient was a boy, aged six years quiet and ill developed. The chest was not examined He was prepared for operation There was quiet induction in less than one minute There was just the slightest movement on first scraping but none after The reflex was just abolished once The pupils were always of moderate size the colour was rather flushed There were perfect anæsthesia and rapid recovery with vomiting of half an ounce of yellow bilious fluid The boy was conscious in less than one minute and he gladly accepted a small coin There were no after effects but he was very soon hungry The operative anæsthesia was just three minutes After the operation had commenced a patchy and erythematous rash was found on the upper part of the chest and the arms, especially on the left side, one or two of the patches being as large as the palm of the hand The rash disappeared in three minutes after the boy's return to the ward altogether lasting about 10 minutes There was no rash before the operation and there was nothing to distinguish this erythema from that sometimes occurring during etherisation

CASE 7 *Circumcision* —The patient was a boy, aged 11 years Some degree of paraplegia and ataxia were present. The boy was ill developed, his chest was not examined The patient was prepared for operation as usual At first he cried a little then he breathed quietly and was anæsthetic—i e, the limbs were relaxed and the conjunctival reflex was dulled—in about one minute Section of the prepuce caused no reaction About a minute later I allowed him to recover too brisk a reflex and he began to move his arms and legs and phonated very slightly The operation was uninterrupted and movement soon stopped Thereafter I kept up a deeper and an even narcosis the lid reflex being quite or nearly abolished The colour was heightened throughout The pupils were always well contracted I did not myself feel the pulse but the house physician who stood by said that it was of good volume though low in tension To relieve the patient of the pain which would otherwise have been caused by the nature of the dressing which was gauze and collodion I kept up the administration until the dressings had been applied In about half a minute from the removal of the mask he began to retch and to vomit, becoming a little blue After however, bringing up some bilious fluid and mucus he regained consciousness Later, he felt a little sick for about an hour, his chief complaint was the wound pain The operative narcosis lasted from 10 to 11 minutes

CASE 8 *Extensive cellulitis of the hand, extending to the wrist-joint* —The patient a woman, aged 60 years, had had, I was told chloroform some time before with very serious complications during administration She was a spare woman but her general condition was fair There was no cough She was very nervous and had been prepared for operation. There was nothing special in the chest She took the anæsthetic very well breathing regularly and quietly and there was no excitement She was under anæsthesia in two minutes the dressings being removed after the first minute There was slight but not inconvenient movement of the limbs at first, which was easily restrained by the nurse After three minutes' exploration and incisions there were slight movements of the legs and phonation, the latter recurring two or three times during the operation and disappearing with more of the drug. The head was easily kept on one side. There was no mucus. The patient's general condition all through the operation was excellent—in fact, there appeared to be a distinct degree of stimulation. The breathing was regular and rather rapid, and on an average 45 to the minute. The pulse was regular and full and rather more rapid than before the administration, and was certainly of better quality. The colour of the face, the lips, and the ears, and the vascular reflex thereof were excellent. Generally during the administration there was strong contraction of the muscles closing the eyes, which it would have needed a good deal more, and an unnecessary amount, of the drug to abolish. The pupils were of moderate size or well contracted. A deeper degree of anæsthesia, though characterised generally as above, caused, in addition, full muscular relaxation and deeper breathing. Administration was only stopped when all the dressings had been applied. The patient quietly came round in about two minutes, being in an analgetic, sleep-like state during the recovery. There was no after-effect whatsoever. The patient had a good meal of milk one and a quarter hours after the operation and enjoyed it. The operative anæsthesia lasted for from 16 to 17 minutes. The quantity of ethyl chloride used was 35 cubic centimetres given in small doses of from three to five cubic centimetres; probably about 30 cubic centimetres were inhaled, some being left over on the gauze. In other circumstances I should have given gas and oxygen to this patient. Though she had had chloroform some time ago, and had, according to her medical attendant, been in serious danger therefrom, ethyl chloride had a favourable influence. Her general condition during administration somewhat reminded me of that which exists under the A.C.E. mixture except for the absence of mucus and presence of reflexes and slight rigidity, in that the drug appeared to have a somewhat stimulating effect. If in cases like these ethyl chloride can be relied on it would appear better to fill the gap occupied by gas and oxygen than this mixture itself, as the apparatus which is needed is so simple and portable, while there is not the difficulty of supplying oxygen artificially. I should have had no hesitation in prolonging the administration for half an hour or so had it been necessary.

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[1] THE LANCET March 9th 1901 p 698

CASE 9. *Internal urethrotomy and sounding, &c.*—The patient was a man, aged 37 years, spare and excessively nervous; he had the staring eyes and facies of a man in a terrible fright. He had been a hard spirit-drinker for several years and had not been sober for months before his admission into the hospital. He was in an extremely bad general condition. He had had hæmaturia shortly before and then had retention of urine. On the previous night one of the house surgeons tried to give him gas, but could not put him under anæsthesia, as he struggled and fought, and nothing was done. His pupils were large. Nothing special was found in front of the chest. His complexion was earthy, his pulse was weak and quick, and there was pus in the urine. Serious kidney lesion was diagnosed. The administration was begun in the anæsthetic room. The patient took the anæsthetic fairly quietly, and in two minutes, while he still had a reflex, he was wheeled into the operating room and placed on the table. At the fourth minute an attempt was made to introduce the catheter but he moved his legs too much; this, however, was easily restrained by the nurse, and in another minute the operation proceeded and the patient's movements became less. There were vigorous respiration, improved colour, strong conjunctival reflex, moderate-sized pupils, and fair pulse throughout, the drug appearing to act as a stimulant. Full recovery occurred in from one minute to one and a half minutes, the patient appearing at first dazed and excited. The operative anæsthesia was seven minutes. A few cubic centimetres were administered at a time and the gauze was kept constantly frozen. Anæsthesia, though light, was perfect and I should have had no hesitation in continuing the administration for a much longer time if necessary. About 20 cubic centimetres were used. On his return to the ward the patient was quite conscious and rational, complaining of nothing but pain on micturition. He would not eat his full dinner but took a fair quantity of milk half an hour after the operation. The pulse was frequently felt by the nurse after the operation, though no danger or trouble was anticipated; it was, she said, of fair quality and never more than 90 or 94. The colour was as good as before the operation. The patient lay quietly all the time recumbent in bed. His bowels were moved four times, a little blood appearing in one stool, probably from the urethra. He had one slight but distinct rigor. During the last motion he was calling out with pain, and when in a minute or two the nurse went to him he was dead. This happened about one and a quarter hours after his return to the ward. A post-mortem examination was made on March 30th by Dr. J. G. Emanuel, pathologist to the General Hospital. The diagnosis was meatal stricture, consecutive nephritis, adhesive peritonitis, pericarditis, pleuritis, and fatty liver. The body was well developed and well nourished. Rigor mortis was present. The heart weighed 11½ ounces. The pericardial cavity was quite obliterated. The layers were closely adherent but separable by manipulation; there was no thickening of either layer and no hypertrophy of the heart. There were a little dilatation of the left ventricle and a few sub-pericardial and sub-endothelial ecchymoses; the cardiac muscle was fairly firm. The right lung weighed 20 ounces and the left 17 ounces. There were a few old adhesions in each pleural cavity. Both lungs were crepitant. The peritoneum was the seat of chronic adhesive peritonitis throughout. There was no ascites; all the coils of the intestines were glued together in much the same way as the pericardium. The peritoneum over the liver, the spleen, and the bladder was in the same condition. There were no enlarged mesenteric glands. The appendix was healthy and there were no signs of tubercle. The liver weighed 68 ounces; it was large, soft, and fatty. The pancreas was healthy. The right kidney weighed eight ounces and the left 11 ounces, the right kidney being large and healthy and the left very large and markedly congested, containing in the cortex and medulla three or four small (pinhead) pyæmic abscesses. The capsules stripped easily. There was no diminution of cortex and the texture was generally normal in both organs. The bladder was dilated, there were chronic cystitis and a few sub-mucous ecchymoses. The urethra was the seat of a long fibrous stricture situated in the body of the organ. The suprarenals were healthy. The spleen was large, diffluent, and septic-looking. The brain was normal; it weighed 47 ounces. Death in this case was probably not due to ethyl chloride for the following reasons: 1. Because all of the very volatile drug had been eliminated an hour before death as was shown by the rapid and perfect recovery, absence of other after-effects, and capacity to take food. 2. Because death could be more easily explained by the bad condition of the heart and other organs, affected secondarily, perhaps, by the straining and rigor. Death occurred evidently from heart failure. 3. If death was due to ethyl chloride the patient would more likely have died during administration or recovery from it. I should not have cared to have administered chloroform and the other alternative anæsthetic would have been ether. Seitz records a case of syncope during recovery—i.e., while the drug was still in the lungs and circulation. Besides a death recorded by Lotheissen as having occurred during administration in a bad subject, another one is reported by Zeitz[2] of Zürich as happening 16 hours after operation to a patient in bad condition and who had kyphoscoliosis. Two grammes of ethyl chloride had been used for a tooth extraction and immediately afterwards respiration stopped. The patient temporarily recovered after the application of resuscitative measures but died later as related.

CASE 10. *Opening and scraping of an abscess of the foot.*—The patient was a stout, rosy-cheeked girl, aged six years. She was prepared for operation. She had a little cough. The nasal airway was obstructed and the mouth was open; the patient probably had adenoids. An examination of the chest revealed nothing. The administration was begun with one or two cubic centimetres at a time; there was no trouble. After one minute the cleaning operation was begun, causing only a little leg movement and slight phonation. The conjunctival reflex was brisk, the colour was good, and the respiration was regular. A little more of the drug abolished rigidity, though there was still brisk reflex, as was, indeed, the case all through the operation, during which narcosis was perfect. The pupils were of moderate size. The child's condition looked a perfectly normal one. After stopping the administration consciousness returned as from sleep in less than a minute. The operative anæsthesia was four minutes. There were no after-effects at all.

CASE 11. *Adenoids.*—The patient was a girl, aged 14 years. She was purely a mouth-breather, pale, and nervous. She was placed in a recumbent position with the head horizontal and a small prop in the mouth. Five cubic centimetres were sprayed on and soon another five cubic centimetres before operation. The child breathed well; after about half a minute the respiration became regular and the colour much improved; she coughed twice. The reflex was always briskly present, the pupils were of moderate size, the eyelids were tightly closed, and there was slight muscular rigidity. After about two minutes the mask was removed and the operation was performed. The patient coughed a little. She w[illegible] the end was apparently [illegible] little blood was lost and [illegible] Recovery of consciousness was rapid. The anæsthesia lasted about three-quarters of a minute or one minute—i.e., longer than with nitrous oxide. In about 10 minutes the patient, who was perspiring a good deal, had a flushed colour and a good pulse, walked upstairs. Afterwards she vomited some blood and felt drowsy till the afternoon. Ten cubic centimetres were used and probably about seven cubic centimetres were inhaled. The operator was very pleased with the result.

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[2] Correspondenzblatt fur Schweizer Aerzte, 31. Jahrgang, No. 4.

CASE 12. *Opening and scraping a sinus, &c.; in the fore-arm.*—The patient was a thin and wiry man, about 40 years of age, of sandy colour, and very abstemious and cheerful. His chest was not examined. He was placed in a semi-recumbent position on a couch and took quietly five cubic centimetres in two doses. Operation was then attempted in about two minutes, when brisk reflex and slight rigidity were present. Then movements of the arm and leg occurred, becoming rapidly more extensive and awkward; also much phonation and excitement. Endeavours to push the anæsthetic caused much greater muscular twisting movement and writhing of the body so that the patient would have rolled off the couch if he had not been restrained. The pupils at this stage were of moderate size and the eyeballs were a little prominent. The colour was heightened. On stopping the administration the condition gradually passed off. Before the patient quite knew where he was I again began to administer ethyl chloride, but the same phenomena appeared, and yet again at the third attempt, when the patient rolled off on to the floor. The more the drug was pressed the more unmanageable the patient became, so that operation was impossible. Then I changed to chloroform, thinking that probably he would show too much excitement for me to give him gas and ether conveniently. In a minute or two he began to move and to twist awkwardly about, but then quickly passed into a condition of incoherent volubility lasting for from three to four minutes, during which the operation was finished. He very quickly recovered and was none the worse. He felt nothing of the operation at all and only remembered vaguely a sentence uttered during his going off and seemed very satisfied with the result. Thus, in this case, ethyl chloride beyond a very early analgesic stage caused excitement and irregular muscular contortive action, rendering administration impossible. There was no opisthotonos, which is said to be commonly associated with excitement. 20 cubic centimetres were used of which much was not inhaled.

CASE 13. *Adenoids.*—The patient was a tall, well-built, rather pale female, aged 18 or 19 years. She was placed in a recumbent position, with a prop in her mouth. About five cubic centimetres were sprayed on, and the patient, being very nervous at first, breathed irregularly and lightly. In about half a minute she began to cry and to struggle violently, but being restrained she took about half a dozen deep breaths and then quickly became relaxed and flushed, breathed deeply and regularly, and in a few more breaths lost the conjunctival reflex, the pupils being of moderate size. After three or four more breaths Mason's gag was inserted and operation was leisurely done during an anæsthesia which was perfect and which lasted double the length of time that was needed—i.e., from one and a half to two minutes. Recovery was quick, the patient complaining afterwards of nothing but sore throat. There was no sickness in the operating theatre. The improvement and flush of colour continued not only during the operation and recovery but also when the patient walked from the theatre eight or 10 minut[illegible] effects of any kin[illegible] half hours. The [illegible] long anæsthesia, [illegible] congestion.

CASE 14. *Adenoids.*—The patient, a girl, aged 13 years, was of the ordinary type. She had a high and narrow palate. A mouth-prop was inserted, when she breathed quietly but not deeply though regularly. She had very good colour all through. After from one minute to one and a half minutes, the pupils being contracted and the lid-reflex being present, the operation was begun. The prop was removed and Mason's gag was put in, and after about 20 seconds the patient began to move, and then during the rest of the operation she struggled violently. Analgesia lasted about one minute. The girl had no recollection of the operation. In about 10 minutes she walked back to bed. [illegible] patient nitrous oxide. [illegible] There were no after- [illegible]

[illegible] *denoids, and tonsils.*—The patient, a boy, aged 11 years, was of the ordinary type of child who has adenoid growths with a good colour and a narrow chest. He was placed in a recumbent position. The operation on the nose was performed with the head in mid-line and the chin supported. A dose of two or three cubic centimetres was given at a time. The boy breathed quietly and there was a gradual disappearance of the reflex. The drug was pushed till the pupils were rather dilated; still there were regular breathing and good colour. The inhaler was then removed. There was perfect anæsthesia for over one and a half minutes—i.e., for as long a time as was needed by the operator—then some slight movement occurred, so the inhaler was re-applied and the drug again administered till the reflex was gone and the pupils were well contracted. The gag was inserted and the adenoids and the tonsils were removed without haste during a good anæsthesia of over one minute. Perfect recovery ensued. There had been no after-effects when I left. About eight or nine cubic centimetres were used, of which a good deal remained over after inhalation.

CASE 16. *Adenoids and tonsils.*—The patient, a girl, aged 10 years and nine months, was a delicate child, with a small, long face, narrow chest, and high palate. She was placed in the recumbent posture with the head in mid-line. Mason's gag was inserted in the corner of the mouth with its blades closed. At first the child cried a little; then she breathed freely. I administered a dose of about three cubic centimetres at a time until muscular relaxation occurred and the pupils were well contracted and the conjunctiva was insensitive. There was perfect anæsthesia of about two minutes, a longer period than was needed by the operator. The patient made a very good recovery, walking upstairs to bed in 10 minutes. Ten cubic centimetres were used, of which a great deal remained over on the inhaler. A better result than this could not have been wished for.

CASE 17. *Excision of the left eye.*—The patient was a boy, aged 12 years, of the ordinary type, rather pale, and cheerful. He had just finished a good solid meal. The head was slightly raised on the pillow and about five cubic centimetres were sprayed on the inhaler. He breathed very freely and was deeply under anæsthesia in half a minute, the colour being heightened, the pupils contracted, and the colour rosy when the operation began. The inhaler was kept on for about half a minute; it was then removed, being in the operator's way. There was good anæsthesia afterwards for about three-quarters of a minute; then the patient quickly began to recover and he vomited much solid food. Before he recovered consciousness the inhaler was reapplied and by occasional inhalations anæsthesia was kept up till the end of the operation which lasted about two minutes longer. The removal of the eye was more difficult and took more time than usual. There was no evidence of shock on cutting the [illegible] effects whatsoever.

CASE 18. *Small operation inside the nose; adenoids and tonsils.*—The patient was a tall woman, aged 35 years. She was placed sitting in an ordinary chair, with her head unsupported. She manifested a good deal of excitement during induction which lasted for three and a half minutes, but she was quiet during the nasal operation and removal of one tonsil; then there were much muscular excitement and spasm ending in opisthotonos, so that the patient rested on her heels and on her supported head. When she recovered she was placed in a semi-recumbent position on a couch, the blades of Mason's gag were inserted in her mouth, and after a very long (from four to five minutes) administration of ethyl chloride the adenoids and tonsil were removed.

The patient looked rather pale afterwards. This was an unsatisfactory case

CASE 19. *Adenoids.*—The patient was a very anæmic girl, aged 19 years, with red hair. She was very excited. She was placed sitting in a chair with her head unsupported. She did not breathe well. I freely sprayed on ethyl chloride, but the conjunctival reflex was only dulled after five and a half minutes, when the operation was begun. The patient came round so quickly that it could not be completed, so she was placed in a semi-recumbent position and after a few more minutes' administration till the reflex was almost gone the operation was finished. She quickly recovered and went home in half an hour. No after-effects were noted. An unsatisfactory case.

CASE 20. *Slight adenoids.*—The patient was a woman, aged 23 years. She was placed in a semi-recumbent position. After an administration of two and a half minutes the conjunctival reflex was much dulled. There was fair operative anæsthesia of three-quarters of a minute. In a few minutes the patient walked away. She felt rather sick after the operation, probably because she had swallowed some blood.

In the last three cases the conditions were altogether unfavourable, as no operating chair or table was at hand, while the patients were very nervous and excited.

CASE 21. *Adenoids.*—The patient, a sturdy girl, aged five years, was laid flat on the table. She cried at first but breathed well and was fully under in three-quarters of a minute. The eyeballs were turned inwards; the pupils were of moderate size; the sclerotic was insensitive. The patient was of very good colour and her muscles were lax. Mason's gag was introduced and the head was lowered over the end of the table; very good anæsthesia of about three-quarters of a minute was obtained. She made an excellent recovery.

CASE 22. *Adenoids.*—The patient was a girl, aged 19 years, dark, and pale. She exhibited very slight excitement during the induction which lasted for from one minute to one and a half minutes—i.e., till the conjunctival reflex was abolished and the pupils were well contracted. Mason's gag was inserted. The operative anæsthesia was from three-quarters of a minute to one minute. There were no special after-effects.

CASE 23. *Adenoids.*—The patient was a girl, aged 20 years, of ordinary physique. She was very nervous and cried rather at first; then she breathed regularly and in one and a half minutes was well under anæsthesia. The eyeballs were turned in. There was no reflex and very slight muscular rigidity. Mason's gag was inserted and a very good anæsthesia, lasting from one and a half to two minutes, was gained. The patient made an excellent recovery. The case showed a far better result than would have been obtained from nitrous oxide which was the alternative anæsthetic.

CASE 24. *Iridectomy.*—The patient was a slightly-built boy, aged 11 years. His other eye was of glass. He cried a little at first, but was under anæsthesia in one and a half minutes. After three-quarters of a minute's anæsthesia the patient began to move, so the inhaler was reapplied, as the operation proved rather complicated, till the patient was quiet. It was again reapplied from time to time for the next few minutes to maintain anæsthesia. The patient made an excellent recovery and felt nothing.

CASE 25. *Tonsils and adenoids.*—The patient was a pale, delicate, cheerful girl, aged 12 years. The heart was slightly enlarged and was excitable. The tonsils were very large. She was placed in a recumbent posture and Breuer's inhaler was applied. Two or three cubic centimetres were sprayed on at first and then as breathing became regular five cubic centimetres more and at the end again two or three cubic centimetres. Gradual and quiet induction of deep anæsthesia ensued, the pupils beginning to dilate and the conjunctiva being insensitive. The patient was of excellent colour; the breathing was regular and rather snoring and the muscles were lax. The mask was removed and Mason's gag was inserted. The tonsils and then the adenoids were removed deliberately, and at the end of the operation there was yet about half a minute's anæsthesia to spare. The patient then quickly vomited some blood and some curdled milk which had been given by mistake an hour previously. She walked back to bed in a few minutes and was again sick, bringing up more blood and milk. Ten cubic centimetres were used altogether, much of which remained over on the mask. Had nitrous oxide, the alternative drug, been given in this case and in the usual way, the congestion of the parts, and especially of the tonsils, would have embarrassed respiration before full anæsthesia had appeared. There would besides have been cyanosis, spasm, and inconvenient jactitation, and probably an anæsthesia of half a minute at most. Had nitrous oxide mixed with oxygen been administered, though those awkward symptoms would have been absent, the resulting anæsthesia would have been at the utmost only half as long as that gained by the use of ethyl chloride.

CASE 26. *Scraping carious bone of the arm.*—The patient was a plump, anæmic girl, aged 19 years. Examination of the chest revealed nothing. She was placed in a recumbent posture. Two or three cubic centimetres were sprayed on at first and later five cubic centimetres. There was no excitement; the patient held her breath a little at first, but was unconscious in half a minute. She was then wheeled into the theatre and placed on the operating table. By this time deep anæsthesia as of chloroform had been induced. The pupils were contracted and the conjunctiva was insensitive. The colour was good, the breathing was regular, and the limbs were lax. After three minutes' good operative anæsthesia the inhaler was removed before the insertion of the last two sutures. Recovery took place in about a minute, ending with a very little retching. As the dressings were being applied the patient began to cry, but she felt no pain. On her return to the ward she vomited once slightly and then said that she felt well, but later in the afternoon she had some frontal headache. These after-effects were infinitely less than after gas and ether which she had had recently. Three and a half hours after the operation the patient had a good tea. About 10 cubic centimetres were used, with a remainder. Thus a good deep anæsthesia corresponding in depth to that of ether or chloroform was obtained in this case and I could easily have much prolonged it.

In all of the adenoid cases nitrous oxide, failing ethyl chloride, would have been administered, and the operator in most cases found much advantage in ethyl chloride over nitrous oxide as giving a much longer anæsthesia, usually lasting from three-quarters of a minute to two minutes, and causing no congestion while apparently having a distinctly stimulative action. In the recumbent position at any rate I think that the insertion of a mouth prop before beginning the administration rather hinders free breathing and upsets the patient. It is, I find, preferable to place the closed blades of a Mason's gag in the corner of the mouth and even better to insert the instrument when full anæsthesia has been induced. The drug should be given until the pupils are contracted or just beginning to dilate, and till the conjunctiva is insensitive and full muscular relaxation has occurred. Then the mouth can be easily opened and the operation proceeded with. Ethyl chloride has obviously great advantages over gas in these short adenoid operations where an extra minute or half a minute of anæsthesia makes all the difference to absolute success. On the average I use between five and 10 cubic centimetres in these cases, much usually remaining over. It would seem that in many short ear and nose operations ethyl chloride might also be used with great advantage. In ear, nose, and throat work there is apparently no objection to administration in the sitting-up position, a great gain to the operator in that the usual relative position of surgeon and patient is maintained. In the operation for excision of the eye I rather feared that there might be evidence of shock on the section of the optic nerve, and was agreeably surprised to observe none. I hope to try ethyl chloride in operations for strabismus, and as I have given gas and oxygen successfully in several of these procedures I think that it will answer even better. In dental work nitrous oxide suffices for very short cases when given in the ordinary way. For slightly longer cases ethyl chloride would be very advantageous, but for the longest cases of all—those, say, lasting for from three minutes to 10 minutes—nitrous oxide given by the Coleman-Paterson method answers every purpose since it can be continuously used during operation. I frequently thus administer nitrous oxide in hospital and private dental operations for periods of time between two and 10 minutes, and am perfectly satisfied with my results in the great majority of cases. Seitz of Constance, a well-known dental surgeon and writer on dental subjects, in a recent work on dental narcosis strongly recommends ethyl chloride for dental operations instead of nitrous oxide or ether.

If the patient be very strong and very excitable, and especially if he be an alcoholic, and it be attempted to administer ethyl chloride it is advisable to have both ether and chloroform to hand as instanced in the case of the patient in Case 12 who showed great muscular and mental excitement. According to Lotheissen, Wiesner, and others excitement is chiefly shown by alcoholics, but the patient I have just referred to was an abstemious man.

After-effects have in all my cases been slight or absent altogether.

A rather better inhaler in one or two respects than Breuer's original one, though the same in principle, can now be obtained from Messrs. Allen and Hanburys or from Messrs. Greeff. It is made in three sizes. In neither of them is the air-way quite free enough for a large-chested patient. Probably an Ormsby's ether inhaler of the pattern made with an air-inlet would serve very well for short inhalations at any rate. I think that, contrary to the custom of some administrators who "crowd" on the anæsthetic, dosage should be by gradually increasing additions of small quantities of the drug, say two or three cubic centimetres at a time, until anæsthesia is attained and then about the same amount given per minute will generally be enough to maintain narcosis. There is decidedly a disadvantage in pouring out at the first a full dose, pressing the inhaler very firmly on the face, and keeping it on in spite of crying and struggling till the patient is under. By this method over-dosage may occur and the patient will not forget the terror and feeling of suffocation during the induction of narcosis.

The case of death after operation under the influence of ethyl chloride in no way shakes my present opinion of its value as a narcotic and I have since then taken every opportunity of trying it for the shorter surgical operations. Finally, so far as I can now judge, ethyl chloride might advantageously be used instead of nitrous oxide mixed with oxygen or nitrous oxide alone for many of the shorter operations, and more especially in the case of less vigorous patients.

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HEADACHE.[1]

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THE success of the general practitioner depends very largely on the ability and resource which he exhibits when confronted with the commoner, or so-called minor, ailments which afflict mankind. Prominent in this class stands headache—a condition deserving our very best attention if only on account of the immense amount of suffering which it occasions and of the increasing numbers of its victims in these days of luxurious living, rapid locomotion, and higher education. Headache may have its seat in the scalp, in the bone of the skull or its pericranium, or in the brain itself and its membrane. As instances of the first kind we have neuralgia of the fifth and other nerves. Specific disease or mechanical injury may set up painful inflammation of the bone, while the vast majority of headaches are intracranial.

Intracranial headaches may be briefly classified as follows: (1) headache the result of gross lesions of the brain or of the vessels or membranes of the brain; (2) headache occurring at the onset of the acute fevers, especially that of typhoid fever; (3) congestive headache; (4) anæmic headache; (5) nervous headache; (6) toxæmic headache; (7) sympathetic or reflex headache; and (8) migraine or sick headache.

Headache the result of brain lesions and acute fevers.—This is usually associated with other symptoms pointing to the gravity of its origin, and in such cases it is obviously the duty of the physician to fix his attention less on the headache itself than on the disease of which it is a symptom. I do not propose to refer further to headaches coming under this category beyond remarking that the presence or absence of fever, as proved by the clinical thermometer, should be of most important service to us in eliminating fevers and intracranial inflammations. The age of the patient and the condition of his arteries should also be [illegible] Again, in the case of tumours [illegible] pain is apt to be terrible in its persistency and nausea and vomiting are nearly constant concomitant symptoms; the ophthalmoscope would almost certainly afford us valuable information and sooner or later paralyses of the cranial and other nerves might become apparent.

Congestive headache.—This may be either active or passive. Both conditions may be produced by valvular disease of the heart: active congestion being the result of hypertrophy of the left ventricle, as in the headache of chronic interstitial nephritis; passive congestion occurring in lesions of the mitral orifice and conditions leading to dilatation of the right heart. Plethoric persons of middle age with too great a fondness for the table and none for open-air exercise are also very liable to this form of headache. Irregular menstruation and emotional disturbances may also be factors in the case, while cases of interest, occasionally met with in private practice, are those arising from the use of tight collars and the abuse of corsets. The pain is generally of a dull description, often affecting the whole of the head and accompanied by flushings of the face, ringing in the ears, and giddiness and [illegible] symptoms on stooping. When [illegible] condition of the heart aconite i[illegible] repeated will be of great service by slowing and calming its action. In passive congestion, on the other hand, digitalis and other heart tonics are called for and opium in small doses is often of benefit. In both cases sal volatile is of use and often results in great immediate relief. Many such cases automatically relieve themselves by the onset of epistaxis; cold affusions to the head, saline purges, and hot mustard footbaths are valuable accessories. Where there is much congestion of the portal system an emetic and free purgation will be of considerable service as a preliminary to further treatment. Afterwards the patient must be enjoined to take gentle exercise in the open air and to deny himself some of the pleasures of the table, having special regard, more particularly in the cases of active congestion, to the quantity of alcoholic liquor consumed.

Headache of cerebral anæmia.—This is generally vertical and is often of a very acute and persistent type, being, indeed, the symptom which usually drives the patient to the medical man in the more extreme grades of general anæmia; it is a very common form amongst all classes and in people of all ages. In chlorotic young girls the cerebral anæmia is only one of the manifestations of the general poverty of the blood; in old age, on the contrary, the blood itself may be in perfect order but the cerebral vessels obstruct the passage of the blood either by loss of elasticity or actual narrowing of their lumen. At all ages a weak action of the heart, whether functional or organic, may be the means of starving the brain of its needful supply of oxygenated blood. Few drugs are of any immediate benefit in this condition when it is the result of general anæmia or chlorosis, but the improvement so rapidly produced by the exhibition of iron is, of course, among the marvels of therapeutics. A glass of wine, preferably champagne as being the more rapidly diffusible, or, in contra-distinction to the congestive headache, even the mere taking up of the recumbent position will do more good at the moment than any of the so-called specifics, and I have no doubt but that much harm is done by the persistent use of these "pain-killers" in patients whose blood is already in a sadly impoverished condition. One of the symptoms in cases of poisoning by various coal-tar derivatives is the appearance of hæmato-porphyrin in the urine, showing that the red corpuscles are being disintegrated by the action of the poison. In old age alcoholic and other diffusible stimulants will give the best results, and of course in the case of there being a weak and irregular action of the heart cardiac tonics will be indicated.

Nervous headache.—This is the headache of general debility and neurasthenia. It may occur in any part of the cranium and is often fixed in one small spot, as in the Clavus Hystericus of the neurotic girl. This type of headache bears a very close relationship to the anæmic form. Migraine, which generally occurs in patients of the nervous diathesis, should perhaps be included under this heading, but will be discussed later by itself. Over-lactation and worry in weakly women, excessive study, over-application to business, and the excesses of youth, must all share the responsibility for the increasing numbers of the patients of this class. Especial care is necessary in dealing with them to avoid, if possible, [illegible] analgesics lest a habit be [illegible]r degrading in its results [illegible]omania. Excellent results will be obtained from the use of sal volatile, the bromides, and camphor, with perfect rest and quiet in a darkened room; and a most important need is to brace up the exhausted nervous system in the intervals between the attacks by the intelligent use of the dilute mineral acids, the various preparations of iron, zinc, and arsenic. Alcoholic stimulants are best avoided and where iron and arsenic disagree cod-liver oil is of good service in improving the general nutrition. Phosphorus, especially in the form of the hypophosphites, is also to be highly recommended.

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[1] Thesis for the degree of M.D., Trinity College, Dublin.

Toxæmic headaches.—These form the group perhaps most frequently met with of all and are the result of the introduction into the blood of poisons of many and diverse descriptions. The headache of fevers might accordingly be classified under this heading. Dyspeptic and bilious headaches are in reality toxic, the products of faulty digestion and of the imperfect action of the liver finding their way into the general circulation. Other forms of headache belonging to this class are those of acute alcoholism, uræmia, gout, rheumatism, malaria, and lead-poisoning, and also no doubt those arising from confinement in close, stuffy, and ill-ventilated rooms and from the inhalation of sewer gas. Toxæmic headache is more frequently frontal and in the dyspeptic and bilious forms finds prompt relief from the exhibition of an emetic followed by a brisk mercurial purge, with, if possible, complete rest to the stomach in the shape of actual starvation for from 12 to 24 hours. Quantities of pure water may be drunk with advantage and the irritated stomach may be soothed with a few doses of the liquor bismuthi and the dilute hydrocyanic acid in an effervescing draught. In the malarial headache which is still exceedingly common in the fen districts of England opium has long been considered a specific, but five grains of quinine dissolved in half a drachm of the dilute hydrobromic acid is every bit as serviceable and is not open to the same objections as is the continued use of opium. In the gouty, rheumatic, and other toxæmias the appropriate remedies for the primary condition will afford the means of effecting a cure, but in that particular form of rheumatic pain affecting the muscles and aponeurosis of the scalp perhaps more benefit may be expected from the external application of belladonna, chloroform, and other soothing liniments.

Sympathetic or reflex headache.—This may be the result of eye-strain from over-use, as in prolonged microscopical work, of mere general debility, or of errors of refraction or some muscular insufficiency, as of the external rectus muscle, and this is a very frequent cause of persistent headache and one which is very likely to be overlooked in the hurry of general practice. Dental caries, diseases of the throat and nasal passages (as in the headache of enlarged tonsils), and ovarian and sexual derangements are well-known culprits. Attention to the organ whence the irritation springs is the only means of giving relief to the sufferer.

Migraine or sick headache.—This, the most intractable of all forms of functional headache, has been the subject of endless dispute amongst pathologists and is now generally thought to be due either to a so-called nerve-storm of the nature of epilepsy or to some other ill-defined disturbance in the cortex of the brain. Others trace it to profound alterations taking place in the circulation of the brain, and it is generally agreed that it is not due to gastro-hepatic derangement but that the cerebral disturbance constitutes the primary lesion. The undoubted influence of neuropathic heredity in this affection is often brought forward as a proof of its central origin, but in practice we find the bilious and gouty habits equally hereditary, and many sufferers from typical migraine find more relief from the old-fashioned blue pill and emetic than from the more modern methods dictated by the pathologist. I have had several patients who have been able to avert the threatened seizure by the prompt exhibition of five grains of calomel. I am myself strongly inclined to place migraine in the toxæmic group and to refer the symptoms to profound poisoning of the substance of the brain by a blood loaded with the toxic products of incomplete and faulty digestion. But little can be done for the unfortunate sufferer after the incidence of the attack. I am in the habit of prescribing a powder consisting of five grains of phenacetin with two grains of caffeine, but from 12 to 24 hours' rest and a night in bed will be necessary before complete relief will be secured.

Cowes, Isle of Wight.

THE PROGNOSIS AND TREATMENT OF CASES OF ASCITES OCCURRING IN THE COURSE OF ALCOHOLIC CIRRHOSIS OF THE LIVER,

WITH SPECIAL REFERENCE TO THE TREATMENT BY OPERATION.[1]

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THERE is at the present time a considerable want of unanimity regarding the prognosis of cirrhosis of the liver after the appearance of ascites. Formerly all such cases seem to have been looked upon as hopeless, but at the present day, while their extreme gravity is fully recognised, a somewhat more hopeful view is taken of them, based upon the fact that a number of cases have been recorded in which the ascites has temporarily, or even permanently, disappeared after tapping. Dr. W. B. Cheadle, in his recent Lumleian Lectures, has shown that much of the confusion regarding cirrhosis of the liver has arisen from a failure to differentiate between the several types and stages. It is, as Dr. Cheadle clearly shows, of great importance to distinguish the different stages and varieties if any real advance is to be made, and it seems to me that this importance has become still more imperative in face of the fact that an operation for "cirrhosis of the liver" has recently been introduced—an operation which will probably meet with but little success unless the cases are carefully selected.

The subject is a wide one and necessarily somewhat difficult to summarise, but I have endeavoured to collect information from the works of others and from my own experience which will, I hope, among other things, show the following points:—1. That ascites arising during the course of a case of alcoholic cirrhosis of the liver may be due either (*a*) directly to the cirrhosis or (*b*) may depend upon some condition co-existing with the cirrhosis. 2. That ascites when directly dependent upon the cirrhosis is almost always a fatal symptom, while, on the other hand, ascites associated with cirrhosis, but not directly dependent upon it, may often be temporarily relieved and not unfrequently cured. 3. That under these circumstances laparotomy performed on cases of cirrhosis of the liver with ascites is only likely to be successful in those cases in which the ascites is an associated condition of the cirrhosis and not directly dependent upon it, and that if this is so it would seem misleading to look upon the operation as being one for the cure of cirrhosis of the liver; it should rather be looked upon as one for the relief of cases of ascites, some of which, although occurring in the course of cirrhosis of the liver, may still be amenable to treatment.

In the first place it will, I suppose, be granted by everyone that the condition of cirrhosis itself cannot be cured—i.e., the connective tissue when once formed cannot be got rid of by drugs or any other means at our disposal. That an advanced condition of cirrhosis may remain latent is true and that it may become arrested is possible, but it cannot be cured. The question then arises as to how far symptoms may be relieved, and especially the ascites, which is frequently the first thing which causes the patient to seek advice. The recoveries which have taken place after the onset of ascites are attributed to a development of the collateral circulation, whereby the blood in the portal veins finds its way directly into the systemic circulation without passing through the liver, and on this supposition the usual custom in cases of ascites associated with alcoholic cirrhosis is to give a guarded prognosis, always bearing in mind that in a certain small percentage of patients the ascites disappears after tapping.

That patients recover from ascites, which clinically appears to be due to cirrhosis of the liver, is perfectly true, and it is equally true that recoveries take place from ascites associated with cirrhosis, but it is probable that it is only very rarely indeed that recoveries take place when the ascites is directly due to the cirrhosis. This certainly seems to have been the view held by authorities a few years ago. In

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[1] A paper read before the Royal Medical and Chirurgical Society on June 11th, 1901.

Reynolds's "System of Medicine" the following passage occurs: "It is probable that in patients in whom very free collateral circulation is established the progress may be slower, as cases are on record in which ascites has disappeared when the various venous anastomoses have been largely formed. It is possible that in such cases of free restoration of circulation by means of collateral channels, if the uninjured portion of the liver be sufficient for the purposes of life and the atrophy arrested, that existence may be maintained; but there does not appear to be good evidence of such cases and results having occurred." Dr. J. S Bristowe,[2] in speaking of cases of cured ascites, clearly recognises the ascites which may be associated with cirrhosis from that which is directly due to it, for he says: "We have reason, therefore, to believe that the ascites which appears in the course of [illegible] occasionally [illegible] remediable [illegible] or permanent [illegible] though the hepatic disease be still progressing towards its inevitable fatal termination." More recently a valuable contribution to the subject has been made by Dr. W. Hale White[3] who found that many cases of ascites which during life were thought to be due to hepatic cirrhosis were proved after death to depend upon something quite different, and in others which were tapped frequently there was some other cause present besides the cirrhosis which would account for the ascites, the most frequent being chronic peritonitis and perihepatitis Dr. Hale White concluded that when ascites depends upon cirrhosis of the liver the patient rarely lives long enough to survive more than one tapping and he published 34 cases [illegible] 10 suffered from cirrhosis [illegible] was necessary; the averag[illegible] was first noticed to be enlarging was only eight weeks. 14 were undoubted cases of cirrhosis in which paracentesis was performed and not one of them survived the first tapping long enough to render a second tapping necessary and in not one was there any evidence that the tapping was beneficial. 10 cases were regarded during life as having cirrhosis and were tapped more than once; of these the diagnosis proved to be wrong in four cases, while the remaining six cases had chronic peritonitis associated with the cirrhosis Dr. White's teaching upon this subject is, I think, so generally accepted that it scarcely needs any corroboration; but as I have made a number of post-mortem examinations upon cases of cirrhosis during the past two and a half years I have collected them and also looked up some others from the post-mortem records of the Middlesex Hospital, making altogether 18 cases, and on referring to their clinical histories the seriousness of the disease is well seen and their results in every way support Dr. White's conclusions. 12 of the 18 died before tapping was necessary or soon after it had been performed once. Six survived more than one tapping, and in these, with the possible exception of one, there was adequate cause for the ascites in addition to the cirrhosis. The cases which survived only one tapping ran a very similar course to those recorded by Dr. White, dying within a few weeks of the onset of the ascites.

When the ascites is associated with the cirrhosis the prognosis, as far as the ascites is concerned, depends upon the stage of the cirrhosis at which it arises. It would seem that the associated ascites in cases of cirrhosis is also usually a late symptom, which accounts for the great fatality of this condition, which, although considerably less than the cases dependent directly upon the cirrhosis, is still great, only a case here and there doing well for any length of time. The results of post-mortem examinations show that the cases of ascites which during life appear to be due to cirrhosis of the liver may be divided into three groups: (1) those in which the diagnosis of cirrhosis is erroneous, the ascites being found after death to be due to some entirely different cause; (2) those in which ascites is associated with cirrhosis, but actually due to some other cause; and (3) those in which the ascites is directly dependent upon the cirrhosis.

1. The first division of this group need not now be considered except for the purpose of emphasising the necessity of basing the evidence of cures upon ultimate post-mortem examinations. The liabilities of making errors in the diagnosis of the causes of ascites are very great, and as an example a case recorded by Dr. Ewart may be mentioned in which the patient was tapped 52 times and also had laparotomy performed on the supposition, which was proved afterwards to be erroneous, that the ascites was due to cirrhosis.

2. The commonest cause of ascites associated but not directly dependent upon cirrhosis of the liver is undoubtedly chronic peritonitis and perihepatitis. Dr. Hale White's cases show this and my own post-mortem experiences fully support the frequent association of this condition. Dr. Bristowe, in discussing the causes of ascites,[4] alludes to the part which changes in the capsule of the liver play as follows: "This formation, which is probably of inflammatory origin, is sometimes associated with cirrhosis or other morbid states of the liver, but is sometimes present when the liver seems otherwise perfectly healthy, and where it is the sole visible pathological phenomenon associated with ascites." It may, then, I think, be fairly considered that the ascites associated with latent cirrhosis is very frequently due to these conditions.

3. The third group comprises those cases in which the ascites directly depends upon the cirrhosis, and the prognosis here appears to be very bad, the majority of cases dying within a few weeks after ascites has first been noticed. The average duration of life after the onset of ascites in Dr. White's cases was only two months, and the collection of cases which I have made shows an equally grave prognosis. Indeed, many cases of cirrhosis die before tapping becomes necessary, and out of 46 cases in which cirrhosis was discovered after death in 20 only was there more or less accumulation of ascitic fluid (Bristowe), facts which all point to ascites being a late symptom. If, then, it is recognised that ascites is frequently produced by chronic peritonitis and perihepatitis, it is no proof of the curability of ascites due to cirrhosis to cite cases in which these conditions are present. In order to prove the curability of ascites due directly to cirrhosis, post-mortem evidence must be obtained of uncomplicated cases of cirrhosis which have been tapped one or more times at some date previously and afterwards lived in good health. Such cases no doubt do occasionally occur, but I think they must be extremely rare and considered as exceptions which in no way alter the general aspect of the question. Personally, during the time that I have been pathologist at the Middlesex Hospital I have never met with such a case. Dr. W. B. Cheadle has recorded in his recent lectures five cases which he has met with as great examples of improvement in atrophic cirrhosis. One of these was eventually lost sight of and therefore cannot be regarded as a proved case. Of the remaining four, upon which post-mortem examinations were ultimately made, the following are brief extracts of the conditions present.

CASE 1.—A woman, aged 53 years, was admitted into the hospital suffering from ascites and hæmatemesis; she was tapped twice and left the hospital in two months free from ascites. Nine months later she was readmitted with ascites and she was again tapped. There was no return of ascites but the patient had a severe attack of pleuro-pneumonia, from which she recovered, but she died a month later from acute bronchitis. At the post-mortem examination there was found a typically hobnailed, cirrhotic liver, weighing 38 ounces, with thickened capsule, but no general perihepatitis or peritonitis; nor were there any thickening of, or adhesions to, neighbouring structures.

CASE 2.—The patient, a man, aged 43 years, died one and a half years after first coming under treatment for ascites. At the post-mortem examination the cirrhotic liver was found to be covered with thick false membrane.

CASE 3.—The patient, a female, survived the first treatment of ascites one and a half years. She was tapped four times. At the post-mortem examination abundant adhesions were found between the liver and the neighbouring organs.

CASE 4.—A man, aged 35 years, was tapped 11 times and also had laparotomy performed. The post-mortem examination showed atrophic cirrhosis. Perihepatitis was also present.

On examining these four cases it will be seen that in three of them at least there were signs of perihepatitis and peritonitis, which therefore may have caused the ascites. In Case 2 the liver was covered with a thick false membrane; in Case 3 there were abundant adhesions between the liver and neighbouring organs; and in Case 4 definite perihepatitis is recorded. In Case 1, on the other hand, there does not appear to have been any cause for the ascites except the cirrhosis, and it appears to be one of the exceptional examples of a temporary recovery.

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[2] Transactions of the Clinical Society of London, vol. II.

[3] The Causes and Prognosis of Ascites, Guy's Hospital Reports, 1892.

[4] Reynolds's System of Medicine.

Dr. H. Hawkins[5] concludes that after ascites has set in "the conditions necessary for the restoration of health must be very rarely attained." The clinical course of cirrhosis of the liver may then, I think, be summed up as follows. Cases may exist for years without any ascites, or indeed without any definite symptoms, but during this period ascites is liable to arise from some associated condition, the most common being chronic peritonitis and perihepatitis. Ascites arising from this cause may be frequently relieved and occasionally it eventually entirely disappears, and the patient then returns to his former state of latent cirrhosis without any ascites. As time goes on the cirrhosis progresses until frequently it itself gives rise to ascites, for which tapping is of no avail, and the patient succumbs a few weeks after its onset. Of course, there need not be, and frequently is not, any long interval between the first and last tapping, as the associated ascites often merges imperceptibly into that directly dependent upon the cirrhosis. Examples of these are to be found in cases which are tapped repeatedly and survive for a few months. In fact, all stages may be frequently seen except that of an uncomplicated cirrhosis which has survived several tappings and recovered, and there is but little post-mortem evidence of the occurrence of this condition. This view would also seem to be in harmony with clinical experience regarding the difference in the prognosis of ascites in large and small livers. Dr. Cheadle in discussing prognosis says: "To put it broadly, and speaking clinically, the cases which do well are those in which the liver, apparently large, exposes a flat, hard surface to the abdominal front, extending far below the edge of the ribs and sometimes down to the umbilicus." Now it is precisely in these large livers, which are almost certainly in many cases the early stages of the smaller ones, and therefore presumably in an early stage of the disease, that the ascites is more likely in many cases to be due to an associated condition, and not in that early stage so likely to be directly dependent upon the cirrhosis, and, this being so, cases of ascites with large livers would be likely to do better than those with small livers, which, as already stated, Dr. Cheadle has shown to be the case.

TABLE OF CASES OPERATED UPON FOR ASCITES DUE TO CIRRHOSIS OF THE LIVER.

Case	Operator.	Age.	Sex.	Previous history and conditions found at operation.	Result.	Remarks.
1	Drummond and Morison.	42	F.	The liver was enlarged, pale, and smooth, but not harder than normal.	Recovery from operation; recurrence of ascites.	The patient required frequent tappings (69 times between date of operation and death). She died 19 months after the operation. No necropsy.
2	Drummond and Morison.	39	F.	The patient was tapped frequently before operation; the liver was found to be "typically cirrhotic."	Recovered; no return of ascites.	The patient was perfectly well at the end of two years. She finally died after an operation for ventral hernia. At the necropsy there were found adhesions with vessels, some of them of large size, passing between the omentum and the viscera to the parietes; the liver was atrophic and degenerated; the spleen was about four times its natural size.
3	Morison.	42	M.	The illness was of about eight weeks' duration. The liver was cirrhotic, but not so contracted as was expected; the spleen was enlarged.	Recovered; no return of ascites.	The patient was known to be quite well two years after.
4	"	54	M.	There were cirrhosis of liver, enlargement of spleen, and ovarian cyst.	Died.	At the necropsy partial examination showed the patient to have contracted kidneys.
5	Schelky.	—	—	—	"	The patient died from delirium tremens.
6	Lens.	61	M.	The liver was atrophic.	Recovered; ascites recurred.	The patient was tapped five times before death, which occurred six months after the operation.
7	Talma.	9	M.	The liver was enlarged and its surface was granular; there were splenic enlargement and parenchymatous nephritis.	Recovered; no recurrence of ascites.	The patient was perfectly well 26 months after operation.
8	Neuman.	45	M.	There was enlargement of the spleen.	Recovered; no recurrence of ascites six months after the operation.	—
9	Weir.	39	M.	The liver capsule was thickened and the spleen was bound down by adhesions.	Died on the fifth day after the operation.	Purulent peritonitis.
10	Rolleston and Turner.	52	M.	There was ascites of two months' duration; the patient had been tapped twice before operation; the liver was markedly cirrhosed.	Recovered; recurrence of ascites requiring frequent tapping.	When heard of about four months afterwards the patient was ill in bed with distended abdomen and œdema of the legs.
11	Rolleston and Turner.	45	M.	There were œdema of the feet and ascites of about a month's duration, preceded by hæmatemesis; the liver was markedly hobnailed but was free from adhesions; the peritoneum was much injected.	Recovered; remained much improved; four months after there was, however, a trace of ascites and some œdema of the feet.	—
12	Bossowski.	9	F.	The liver was cirrhotic.	Recovered; recurrence of ascites.	The recurrence of the ascites appeared to take place less rapidly after the operation.
13	Frazier.	45	M.	The liver was cirrhotic; the omentum was short and thickened.	Recovered; recurrence of ascites for a time.	The patient required tapping twice after the operation; after that there was no return of ascites at the end of three months.
14	Van de Meule.	—	—	—	Died.	—

TREATMENT.

The treatment of the later stages of cirrhosis of the liver consists chiefly in attempting to relieve the ascites, which can in most cases only effectually be done by tapping. Formerly it was always considered wise to put off tapping as long as possible, now it is generally advised to tap early. This diversity of opinion has no doubt arisen from a confusion as to the actual causes of the ascites, some cases being benefited by this treatment and others not. Without, however, going further into the question as to whether tapping should be performed early or late, it may at once be stated that there is no good evidence to show that tapping is of any benefit in those cases where the ascites is directly dependent upon the cirrhosis. Dr. White found that in 14 cases the length of life after tapping was usually only a few days (the shortest was two days, the longest 40), and, as

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Cirrhosis, Allbutt's System of Medicine.

already stated, patients in this group of cases seldom live long enough to require tapping more than once or twice.

Recently a more radical operation has been introduced with a view of curing cases of cirrhosis with ascites. First introduced into this country by Morison and Rutherford, the operation consists briefly in opening the abdomen and promoting adhesions between the peritoneum, the omentum, and the parietes, the idea being to establish a free collateral circulation which shall relieve the portal system and so prevent the recurrence of ascites. This method of treatment has met with a certain amount of success and I append a table of those cases which I have been able to find particulars of. I have adopted the following table chiefly from a paper by Frazier,[6] but have made various additions to the details where I have been able to find them.

It is very difficult to draw any definite conclusions from this table, since the cases operated upon are so various and often likewise complicated. It is, indeed, rather a table of operation for ascites from various causes than one in which the ascites can be said to be due to cirrhosis. For instance, in Case 4 in the table there was an ovarian cyst and in Case 7 there was parenchymatous nephritis. If, however, we consider for the moment that these cases represent the general run of clinical cases which are diagnosed as cirrhosis with ascites it will be interesting to see how the results compare with those of tapping.

In this table we have, out of 14 cases, four which may be regarded as cured of the ascites, or, at any rate, very greatly benefited; they are Morison's cases (Case 2 and Case 3), in both of which the patients were well two years after; Talma's case (Case 7), where the patient was well 26 months after; and Neuman's case (Case 8), in which there was no recurrence of ascites six months after operation; while two others (Case 11, Rolleston and Turner, and Case 13, Frazier) appear to have been considerably improved, but cannot be regarded as cured, since in one (Rolleston and Turner) there were definite traces of ascites and œdema of the feet four months after, and in Frazier's case the patient required tapping twice after the operation, and the record of freedom from ascites only extends for three months.[7] In making a comparison with tapping it must be remembered that many cases which are operated upon are those which have already survived several tappings and therefore, as has been already shown in the first part of this paper, these are to a large extent removed from the more serious group, which die after the first tapping, and, further, it must be remembered that successful cases are more likely to be recorded than unsuccessful ones.

If now we take the records of a similar set of clinical cases diagnosed as cirrhosis and ascites like the above, without any attempt to further classify them into the groups I have previously mentioned, we shall similarly find a considerable number of cases greatly relieved and a few that have quite recovered. Dr. Cheadle, for instance, quotes 11 cases in which recovery was either temporary or prolonged, exclusive of those in which there was mere relief of symptoms sufficient to admit of discharge from hospital, or private cases which were not traced afterwards, which is a very large percentage and one which I venture to think will compare very favourably with the statistics of cases operated upon.

Those who consider the operation as one for cirrhosis of the liver look upon the ascites as being due to mechanical causes and capable of being relieved by the establishment of a free collateral circulation. There are, however, good reasons for believing that the occurrence of ascites is not capable of such a simple explanation, and it is thought by many that it may be due to a toxæmia which accompanies the later stages of the disease. That there is congestion of the portal system in cirrhosis there can be no doubt, as evidenced by hæmorrhages and frequent enlargement of veins, but that it will explain many of the later symptoms, including the ascites, is not so certain. Moreover, there does not seem to be any evidence at present that the operation has been successful in an uncomplicated case of cirrhosis with ascites. Morison advises operation after one or two tappings; in his conclusions regarding the operation he says: "It is no longer advisable to treat the cirrhosis by repeated tappings if the patient is otherwise sound and in fair general condition. After one or two tappings have failed operation offers the best chance of prolonged and useful life." Frazier considers the chief indication for the operation to be the presence of ascites due to obstruction of the veins of the portal system, when the obstruction itself is due to cirrhosis of the liver, but qualifies this later by stating that the cases which should be operated upon are those to which paracentesis has failed to give relief. Another view, suggested by Rolleston, is that the operation gives relief by affording increased nutrition to the liver and promoting hyperplasia of the cells, and on this ground he thinks that operative interference would probably succeed better in the pre-ascitic stages than in the later ones, but considering how long the disease may remain latent and the uncertainties of its course this suggestion is scarcely practicable. There is, however, I think, one other possible explanation simpler than both of the above, and that is that the beneficial effects which follow the operation are simply due to the formation of adhesions between the two layers of the peritoneum and so leading to obliteration of its cavity. This would in itself be sufficient to account for the non-return of ascites, without any necessity for explaining it either by the development of a collateral circulation or by increased nutrition of the liver cells, both of which would require very strong evidence of their existence before they can be accepted as facts.

Obliteration of the peritoneal cavity, partial or complete, is not unfrequently seen in the course of tuberculous peritonitis and the same process of obliteration, of course, often occurs in connexion with the pleura and pericardium. An interesting case in which obliteration of the peritoneal cavity apparently occurred after tapping has been recorded by Dr. W. Cayley[8] and may be mentioned here. The patient, a man, was suffering from alcoholic cirrhosis and ascites and was tapped four times. After the last tapping some symptoms of peritonitis appeared and the fluid did not again collect. He was discharged convalescent, a[illegible] dition is not known he was seen [illegible] his cab two years afterwards. [illegible] Dr. Cayley suggests the possi[illegible] exciting adhesive peritonitis as often happens in cases of ascites due to tuberculous peritonitis.

If the operation is to survive it must be shown that it possesses some distinct superiority over tapping, since, notwithstanding the slight risk of abdominal explorations, it is in every way more formidable than tapping, and it must always be remembered that many of the cases which require it are neither good subjects for operation nor for an anæsthetic.

From what has already been said it will, I think, be gathered that the cases best suited for operation are those in which the ascites is only an associated condition of the cirrhosis. The presence of cirrhosis is, of course, not by any means necessarily a contra-indication, but the further advanced the cirrhosis the less chance must there be of the operation being successful, and if there is good reason to believe that active symptoms of cirrhosis have supervened and that the ascites is directly dependent upon them the operation should not be undertaken, for at this stage, putting the cause of the ascites on one side, the liver is nearly always in such a condition as to be incompatible with prolongation of life. There must, of course, often be great difficulty in deciding whether the cirrhosis is still latent, and to this end the most careful attention must be given to the general condition of the patient and any signs that may denote that the liver-cells are not performing their functions well. Errors, however, will be further eliminated by selecting only such cases for operation as have been tapped several times, and so looking upon the operation as one likely to relieve some cases of ascites associated with cirrhosis of the liver, and not as one directed towards the actual liver condition itself; but the operation should not, it seems to me, ever be substituted in the first place for the more simple method of removing the fluid by tapping.

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[6] American Jour[illegible] Medical Sciences, F[illegible]

[7] [illegible] by Dr. F[illegible] ical Sciences, March, 1901, in which 22 cases have been collected. Two of these are recorded by the authors. One patient, a man aged 63 years after [illegible] He was tapped on the 11th, but as the fluid reaccumulated rapidly he was operated upon on Oct. 13th, 1900. He died on the 17th, four days after operation.

[8] Journal of the Middlesex Hospital, March, 1897.

A RARE FORM OF PURPURA COMPLICATING DIPHTHERIA.

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A GIRL, aged 10 years, was admitted to the South-Eastern Fever Hospital on Oct. 8th, 1900, for diphtheria, it being the fourth day of the disease. There was membrane covering both tonsils and uvula, and a pure culture of Klebs-Löffler bacilli was obtained on cultivation. A large dose of antitoxin was injected. On the seventh day from the onset the throat was clean, but a raw surface remained where the membrane had separated. In the evening, however, the patient vomited and this recurred at frequent intervals throughout the next 36 hours; there was blood in the vomit on several occasions and one stool was passed containing a small amount of blood. Next morning a rash was noticed on the elbows, large papules of a deep purple colour, and there were numerous petechiæ on the buttocks. The heart was not dilated and the sounds were good but the pulse became very weak towards night and the patient was much exhausted by the continued vomiting. Next morning the vomiting had ceased, the pulse was better, but she was in a state of extreme exhaustion. Fresh petechiæ had appeared on the elbows, knees, and ears, and also over the malar bones, where they were large and well marked. The following day the rash on the elbows was seen to be becoming vesicular, fresh petechiæ had appeared on the buttocks, and there was a purplish mottling of the legs and feet. The vesicles on the elbows became confluent and formed large bullæ filled with dark, broken-down blood, and fresh vesicles appeared on the ankles. The bullæ were opened and dressed. The petechiæ on the buttocks and ankles were now very numerous, and the patient complained of stiffness of the elbows and inability to move them, but there was no pain when at rest—this was on the fifth day from the commencement of the vomiting. The tongue was dry and coated, the spleen was not enlarged, and there were no abdominal symptoms; the urine contained a trace of albumin. No definite change could be discovered in the blood on microscopical examination, but a blood count could not be made. On the next day there were pain and tenderness, but no swelling, of both elbows and the left hip-joint; the petechiæ were disappearing from their original sites and the bullæ were healing, but fresh petechiæ were noticed on the forearms. An erythematous rash with a few patches of urticaria of the type common after the use of antitoxin developed and became more marked after a few hours and the left hip-joint was noticed to be slightly swollen and painful, while over the front of it there were a few small ecchymoses. There was still a trace of albumin in the urine and on this day there were two stools containing blood to the amount of seven ounces altogether and during the night two ounces more were passed, while there were ecchymoses over the posterior iliac spines, probably due to the bed-pan. The abdomen was tender but the spleen was normal and also the heart and the patient was taking milk freely. The pain in the joints disappeared and there was no marked anæmia. The following day—the ninth from the onset of vomiting—she vomited twice, curds but no blood. Almost all traces of the original rash had gone except on the elbows, but a fresh crop of petechiæ appeared on the forearms and hands. There were also three small swellings over the bones of the forearms which were rather tender, but otherwise she had no pain. The cardiac dulness extended from mid-sternum to one finger's breadth internal to the vertical nipple line, and a very slight systolic murmur was audible just internal to the apex. On the eleventh day there was again a small amount of blood in the stools which were green in colour, having been black for several days. Next day a small ecchymosis was noticed on the left forearm, and a slight painless swelling on the flexor surface of the right forearm. The patient was much brighter and she felt hungry so some solid food was given for the first time since the vomiting set in. Good progress was made for the next 10 days, when the heart dulness was found to have increased as far as the nipple line on the left side. The first sound was weak and toneless and the pulmonary second sound was much accentuated, but after another 10 days the dulness was normal and the sounds were good, so she was allowed to sit up for the first time. On Nov. 19th, 40 days from the initial vomiting, she again vomited three times; the breath was foul, and there were scattered points of deposit on the tonsils, but there were no diphtheria bacilli found on cultivation. The temperature was 100·4° F., the highest recorded since the onset of the diphtheria. On the 21st a sudaminal rash appeared on the trunk, but there was no sign of purpura. The throat cleared up and there was no further vomiting. The cardiac dulness was now from the right sternal margin to just within the left nipple line; the first sound at the apex was weak and the pulmonary second sound was accentuated. This remained unchanged for three weeks, when a faint systolic murmur was detected at the apex conducted for a short distance beyond the nipple. The murmur gradually became less and finally disappeared, the cardiac dulness returned to its original limits, and the patient was discharged on Jan. 1st, 1901, as cured. Throughout the attack the temperature varied from 97° to 99°, rarely going higher and never above 100·4°, which was recorded on the occasion of the attack of tonsillitis. There was no history of any previous attack of similar nature or of rheumatism.

Remarks.—On consideration of the symptoms I think that there can be no doubt that this was a case of Henoch's purpura, although in some features it resembled rheumatism. Henoch describes the condition to which his name has been given as a form of purpura accompanied by colic, tenderness of the colon, vomiting, intestinal hæmorrhage, and rheumatoid pains. He also states that one of the links in the chain of symptoms may be absent and that it is characteristic that the symptoms come on in separate outbreaks with intervals of several days or weeks or even a year. Fever is not invariably present and is generally only moderate in degree.[1] All these features were present in the above case; the abdominal tenderness was never very marked, but the vomiting was extremely severe and the purpura was very well marked. The question of rheumatism must be considered, but such extensive purpuric manifestations are rare in that disease, although cases have been recorded.[2] The arthritic symptoms were quite a minor feature and did not resemble rheumatism in its usual form. The cardiac dilatation which might be attributed to rheumatism is even more characteristic of diphtheria. One of the most important points against rheumatism is the almost complete absence of pyrexia; the tonsillitis, which might be regarded as rheumatic, is an interesting feature, but was only slight and was not accompanied by any arthritis, while it is occasionally met with in convalescence from diphtheria without any other complication. On the whole, therefore, I consider that rheumatism may be excluded. Henoch states that he never found any marked changes in the blood and he was inclined to attribute the condition to a vaso-motor neurosis. Zimmerman[3] has described changes in the blood vessels chiefly affecting the media and adventitia, and other authorities have made similar observations in severe cases. Conty[4] holds that Henoch's purpura is of nervous origin and the concurrence in this case with diphtheria is very interesting in view of the marked influence of diphtheria on the nervous system. At the onset of the vomiting I was inclined to think that it was due to cardiac paralysis, but with the appearance of the purpura which was very different from that seen in the hæmorrhagic form of diphtheria, this view was abandoned. Whether the diphtheria stood in any causal relation to the other condition is a question which I am unable to answer.

The relation of the antitoxin administered may be questioned, but many other cases were injected with the same batch and in none did any of the above symptoms appear. The arthritis might be attributed to the antitoxin and it was practically concurrent with the typical antitoxin rash which appeared. It lasted, however, longer than antitoxin pains usually do and appeared to be due to some slight effusion into the joints rather than to be in the fibrous structures surrounding the joints as is usually the case with antitoxin joint pains. I am personally inclined to think that they were due to hæmorrhages into the joints, the conspicuous features being stiffness and tenderness rather than pain; the swellings over the bones of the forearms were probably subperiosteal hæmorrhages, while the swelling on the flexor surface of the forearm may have been due to hæmorrhage in or between the muscles or to a transient œdema such as has been described in similar cases. *The condition is a very rare one.* Henoch[5] describes eight cases as occurring in his clinic from 1868 to 1887, while Osler records 11 cases.[6] The prognosis appears to be fairly good. Of Henoch's eight cases six recovered, while Osler had three deaths in his 11 cases. Most of the fatal cases have been due to acute nephritis. The treatment adopted in the case under notice was complete rest with milk diet until all gastro-intestinal symptoms had subsided. The joint pain [illegible] pyrin and [illegible] arsenic, a[illegible] Dr. F. M. Turner, medical superintendent of the South-Eastern Hospital, for permission to publish this case.

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[1] Lectures on Children's Diseases, vol. ii.
[2] Poynton: THE LANCET, Oct. 28th, 1899.
[3] Archiv der Heilkunde, 1874.
[4] Gazette Hebdomadaire, 36–40.

Buxton.

THE DECIDUOUS DENTITION AS A FACTOR IN THE HEALTH OF THE CHILD.[1]

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THE consideration of this question groups itself under three headings: (1) the influence of the deciduous teeth on the general health during their eruption; (2) the important part which they play in assisting the nutrition of the child; and (3) the diseases, local and general, which may be induced or increased by them when they have become carious. In a paper it would be impossible to enter fully into a consideration of the whole of these points. I do the more readily confine my remarks to a general argument, since we may hope to hear the opinions of those among us who are so amply qualified to give us authoritative statements on all concerning the health of children. Thus, for instance, the infantile diseases associated with the eruption of the deciduous teeth do not as a rule come under the notice of the dental surgeon, but it would be interesting to hear opinions as to how far these troubles may be looked upon as due to the difficult eruptions of the teeth—whether they are merely coincident phenomena or whether they themselves may be the existing cause of the delayed eruption, the disease interfering with what in the normal state should be a painless physiological process. It is, however, interesting in this connexion to recall the fact that the date of the eruption of the teeth is somewhat variable, at all events in children of so-called civilised races. It is not an uncommon event to find successive groups of teeth erupting without that intervening period of rest which is laid down as the normal physiological course. This, doubtless, may be regarded as an expression of an abnormal systematic condition; nevertheless, it may in itself be a sufficient factor to determine various reflex or other pathological conditions. Thus in one child of the age of about 18 months the development of fits of an epileptiform nature was coincident with the eruption, not only of the four canines, as is normal at that age, but with that of the four second molars, which should not have appeared till six months later. The eruption of eight teeth coincidently would appear to have been the possible cause of the convulsions. Though, of course, why four molars erupted [illegible] lained.

[illegible] be better to take the part played [illegible] intaining the health of a child, before considering the constitutional effects which this may have when diseased, yet, in inverting the sequence, I perhaps strengthen the force of my argument, since reflection on that which we have lost is more pregnant with good intention than is the contemplation of that which we possess. Ignoring those unhappy children who are born with teeth—blighted probably by stomatitic inflammation in utero—which are teeth but in name, useless, dwarfed, decayed, even necrosed from the very beginning, I assume that the teeth are cut in, at any rate, an approximately perfect state. During the earlier stages of caries of the teeth the constitutional effects are slight and perhaps transitory, though in a delicate child the pain on attempts at mastication may lead to a refusal to take any but the softest food which might possibly not be without its permanent effect. But caries is, almost without an exception, progressive—not only leading to exposure of the pulp in a particular tooth, but spreading to other teeth, including those of the permanent series, owing to the acids formed by the decomposition of the food which collects in the cavities of decay. Moreover, although the vessels of the pulps of the temporary teeth do not become so quickly plugged, owing to the larger size of the apical foramina, as they do in permanent teeth, yet the septic inflammation which must necessarily ensue when the pulps are exposed will inevitably in time cause their death. The septic condition of the mouth now becomes worse, for to the previous factors there are added the breaking up of the gangrenous pulps and the collection of food in the pulp canals, where it remains free to decompose, unreached by the tongue or the ordinary cleansing processes, whether of the brush or the mastication of food or the drinking of fluid. Moreover, either by the direct spread of the inflammation or by the forcing of virulent septic organisms through the apical foramen, by the piston action of a plug of food forced into the tooth cavity, acute inflammation in the surrounding tissues may directly follow. But even supposing this may fortunately not happen the periosteum of such a tooth is almost always chronically inflamed, as is frequently seen when it is removed. Certainly so long as the pulp is not exposed, probably so long as an exposure does not lead to any extensive disease of it, no germs or germ products will be absorbed into the blood stream, but when the pulp is dead this inevitably happens to a greater or less degree.

The extremely foul condition of the mouth is readily apparent at the slightest glance, and I have been struck with the fact that in almost every case of ulcerative stomatitis which I have seen this condition of the mouth has been present and was, in my opinion, at least the predisposing cause. So, too, necrosis of the jaws as a direct sequel of abscesses under temporary teeth is quite common, especially in the neglected children of the poor. This is more frequently limited in extent, but it may be extensive. Thus in a case which I have recorded the sequestrum included the whole of one side of the mandible, including the coronoid and condylar processes. These conditions, though obviously not without their constitutional influence, are happily chiefly local in their effects and transitory in character, but sometimes these are permanent. Thus, in the case alluded to the boy enters on life handicapped by the loss of half of his entire dentition as the result of neglect of a temporary tooth. Apart, however, from those more or less local conditions the septic condition of the mouth has a marked influence in producing disease in other parts of the body. *Take, for instance, the lymphatic system.* Diseased teeth are universally recognised as one of the main factors in causing enlargement of the cervical glands and these again in turn are known to afford a nidus for the growth of tubercle germs whence they may spread through the whole body. The spread of tuberculosis is now occupying many minds, but hope rather fastens on preventative than on curative measures. Is it not important, therefore, that predisposing causes should be eliminated, and with these diseased [illegible] outh is an exciting [illegible] It is appalling to [illegible] which must in the course of a short time pass from the mouth into the stomachs of those numerous little ones of whose temporary teeth scarcely one is free from caries. The part played by a septic mouth in connexion with gastric troubles of adult life has long been known, but has lately been more prominently brought into notice by recent writing. Surely in children the effect must be equally great.

It would be possible to enlarge on this question very considerably—to mention other diseases, such as reflex nervous disorders, and to show by statistics how prevalent are carious teeth not only in the poor but in the rich, but I will now attempt to show, by considering the part played by the deciduous dentition in the health of the child, that the *remedy for diseases* caused by these teeth is not their extraction when carious, but rather the prevention of caries and the treatment of carious cavities while they are yet small.

The teeth in the deciduous set are functionally active between the ages of two and 10 years. Before the age of two years, though some are in place, the diet of the child is usually such as to require little mastication. Between the ages of seven and nine years the temporary incisors will have been exchanged for those of the permanent series, but these are only of secondary importance in the mastication of food. It is true that at about the age of seven years the deciduous molars will have been reinforced by the first molars of the permanent series, but these teeth, from the point of view which I wish to present to you, might even be considered as being for the time members of the temporary series. So that for this period of eight years the important part which the mastication of food plays in the nutrition of the child may be taken to be dependent on the temporary teeth. During the next two years the temporary molars are exchanged for their permanent successors; nevertheless, this is usually accomplished with but little impairment of the grinding surface available, for the first permanent premolars usually antagonise and are in use before the second temporary molars are lost. A little later than 12 years of age the second permanent molars erupt and thenceforward the child has available the full permanent dentition, excepting the wisdom teeth, the arrival of which is too erratic to enter into calculation.

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[5] Lectures on Children's Diseases.

[6] American Journal of the Medical Sciences, 1895.

[1] A paper read before the Harveian Society on May 2nd, 1901.

If now the growth of the child during the period from two to 10 years of age be compared with that during a like period of eight years, from 10 to 18 years of age, the absolute need of the child having proper nourishment would seem to be strikingly manifest. Thus according to the report of the Anthropometric Committee published in 1883 during the first period the average male child increases in height 18 inches and a female child 18¾ inches; during the second period the male child grows 15¼ inches and the female child 10½ inches. These figures give the ratio of the two periods for the male child as 75 are to 61, and for the female child as 75 are to 42. Thus the period of most active growth of the bones is coincident with the functional activity of the deciduous teeth. If they are diseased or if they are removed, as is often most unnecessarily done, must not this be fatal to the proper nourishment of the child? The strain on the tissues during this period of growth would seem to be emphasised by the comparatively slight increase in weight of the child during the first period as compared with that during the second period. Thus, the above-mentioned tables give for the male child an increase of 2 stones 7 pounds for the first period and of 5 stones for the second period, whilst the female child increases 2 stones 8½ pounds in the first and 4 stones 3 pounds in the second period.

Without wishing to endeavour to prove too much by statistics, which someone has described as lies in the superlative degree, the fact that during the first period a female child growing 18¾ inches only increases in weight by 36½ pounds, whilst when growing 10½ inches in the second period she gains 59 pounds, would justify the inference that her nutrition during the first period was not in excess of her absolute need.

The importance of teeth is happily receiving more attention than was formerly the case. Recently a committee of the British Medical Association was appointed to inquire into causes of the prevalence of carious teeth. It was suggested by Mr. J. Cantlie, who moved the appointment of this committee, that something was radically wrong with the method of feeding children. Now whatever effect this might have on the permanent teeth the influence on the temporary ones, which alone I am considering, would be but slight, for the crowns of these teeth are already formed at birth and subsequent feeding, &c, could have little influence except on the outermost layers of enamel which remain to be deposited. It follows, therefore, that if these teeth are so to be formed that they will present no defects and will hence not become carious the habits and dietary of the mother, indeed of the whole community, must be radically changed. This may not be impossible, perhaps, but it is improbable. Hence it is important that the means at hand for preserving these organs should be taken advantage of. First and foremost the teeth should be cleaned regularly and thoroughly twice a day, nor can this be begun too early; if an infant has only one tooth that tooth will be the better for cleaning. Secondly, they should be periodically inspected and small holes when present should be filled. A child who has not suffered the pity of a misguided parent has no dread of the process, and this for small cavities is painless.

Though the means of prevention are thus in normal cases simple and easy we cannot, I fear, hope to see their adoption in the case of the children of the poor until we can convince school authorities that dirty teeth are more to be objected to than many other things, say, ink-spots on the fingers which are so hateful to the scholastic mind.

By a consideration of the effects of the teeth when diseased and of the importance of the teeth in the normal physiological growth of the child I have endeavoured to make good the argument that "the deciduous dentition is an important factor in the health of the child."

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TUBERCULOSIS OF THE CHOROID.[1]

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EVERY practical physician is aware that tubercle may now and then be found in the choroid of patients suffering from acute miliary tuberculosis. The diagnostic importance of these small bodies has been touched upon by all systematic writers. There is, however, no general agreement either as to the ophthalmoscopic forms which they may assume or as to the precise conditions under which they may occur. These omissions are doubtless due, first, to the technical difficulties attending an ophthalmoscopic examination of a young child with such a serious disorder as tuberculous meningitis, and, secondly, to the fact that a single observer, be he physician or be he ophthalmic surgeon, is scarcely likely to come across many cases of choroidal tubercle. It is our present intention to record our personal experience of tubercle of the choroid, and in doing so we shall purposely limit our remarks to what we have ourselves observed.

The following observations are based upon the study of 49 cases of tubercle of the choroid. They may be grouped as they were met with clinically in (1) acute miliary tuberculosis and tuberculous meningitis; (2) chronic tuberculosis, medical and surgical; and (3) obsolescent tuberculosis.

1. ACUTE MILIARY TUBERCULOSIS AND TUBERCULOUS MENINGITIS.

Out of 42[2] unselected cases of these diseases which we examined with the ophthalmoscope we found 21 with tubercles of the choroid, or exactly 50 per cent. In 13 of these cases tubercle was recognised in one eye only, and in both eyes in the remaining eight cases. This gives a total of 29 eyes (13 single and eight bilateral) in which the changes of tuberculosis were detected. In 18 of the eyes the lesion was solitary in the sense that it consisted of a single tuberculous deposit. In the remaining 11 eyes the number of separate lesions ranged from as few as 2 to as many as 12; but we desire to emphasise the fact that the common number was merely two or three. The tubercles usually took the form of round, oval, or reniform areas, of a fawn, grey, or paper-white colour. Their edges, which are perhaps best described as "moth-eaten" in appearance, were generally marked by a narrow zone of darker colour, due (as our microscopical specimens show) to local aggregation and proliferation of the retinal pigmented epithelium. The amount of pigmentation appeared to bear some relationship to the size of the tubercles, since it was generally absent from the smaller nodules, so that the latter could not well be distinguished by their ophthalmoscopic characters from any other choroidal exudation, such as may be met with in syphilis, acquired or inherited. Flecks, dots, or rings of pigment, doubtless of retinal origin, were occasionally to be seen upon the surface of the nodule itself. One of the tubercles was bounded by a pigmented ring with a halo outside it of scattered granules of dark pigment on a grey ground. It is important to note, however, that the tuberculous nodules were never framed, as it were, by a thick border of pigment, such as is commonly present in the lesions of an ordinary [illegible] illis. In one case [illegible] axis of the tuberc[illegible] centre of the littl[illegible] vessels, such as [illegible] to be present in some of our microscopical specimens. In three cases the tubercle assumed the rather unusual form of a small, oval granular, pigmented mass situated near the optic disc. In one instance a paper white tubercle was surrounded by a pale red ring, presumably due to congestion of the neighbouring choroid. The centre of some of the tubercles was marked by a tiny, white, shimmering dot, difficult to describe exactly in words. The retinal vessels when in immediate relationship to the tubercle (as they often were) passed over the nodule without loss of definition, as would be expected from the position of the lesion—namely, in the parenchyma of the choroid coat. In one case only was the slightest alteration noted in the neighbouring retinal vessels, which presented an ill defined muddy appearance, possibly due to localised œdema of the retina. In eyes where the choroidal vessels were unusually distinct these were seen to terminate abruptly at the edge of the tuberculous lesion. Judging by the position of the retinal vessels the tubercles were seldom much raised above the level of the retina. With regard to the size, the tubercules ranged from a fraction of a millimetre to three millimetres in diameter, and it was exceptional for them to equal the optic disc in magnitude. Practically speaking, they were found only in the immediate vicinity of the optic disc and the macula lutea—that is to say, in the so called "central region" of the fundus oculi. A peripheral distribution was noted only in cases where the tubercles were numerous with one exception. In a few instances the nodules lay exactly at the macula lutea. Thus, a small but definite tubercle was found in that position in one eye of a child aged five years whose second eye showed several small growths disseminated through the choroid. The patient died from acute miliary tuberculosis 10 days after the discovery of the choroidal lesion, and the nature of the ocular growth was confirmed both pathologically and bacteriologically. In another child, aged five years, a tubercle was found at each macula lutea. A third case was so unusual as to merit a few words of separate mention. A rickety boy, aged two years and five months, suffered from whooping cough, bronchitis, and an enlarged spleen. In the macula lutea of the left eye was a raised quadrangular mass about eight times the size of the optic disc of a dirty grey colour and with an ill defined margin. The retinal pigment was distributed irregularly over its surface. Those retinal vessels which crossed the area were blurred owing, we presume, to œdema of the retina which had been detached by the underlying tubercle. The child succumbed to general tuberculosis six weeks after the eyes were examined and at the necropsy a large grey tubercle was found at the macula lutea.

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[1] A paper read at the provincial meeting of the Society for the Study of Disease in Children at Liverpool, June 29th, 1901.

[2] Of 36 cases of general tuberculosis, all except six of which were verified by necropsy, 28 had head symptoms. There were six cases of tuberculous meningitis, four of which were verified at the post-mortem examination. Of the total number of cases (42) 16 developed optic papillitis.

There is an impression that tubercles of the choroid visible with the ophthalmoscope may appear in the course of a few days or hours. The only evidence which we possess on this point was furnished by a child, aged five years, with coarctation of the aorta whose fundus oculi was examined with negative results on June 10th 1895. Nine days later however, a further investigation revealed the presence of three small tubercles near the optic disc of the right eye. A statement which apparently rests on the authority of Cohnheim has been made that choroidal changes are commoner in tubercle without than with meningitis. Our present figures lend no support to this generalisation, as may be seen on referring to Note 2. Is tubercle of the choroid a late symptom? We find that the period elapsing between discovery of the ocular changes and death ranged in 14 fatal cases from one to 43 days. We conclude therefore, that it is not necessarily a late symptom of general tuberculosis. The following case, indeed shows that choroidal tubercle may be an early sign. A boy, aged three years, with cervical caries was examined on April 24th, 1890 and was found to have a solitary tubercle near the yellow spot of the right eye. He developed whooping cough in the early part of 1891 and died from general tuberculosis (confirmed post mortem) at the end of April in the same year.

From the foregoing remarks it will be obvious that in acute miliary tuberculosis and tuberculous meningitis choroidal tubercle may assume several different forms. It is important to remember that in a majority of the cases the lesion in the choroid is small, single, and limited to one eye. This emphasises the somewhat obvious fact that both eyes must, as a matter of routine, be examined before the absence of choroidal tubercle can be affirmed.[3]

Our figures prove that choroidal changes are frequently present in acute tuberculosis. Indeed, in our opinion, they form perhaps the most trustworthy sign of that disorder, the diagnosis of which as we all recognise, is often most obscure. Attention is sometimes drawn to a discrepancy between the alleged infrequency of the ophthalmoscopic discoveries, on the one hand, and the frequency of the pathological findings, on the other. Admitting the truth of this view, which, in the light of our present figures, we do with some little hesitation, there are several points to be borne in mind. Tubercle, although present, may lie in the anterior portions of the choroid coat beyond the range of the ophthalmoscope, as we have ourselves found. If the nodule is not large enough to cause disturbance of the overlying retinal pigmented epithelium it can scarcely be visible with the ophthalmoscope although it may be found on post mortem inspection when the retina is removed. It seems likely that the rapid appearance of fresh tubercles mentioned by many writers is to be explained by an acute disintegration of the pigmented epithelium rather than by a presumed unusually sudden appearance and rapid growth of the nodules themselves. Then there remains, last but not least, the personal factor which is certainly not without influence when it comes to examining the eyes of a young and troublesome child with the ophthalmoscope. In short, we repeat that careful ophthalmoscopic examination will show tubercle of the choroid to be quite common in acute miliary tuberculosis, since it was present in 50 per cent. of our cases.

2. CHRONIC TUBERCULOSIS, MEDICAL AND SURGICAL.

We have examined with the ophthalmoscope 119 cases of chronic tuberculosis in children whose ages ranged from eight months to 16 years. They suffered from such various affections as tuberculous joints, chronic tuberculous adenitis, spinal caries, chronic tuberculous cerebral tumour (two cases), and lupus. Amongst them we found choroidal changes in no fewer than 11, or 9.24 per cent., of which three were verified post mortem. The choroidal lesions fell into four groups—viz., (1) the solitary, (2) the multiple, (3) the disseminated, and (4) the diffused. As the solitary and the multiple closely resemble those already described in acute tuberculosis they need not be further particularised. The case of disseminated tubercle of the choroid occurred in a stunted lad aged 12 years, with extensive scrofuloderma and chronically enlarged cervical glands. He showed absolutely no signs of hereditary syphilis. Both eyes presented a condition indistinguishable from choroiditis disseminata syphilitica. The evidence, however, pointed clearly in the direction of a tuberculous and not a specific origin for the choroidal mischief. The case of diffused tubercle was in some respects even more remarkable. A boy, aged six years and seven months came under our notice on April 21st 1901. His right eye had been "blind" for about 18 months and he had suffered from tuberculous arthritis for about eight months. There was no family history of phthisis, but a lodger with that disease had lived in his parent's house before the onset of the eye trouble. We found the lad suffering from tuberculous arthritis of the right knee and slight chronic enlargement of the cervical glands. There was no evidence whatever of syphilis. The fundus of the right eye manifested extensive changes. There were visible large areas of detached retina probably caused by gross masses of tubercle in the choroid. Glistening white smaller patches (which resembled roughly those of albuminuric retinitis) possibly represented tubercle of the deeper layers of the retina. In rare cases diffused tubercle may assume even greater dimensions. A youth, aged 16 years, gave a family history of phthisis on his mother's side. He himself suffered from a cough and presented signs of tubercle at one apex. His right eye was blind and painful. The cornea was diffusely hazy. The tension of the globe was raised. No reflex could be obtained from the fundus. The eye was excised as probably containing a tumour of tuberculous nature. Upon examination the vitreous chamber was found to be filled with a greyish solid exudation with a lenticular shaped hæmorrhage at one part. Microscopically the exudation was found to consist of caseous material staining very imperfectly. Bacilli were not looked for. Such a case as this in a child under three years of age would be difficult or impossible to distinguish from glioma of the retina.

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[3] We may add that in our experience the best way is first, to scrutinise the fundus oculi by the indirect method for the purpose of discovering the lesions and then having found them to work out their exact details by the direct method. A pupil dilated with euphthalmine or some other mydriatic agent is almost indispensable for the average observer and a great help even to an expert.

Finally, we quote one case to show the diagnostic value which may attach to the discovery of these choroidal changes. A boy, aged four years, was brought to the hospital with paresis of his right side and especially of his right leg. There was double optic atrophy, and in one eye a small paper-white tubercle was found close to the optic disc. The provisional diagnosis of a tuberculous cerebral tumour was made. The child soon afterwards developed Jacksonian epileptiform convulsions, became comatose, and died from exhaustion. A large tuberculous tumour was found to occupy the upper two frontal convolutions on the left side of the brain and to press upon the ascending frontal convolution. We venture to think that a positive diagnosis could not have been reached in this case had a choroidal tubercle not been discovered.

3. OBSOLESCENT TUBERCLE.

In examining eyes systematically one sometimes comes across unsuspected changes of a coarse character which are far more likely to be due to quiescent tubercle than to anything else. In the absence of a pathological examination it is, of course, impossible to be dogmatic on the point, but the family history and the physical examination of the cases render such an explanation something more than merely probable. We have notes of 16 such cases, of which one or two of the more typical may be briefly cited. In the first case which we quote a boy, four years of age, had chronically enlarged glands, a thickened upper lip, and running and excoriated nostrils. There was a family history of phthisis. A quadrangular area, somewhat larger than the optic disc, was present in the macular region of the left eye. Its colour was lighter than that of the surrounding fundus. The centre of the figure was marked by a small mass of pigment, and this was encircled at some distance by a pigmentary ring, the intervening area having a greenish-grey hue. The periphery of the patch showed here and there slight accumulations of pigment. Several retinal vessels crossed the patch without being in the least involved. The only change observed during the six years that the lad remained under observation was a gradual increase in the density of the central pigmented ring. In another case a boy, aged four years, presented in the central region of the left fundus oculi an oval patch nearly as large as the optic disc. Its appearance was something like that of the case last mentioned. The child had enlarged cervical glands, but unfortunately his family history was unknown. In a striking case we met with the patient was a woman, aged 51 years, who gave a strong family history of phthisis. She had herself been treated at the Brompton Hospital for her chest some 30 years before coming under our notice. Lying near the inner side of the left optic disc was a circular area, half as large again as the optic papilla. It showed exposed choroidal vessels and was bordered by pigment. A number of tiny fawn-coloured spots—all, with one exception, devoid of pigment—were scattered about the fundus near the main lesion and the optic disc, and doubtless these represented satellite tubercles which had also become quiescent. A fine film was present in the vitreous tumour, but sight was normal. We have notes of 13 other cases, but we will merely say that the essential ophthalmoscopic characters of obsolescent tubercles in the choroid appear to us to be (1) their central position in the fundus oculi; (2) their large size and presence in one eye alone; (3) their characters—namely, a central atrophic area, inclosed by a pigmented figure, and often surrounded by a zone of altered choroid; and (4) the fact that they are sometimes associated with tiny atrophic spots in their vicinity, doubtless representing their former satellites. That they may assist diagnosis in some doubtful cases is shown by the case of a girl, aged 10½ years, who was seen on July 27th, 1886, with the history that she was healthy until two years of age when she developed convulsions which were succeeded by hemiplegia. Her father had died from phthisis. She had been treated at a children's hospital for "infantile paralysis." Upon examination she was found to have left hemiplegia and increased patellar and elbow jerks, but no facial paralysis. In her left eye was a patch of what appeared to be obsolescent tubercle of the choroid. This latter observation threw some light upon the nature of the lesion, and rendered it probable that the hemiplegia was due to a localised tuberculous growth in the brain.

SUMMARY.

1. Tubercle of the choroid may be met with in any form of tuberculosis, whether acute, chronic, or obsolescent. 2. It is common in acute miliary tuberculosis and tuberculous meningitis, since it was present in 50 per cent. of our cases. As a rule the lesion was of small size, solitary, and limited to a single eye. 3. It is far more frequent in chronic tuberculosis than is generally supposed. It was present in 9 24 per cent. of our cases. The tubercle in this form of disease may be single, multiple, disseminated, or diffused. In very rare instances it may attain great dimensions and eventually even perforate the tunics of the eyeball. 4. It is present in a certain number of cases of quiescent tuberculosis. It then generally takes the form of a large more or less pigmented area situated in or about the central region of the fundus oculi, with or without satellites.

NOTES ON SOME SURGICAL CASES TREATED IN THE GENERAL HOSPITAL AT SPRINGFONTEIN.[1]

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CASE 1. *Gunshot wound of the head; trephining.*—A trooper in Nesbitt's Horse, aged 19 years, was wounded near Phillipolis, O.R.C., on Oct. 22nd, 1900, at a range of 100 yards. When hit he was standing but fell in a minute or so; he then spoke a few words and was taken to an hotel where he remained in a semi-conscious state till the 25th. He then got up, dressed himself, spoke sensibly, and was taken in an ambulance to No. 12 General Hospital, Springfontein, a distance of 28 miles. During the journey he had fits which occurred about every 20 minutes, but was conscious in the interval. His condition on the 27th when he arrived at Springfontein was as follows. There was an entrance wound, apparently caused by a Mauser bullet, an inch posterior to a vertical line drawn from the apex of the left mastoid process to the centre of the fronto-occipital line and four inches above the mastoid apex. There was an exit wound three inches above the occipital protuberance and one inch to the left of the median line. The distance between the two wounds was two and a half inches and the scalp was not divided; no bare bone could be detected or fracture made out with a probe. He had complete motor paralysis of the right arm and leg and partial paralysis of the right side of the face. The knee-jerk was much exaggerated on the right side; it was normal on the left. He had motor aphasia; when asked a question he answered it, but not correctly. He had Jacksonian seizures commencing in the right side of the face and extending to the right arm and leg; they were very severe, lasting about three minutes. On the 28th he had six seizures; on the 29th, 30th, and 31st he had 10, 50, and 27 seizures respectively. On Nov. 1st operation was performed. Under chloroform the scalp was divided between the wounds and a vertical incision was made at the entrance wound three inches long. The periosteum was found to be intact and no fracture was visible. With a trephine a disc of bone was removed from beneath the entrance wound and this opening in the skull was enlarged upwards and forwards with Hoffman's gouge forceps. The dura mater was of a shining bluish colour, evidently from subdural clot. The dura was incised in a T-shaped manner and dark blood-clot at once protruded. It measured about two ounces and was cleared away. It came principally from the upper and anterior parts around the opening. The parts were well cleaned and the dura mater was closed with fine silk except at the centre of the T-shaped incision which was left open for drainage. A small drainage-tube was placed with one end over the opening in the dura mater and the other brought out to the most dependent part of the scalp incision. The scalp was united by silkworm gut and cyanide gauze dressings were applied. The patient slept for five hours after the operation and woke quite conscious, when it was found that he could move both the right arm and leg and he asked for food. On Nov. 2nd he had two seizures (Jacksonian). On Nov. 3rd he had six seizures; the wound was dressed and the tube was removed, cleaned, and replaced. About 8 P.M. he became very violent, having had little sleep for the past 24 hours, and chloroform was administered to him to induce sleep, which it did, and he slept soundly for eight hours, waking up perfectly conscious and rested. From this time he had no more seizures and made an uninterrupted recovery. The tube was removed on the eighth day and not replaced and the wound healed up without any further trouble. The power gradually returned to the right arm and leg and the face became normal. On Nov. 13th he was allowed to sit up, and soon regained both his former appearance and strength. On Nov. 20th he was walking about and had full use of his limbs; the knee-jerks on both sides were normal and his cerebral power was as before the injury. There was a slight depression over the trephine hole and there was visible brain pulsation. He was discharged from hospital on Dec. 20th to proceed to his relatives at Port Elizabeth for two months' furlough.

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[1] We are enabled to publish these interesting cases through the courtesy of the Director-General of the Army Medical Service.

CASE 2. *Gunshot wound of the head; trephining.*—A private in the 9th Lancers, aged 23 years, service four years, was wounded near Dewetsdorp, O.R.C., on April 16th, 1901, when lying down. He was rendered insensible for 10 minutes but then recovered consciousness and found that he could not move his right arm. On arriving at No. 12 General Hospital, Springfontein, on the 18th his condition was as follows. He was quite sensible; he had complete paralysis, motor and sensory, of the right upper limb; both legs were intact and with normal jerks; both sides of the face were normal; he protruded the tongue straight; there was no ptosis; hearing and vision were normal. His temperature was normal; he had slight headache. He had a ragged scalp wound over the left parietal eminence two and a half inches in length, running horizontally over the centre of the Rolandic area. The bone was not bare and no fracture could be detected. The wound was two and a half inches from the inter-parietal or sagittal suture. No change occurred in his condition on the 19th, 20th, and 21st. Operation was performed on April 22nd under chloroform. An incision through [illegible] right angles and [illegible] was made. The [illegible] trephine was applied over the parietal eminence. A disc of bone was removed and a small hæmorrhage was found over the dura mater. The dura mater was divided by a T-shaped incision after the hole was enlarged backwards and forwards by Hoffman's gouge forceps. Fairly large dark clot, about four drachms, was found beneath. No fracture of either table could be found. The clot was removed with forceps and swabs. The dura mater was brought together with fine silk interrupted sutures except at the centre of the T with Hagedorn's curved needle and holder. A small drainage-tube was inserted, emerging from the most dependent angle, and the flaps were sutured together with silkworm gut. Gauze dressings were applied. On recovering from the chloroform he could move his right arm and had sensation in it. On the 23rd the arm could be moved well and he had complete feeling in it; the dressings were changed and the tube was shortened. On the 24th the tube was removed; the wound was perfectly aseptic; the temperature was normal. The patient slept well. The wound was dressed on the 26th and was doing well. All the stitches were removed on the 28th and the wound was closed except at one point. The wound was soundly healed on May 4th. No brain pulsation could be detected beneath the scar and the power in his arm had much improved. He was allowed to be up. He made a complete recovery and regained full power in the arm.

CASE 3. *Gunshot wound of the spine; laminectomy.*—A sergeant of the 1st South Lancashire Regiment was wounded at Kalfontein on Oct. 26th, 1900, and was admitted into No. 12 General Hospital, Springfontein, on the same date. On admission he had complete paralysis, motor and sensory, of both legs. The loss of sensation extended up to the level of the fifth ribs; respiration was almost entirely diaphragmatic. He had priapism, retention of urine, and incontinence of fæces. The knee-jerks were absent in both legs. He had an entrance bullet wound, probably caused by a Mauser, one inch to the right of the mid-sternum in the first intercostal space and an exit wound half an inch to the right of the fifth dorsal spine. His co[illegible] for some days, and as the directi[illegible] to the right of the median line [illegible] sidered advisable. Operation under chloroform was performed on Nov. 10th. An incision four and a half inches long was made in the middle line over the fourth, fifth, and sixth dorsal s[illegible] on both sides from the spines and laminæ. Three spinous processes were removed with cutting bone forceps. The lamina of the fifth dorsal was found to be fr[illegible] pierced by the b[illegible] disc of bone wa[illegible] dura mater had [illegible] underneath. No blood-clot was found or any trace of pus. The wound was closed with interrupted catgut sutures and again the dressings were applied. No improvement occurred in the man's condition. Bedsores had developed over the sacrum and his lungs were filled with mucous secretion. He died rather suddenly on Nov. 12th from cessation of respiration. Post-mortem examination revealed a wound of the apex of the right lung, some hæmothorax (about six ounces), and pus and mucus in the bronchial tubes. A hole was found in the right side of the body of the fifth dorsal vertebra and a director passed easily through it and the spinal cord to the trephine opening in the lamina.

CASE 4. *Gunshot wound of the right leg; amputation.*—A trooper in Nesbitt's Horse was wounded at Phillipolis, O.R.C., on Oct. 22nd, 1900, and was admitted into No. 12 General Hospital, Springfontein, on the 27th. The entrance wound was one inch below and outside the lower border of the right patella, extending downwards and inwards through the head of the tibia into a large cavity between the two bones of the leg. The bullet was lodged, there being no exit. His temperature was 102° F. and the wound was very septic. Suppuration continued with bagging of pus in the calf of the leg. Alarming secondary hæmorrhage occurred on the night of Nov. 3rd, and under chloroform the entrance wound was enlarged downwards into a large cavity in front and behind the inter-osseous membrane. The anterior tibial artery was secured by ligature but profuse bleeding continued from behind the inter-osseous membrane, consequently amputation through the lower third of the thigh was performed, as the knee joint was full of fluid which was found to contain pus at the operation. Amputation was performed after Carden's method above the synovial cavity with a long oval anterior flap, the hamstring muscles being divided transversely and the patella removed. The temperature remained normal for 48 hours and then went up to 102° F. The wound was irrigated through the transverse tube and redressed. The tube was removed on the fourth day; some stitches gave way at the inner angle. Fomentations were applied for a few days and [illegible] subsided. The wound took on [illegible] were brought together by antisep[illegible] wound healed with only a cicatri[illegible] between the skin edges and on Dec. 1st the man was up. He was transferred to the base on Dec. 7th, having a sound stump. A Mauser bullet was found in the calf.

CASE 5. *Gunshot wound of the left leg; amputation.*—A private in the 9th Lancers was wounded at Phillipolis on April 12th, 1901; his horse having been shot under him, he ran on foot and tried to escape. He was admitted into No. 12 General Hospital at 4 P.M. on the 15th, having been carried in an ambulance since he was injured. The entrance wound was about the centre of the calf of the left leg in the middle line; it was small and round. The exit was through the shaft of the tibia two inches below the tuberosity; it was large, ragged, and had bone spicules protruding from it. The fibula was also broken. A pulsating swelling was present below and outside the exit wound, which could be controlled by pressure over the femoral artery. Secondary hæmorrhage from the exit wound occurred at 5 A.M. on the 19th, and operation under chloroform at once was decided upon. Bleeding was controlled by tourniquet, and the anterior wound was enlarged up and down. An immense sac full of clot was found in front of the inter-osseous membrane, communicating with a similar one behind in the calf. Both tibia and fibula were shattered for about four inches. Bleeding from the anterior tibial artery was controlled, but that from the posterior tibial could not be got at owing to the small space between the bones. A Carden's amputation was then performed, leaving a good long anterior flap. The tissues on the outer side of the knee were much bruised and œdematous. A transverse tube was placed in the wound. [illegible] was examined and both tibial arteries [illegible] d more than 20 pieces of comminuted [illegible] The knee-joint was not opened into. The stump was dressed on the 21st; there was very little oozing and the wound was quite aseptic. The temperature was normal. The tube was removed on Oct. 22nd, 1900. One stitch gave way at the outer angle where the tissues were found damaged at the time of operation. The dressings were changed daily, the discharge being very slight, and the wound finally healed without any trouble. The stump was well covered and sound.

CASE 6. *Strangulated hernia; herniotomy; radical cure.*—A sergeant in the chief's bodyguard, aged 40 years, had had a right inguinal hernia for many years which he kept supported by means of a truss. He found on Dec. 4th, 1900, when at Bethulie, that he could not reduce it and suffered from pain. He was admitted into No. 12 General Hospital, Springfontein, on the 7th, and as it could not be returned by taxis operation was performed under chloroform on the 8th. The bowels had been completely obstructed since the 4th. An incision four inches long over the ring and neck of the sac was made and the tissues divided on a director; the neck of the sac was reached and the sac was opened; the finger was introduced upwards and the constricting neck was divided with a herniotome. The gut was much congested and collapsed but was considered fit to be returned, which it was at once. The whole sac was then separated from the cord and tied high up at its neck with twisted gut ligature; the part below the ligature was cut off and removed. The lower border of the internal oblique muscle was then stitched to the back of Poupart's ligament, the cord being brought out at the internal abdominal ring. The external oblique muscle, which had previously been slit up to allow of the neck of the hernial sac being divided, was then brought together by interrupted silk sutures, the cord also being brought through it over the internal abdominal ring. The cord then lay between the external oblique and skin which was united by horse-hair. Cyanide dressings, wool, and a double spica were applied. The patient passed flatus per anum on the evening of the operation. His temperature never went above normal. The skin stitches were removed at the eighth day (first dressing) and complete union had occurred. The bowels acted naturally on the third day after operation. The man was kept in bed for 21 days and then allowed up. There was a sound scar. There was no hernial impulse on coughing. It was a complete cure. He was discharged to his duty on Jan. 15th, 1901, having no trouble.

CASE 7. *Strangulated hernia; herniotomy; radical cure.*—A private in the 65th Company Imperial Yeomanry, aged 33 years, was admitted on May 4th, 1901, in No. 12 Garrison Hospital, Springfontein, with a strangulated right inguinal hernia which he stated came down at 1.30 the same day after his dinner; he stated that when he was a child he had some trouble in this region and wore a bandage for some time, but since then he had had no trouble from it or ever noticed any swelling in this region. On admission an elongated tumour of about the size of a large egg occupied the upper part of the scrotum on the right side; it was tympanitic and had an impulse on coughing, but could not be reduced by taxis. He had vomited many times and passed no flatus per anum since it appeared. He complained of twisting pains about the umbilicus. As the symptoms were not urgent an ice-bag was aplied. On the morning of the 5th the tumour was much smaller and by means of manipulation was slowly returned into the abdomen but without the characteristic gurgle of a successful reduction. The tumour could still be felt in the inguinal canal. He had pain, and vomiting during the day continued, and he passed no flatus. On the morning of the 6th, under chloroform, an incision similar to that for radical cure was made and after division of the fascia the tumour was found in the inguinal canal; the sac was opened and its constricted neck was divided; it contained a small knuckle of gut much congested and collapsed, but appeared capable of recovery and was at once returned into the abdomen. The sac was completely separated from the cord and its neck was tied high up at the internal ring with stout silk; it was divided below the ligature and removed. The cord was raised up and the internal oblique was united to the back of Poupart's ligament by six strong interrupted silk sutures. The external oblique was then united along its division, thus obliterating the inguinal canal completely, the cord having been brought through it opposite the internal ring. The cord then lay on the external oblique and under the skin which was united by horsehair interrupted sutures. This is the operation performed by the "Bassini-Halsted" method. Flatus passed on the evening of the 6th and vomiting and pain ceased. The bowels moved naturally on the 9th. The first change of dressings was on the 14th. The stitches were removed. The wound was quite healed. He made a complete recovery.

CASE 8. *Internal strangulation of the bowel; laparotomy; removal of a constricting band.*—A 1st Class Staff Sergeant, when playing cricket at Springfontein on Dec. 30th, 1900, felt a sudden pain in the middle of his back after delivering a ball. The pain spread to the front of the abdomen and he vomited. He was admitted to hospital and during the next four days he suffered from constipation, vomiting, and tympanitis. No flatus passed and no abdominal tumour could be made out. As the symptoms became urgent operation was performed under chloroform on Jan. 4th, 1901. A median abdominal incision six inches long from the pubes upwards was made and the abdominal cavity was opened. The hand was introduced towards the cæcum and the small intestine was drawn out and traced upwards. The withdrawal was soon stopped owing to tension and the hand again introduced towards the left iliac fossa. A thick constricting band was then found surrounding the ileum and binding it down to the brim of the pelvis on the left side. By a little manipulation this was easily broken through and most of it was removed by the scissors. It was rather friable and only semi-organised. Flatus at once passed through the obstructed spot with a marked gurgle. The intestines were washed with "boiled water" and returned without difficulty. A gauze pad was placed over the intestines and under the wound while the stitches were being introduced. Stout silk was used as the suturing material and the peritoneum, abdominal muscles, and skin were all included in the through stitches; before the last two stitches were tied at the pubic end of the wound the cyanide gauze pad placed on the intestines was withdrawn, thus leaving no blood in the abdominal cavity. Cyanide dressing, wool, and a many-tailed bandage were put on and the patient returned to bed with warm bottles around him. The patient recovered quickly from the shock, passed flatus per anum at 6 P.M. on the day of the operation, and did not vomit any more. The bowels moved naturally on Jan. 6th and the temperature never exceeded 99° F. at night. The wound was dressed on the 14th and all the stitches were removed; union was complete and without any suppuration. The action of the bowels continued normal. He was allowed up on the 25th and he made a complete recovery. He was sent to the base on Feb. 8th and is doing duty there at present date (May 11th, 1901).

CASE 9. *Inguinal hernia with atrophied and partly undescended testis; radical cure.*—A private in the Cape Medical Staff Corps, aged 22 years, was admitted to No. 12 General Hospital, Springfontein, on Feb. 20th, 1901, with a large left-sided bubonocele complicated with an atrophied, partly undescended testicle on the same side. The hernia was large and seemed to flatten out between the layers of the abdominal muscles; it could easily be returned into the abdominal cavity. The testicle at times came down into the upper part of the scrotum but usually lay in the inguinal canal just inside the external ring and was quite small and soft. He desired an operation and to retain the testis if possible. Under chloroform on March 1st a radical cure was performed; the sac was found to have a very large neck which was ligatured after transfixion with stout silk. The testis was very difficult to keep in the scrotum and its cord was much attenuated and without much vascular supply. The operation was performed after the "Bassini Halsted" method and the cord placed between the skin and external oblique. A pressure pad was placed over the occluded external abdominal ring to keep the testis from coming up out of the scrotum and the usual dressings were applied. No rise of temperature followed and the dressings were not changed till the eighth day when the testis was found to have slipped up and lay under the scar. Two stitches were cut and as the testis was quite dark in colour but aseptic it was removed through the wound by dividing its cord with a curved scissors, the wound was again closed, and dressings were re-applied. No suppuration followed and the wound gradually healed up completely and soundly. A thoroughly good result followed, as there is not the slightest attempt at a recurrence or any weakness of the abdominal wall at the site of the operation. He is since doing duty in this hospital and has had no recurrence.

CASE 10. *Inguinal hernia; radical cure.*—A private in the 16th Mounted Infantry, aged 24 years, was admitted into No. 12 General Hospital on April 15th, 1901, suffering from a large incomplete inguinal hernia which caused him much trouble in riding. The opening through which it came—viz., the internal abdominal ring—was very large. Operation under chloroform was performed on April 21st, 1901. A skin incision was made over the inguinal canal three inches long.

No sac was present, the peritoneum being quite smooth behind the internal abdominal ring, but a considerable space *existed between the lower border of the "conjoined tendon"* and Poupart's ligament, which was closed by seven interrupted strong silk sutures, bringing the cord out at the internal ring, the external oblique was then sutured from opposite the internal ring, where the cord was brought through, down to the spine of the pubic bone, thus obliterating th [illegible] kin was closed with horsehair [illegible] nployed The temperature kept n [illegible] changed on the eighth day and all the skin stitches were removed Union was complete. The patient was kept in bed for 21 days There was no impulse on coughing or other weakness of the abdominal wall There was a very good result He was sent to a convalescent camp before returning to duty

CASE 11. *Inguinal hernia, radical cure*—A lance corporal in the 17th Lancers, aged 25 years, was admitted to the No 12 General Hospital suffering from a large complete left inguinal hernia which, although he wore a truss, had been giving him much trouble in riding *The opening in the external oblique admitted two fingers* easily and there was a varicocele on the same side but not of large size, the veins along the cord being involved Operation under chloroform was performed on May 3rd, 1901 The usual skin incision and division of fasciæ down to the external oblique was made which was slit up parallel to its fibres from the external ring for about two inches The cord was then raised from its bed and its fascial coverings were removed, the sac was then separated from spermatic vessels and freed up to the internal ring, it was transfixed and ligatured as high up as possible It was then cut below the ligature and removed. The veins of the cord being numerous and bulky were separated into two parts, the smaller bundle, ligatured above the internal ring and below near the testes, was removed with the scissors, quite enough veins were left to carry on the circulation along the spermatic artery and vas deferens The operation was then completed according to the "Bassini Halsted method' already described and the usual dressings were applied No rise of temperature ensued except on the night of the operation, when it rose to 100 8° F., next morning it was normal and remained so till he recovered. The bowels were moved after a glycerine enema on the third day and his dressings were not changed till the ninth day when the wound was found thoroughly healed and the stitches were all removed from the skin

No 12 General Hospital, Springfontein

LICHEN FROM A HISTOLOGICAL POINT OF VIEW.

By MORGAN DOCKRELL, M D Dub,

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CHESTERFIELD LECTURER ON DERMATOLOGY

To all dermatologists the study of lichen is an interesting one, not only because of the obscurity of its etiology and the heated discussions that have arisen in connexion with its varieties, but also because of the number of clinical conditions lending themselves to that multiplication of qualifying terms which seem to be so dear to the expounder of the art of dermatology Whether this latter tendency originated in the desire to keep the knowledge of cutaneous disease in the hands of a few it certainly has had that effect, and much to the discredit of dermatologists it is the branch of medicine least known and understood by the great bulk of the medical profession That this is likely to remain so is certain unless those who have the opportunities of teaching dermatology decide to take their responsibilities seriously and to substitute for the dross of a confusing nomenclature the sound practical value of instruction in the microscopical appearances which correspond to the clinical conditions which they demonstrate. When this is more universally done we shall be spared discussions serving only the purpose of making confusion worse confounded without advancing science in the very least.

If the history of lichen be examined one finds that ever since the writing of Hippocrates, jun, it has been admitted that a lichen must be a papular disease, although from time to time a pustule seems to have been added as part of the lichenoid condition Willan, however, recognised the condition as being only a papular one and classified lichen into the following varieties simplex, pilaris, circumscriptus, agrius, lividus, and tropicus, to these were subsequently added *hæmorrhagicus*, strophulus, circinatus, gyratus, syphiliticus, spinulosus, and scrofulosus. Fortunately all these varieties have been included in other conditions and so got rid of However, in 1860 Hebra described a disease which proved very fatal, and he called it "lichen ruber" A little later Erasmus Wilson described the condition known as lichen planus, but subsequently he came to the conclusion that the disease which he described was the same as that described by Hebra. In 1873 Tilbury Fox identified both as modifications of the same disease, and four years later Kaposi, with Hebra's consent, classified the terms "lichen ruber" and "lichen planus,' and called the two diseases "lichen ruber acuminatus" and "lichen ruber planus"

It was next asserted by the French school that the pityriasis rubra pilaris described by Devergie in 1857 was the same as the lichen ruber acuminatus, and to this Kaposi seems to have agreed Others have asserted that Hebra's original description arose from confusing the three conditions, lichen ruber acuminatus, generalised lichen planus, and pityriasis rubra pilaris but even so this hardly accounts for the fatal cases described by Hebra as lichen ruber It seems quite unnecessary to trouble further about these cases of Hebra; the only living link between Hebra's cases and the present is Kaposi and he has declared for the identity of lichen ruber and pityriasis rubra pilaris In order to solve this question I commenced a research some 12 months ago, and the result of the investigation has been to convince me (1) that pityriasis rubra pilaris is different clinically and histologically in a well marked manner from lichen, (2) that the so called lichen rubra acuminatus and lichen ruber planus are the first two stages of a disease now known as lichen, (3) that the planus stage is always preceded by the acuminate, although often the patients do not come under observation till the planus stage is established, (4) that the disease when it becomes chronic may pass on to the hypertrophic stage or even to a higher stage still—the verrucose, (5) that clinically and histologically lichen presents four easily traceable stages of transition from the early acuminate papule to the densely thickened infiltrated patch of the verrucose condition, and they are known as (*a*) the acuminate, (*b*) the planus, (*c*) the hypertrophic, and (*d*) the verrucose, and lastly, that neither the hair follicles nor the sweat glands are primarly involved, and only become secondarily so in the third and fourth stages It will be, perhaps, most convenient if I take the clinical and histological features of pityriasis rubra pilaris and then of each stage of lichen, so as to demonstrate in the first place and, I hope, finally that there is no ground for mixing up the two diseases, and in the second place to indicate the clinical features corresponding to each of the microscopical preparations exhibited

Pityriasis Rubra Pilaris

Pityriasis rubra pilaris is an inflammatory papular disease involving primarily the hair follicle, accompanied by desquamation and presenting the two varieties, the benign and the malignant

The benign variety—In this variety of the disease there is a minute papular eruption, *in size between a pin's* point and head, of a reddish brown colour involving the hair follicles Each papule is pierced by a hair, having a minute scale round the hair, and presenting the appearance of a black point when the hair has been broken off short, but by far the larger number of papules occur quite independently of the hair follicles The skin all over the body becomes very dry, glazed, and tense Great burning is complained of The scaling is best marked on the scalp and forehead and extending down on the back of the neck and the ears is not at all as described by some of a seborrhœic character, being larger than the dry particles of a sicca and not in the least greasy, but of a bright shining character There is a slight feeling of harshness With soothing applications, such as one would apply in an acute erythematous eczema, the whole inflammation subsides, the papules being the last to disappear, the disease ultimately clearing up with a fine desquamation in from three to five weeks Injudicious internal treatment, especially the administration of arsenic, prolongs the disease almost indefinitely In a case which I had under my care some eight years ago I had this fact brought very forcibly home to me After 11 weeks' treatment with Fowler's solution, during which time the patient got steadily worse he was deprived by an accident of his medicine for two weeks when he made marked improvement. Recurrence in this form is very usual, one patient having come to me for three years in succession, being quite free during the intervals. (Any of my former students who remember the case and who may read this article will be interested to learn that last year he escaped altogether.)

The malignant variety.—In the two cases of this form that I have had an opportunity of watching grave constitutional symptoms ushered in both. The appearance of the eruption was preceded by malaise for some weeks; in one case a rigor occurred 48 hours before the onset, the temperature running up to 104° F. The symptoms of the benign variety are intensified, the burning and tightness of the skin being the most distressing symptoms complained of, the conical papules varying in size, and with the inflamed thickened epidermis between they form large patches of a deep red colour, scaling extensively, looking in some parts like exaggerated ichthyotic patches and in others like a dermatitis exfoliativa. Individual papules show a piling up of horny material, sometimes pierced by a hair which is lustreless, twisted, bent, and often broken, the skin being harsh to the touch. The disease lasts a long time, is difficult of treatment, but yields in the end to persistent soothing local treatment and large doses of cod-liver oil internally. I can readily understand these cases corresponding to Hebra's cases of fatal lichen ruber.

CASE 1.—In the case of this patient, a man, aged 48 years, the duration of the present attack had been three weeks. The clinical characters were marked redness of the scalp, forehead, and ears, presenting a glazed appearance, the skin appearing to be tightly stretched; there was fine white desquamation. On the flexor surface of the forearms were a number of minute brownish-red conical papules, some pierced by hairs, others with the hairs broken and presenting minute black points, while the larger number of papules appeared to occur quite apart from hair follicles. Round the hairs there was a continuation upwards of the horny layer, giving the appearance of a fine sheath to hairs. There were thickening and scaling over the backs of the hands and the soles of the feet; there were also some papules seen on the backs of the fingers. The body and lower limbs were free.

Microscopical characters. (Fig. 1, Section 573, removed from the lower third of right forearm.)—There are a hypertrophy of the horny layer over the papule and a slight hypertrophy of the stratum granulosum. Under the papules may be observed a small irregular infiltration not unlike that found in the lichens. These papules are quite independent of hair follicles and correspond to what Unna calls "sinuous papules." In the hair follicles may be seen a hypertrophy of the horny layer, producing a bend in the hair, which is pushed over to the side of the follicle. The lumen of the duct and coil gland is dilated, with swollen epithelium.

Remarks.—The points which I wish to emphasise in connexion with pityriasis rubra pilaris, when taken in conjunction with lichen, are: (1) that although papules occur apart from hair follicles the hair follicles are primarily involved; (2) that in lichen the hair follicles only become secondarily involved and that at a much later stage of the disease; and (3) that there is no tendency to the formation of hyaline material, this alteration being one of the earliest signs of a lichen.

Having thus briefly disposed of pityriasis rubra pilaris, showing, however, I hope, the chief points of distinction between it and a lichen, I will pass on to the more immediate object which I had in view—namely, to show that there is one lichen with four stages, each stage after the acuminate being a direct sequence of the previous one. Not that it is necessary for the disease to go through all these stages, but that each of the stages after the first exhibits a higher type of the disease. The drawings of the microscopical slides will indicate beyond doubt the gradual passing of the early papule to the higher stages, showing a condition of transition which corresponds clinically with the duration of the disease.

LICHEN.

Lichen is an inflammatory cutaneous disease ushered in by an eruption of red conical papules, varying in size from that of a pin's head to that of a split pea, which may develop into flat, irregular, waxy papules, either remaining discrete, becoming confluent, or arranged in rings. These papules may ultimately amalgamate and form lilac-tinted patches, either hypertrophic or, in the severest form, distinctly warty. The stages of the disease are: (1) the acuminate stage; (2) the planus stage; (3) the hypertrophic stage; and (4) the verrucose stage.

The acuminate stage.—In this, the initial stage of a lichen, the papules are of about the size of a pin's head. They are of a bright-red colour with a thin scale on the top, are localised to the wrist and the insides of the knees, or are scattered universally all over the body. Itching is present and is often very intense. The inflammation may subside, the disease ending in desquamation without pigmentation, or, as it more commonly does, it may pass on to the second stage.

The planus stage.—Here the lesions may be limited, as a large quantity of eruption in the early stage does not of necessity mean that many lesions pass on to this stage. However, the typical picture presented is a very extensive universal eruption of conical papules coming out in fresh crops, mixed up with larger, flat, irregular-shaped, dark-reddish papules—which later become waxy, with a tendency to umbilication, more marked according to the age of the papules—the more polished the papule the greater the age and the greater the umbilication. The papules may occur in chains, in definite rings, or in segments. There is often an extensive amount of desquamation of very white scales present. Itching is intolerable and frequently marked redness and infiltration of the skin take place between the papules. The lesions are soft at first, but as they become more waxy they are found to be harder. On the tongue, the palate, and the insides of the cheeks may be seen pin-point red acuminate papules at first, with later white plaques or streaks. The disease may continue for weeks or months in this stage, but more commonly it yields to treatment and subsides, leaving usually only slight pigmentation if it has been untreated by arsenic.

CASE 2.—The patient was a female, aged 43 years, who had been suffering from the attack for 14 days. There was extensive eruption all over the body and the limbs, displaying acuminate papules of the size of a pin's head of a bright-red colour, some of which were "marked" and were seen in the course of from a week to a fortnight to pass on to the second stage and to present flat, irregular-shaped, dark-red papules of a typical character. There were extensive redness and infiltration between the papules, with scaliness. On the inside of the cheeks were red acuminate papules, but no white patches. Itching was severe. The disease ultimately subsided in six weeks, leaving but slight pigmentation present.

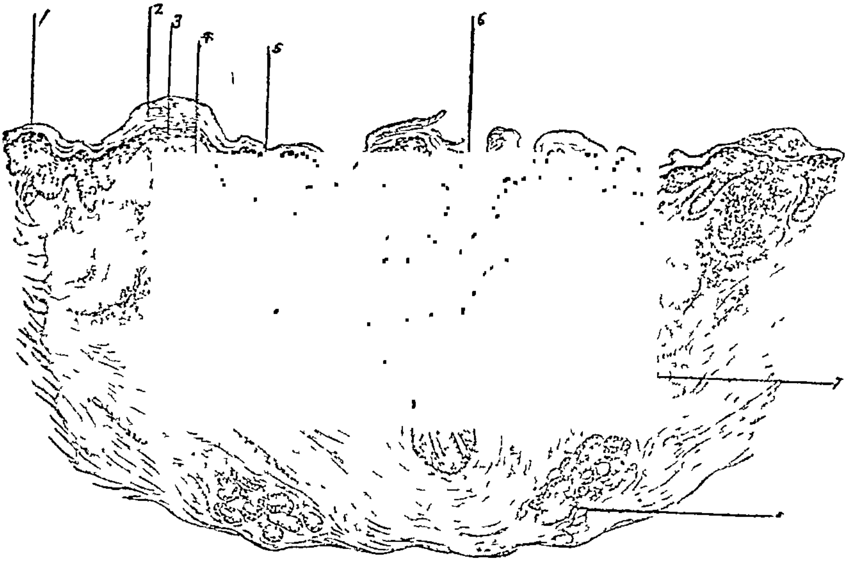
Microscopical characters. (Fig. 2, Section 429, taken from the breast.)—Here may be observed on the extreme left of the drawing (1*a*) an early acuminate papule, with the beginning typical lichen infiltration underneath. On the right (1*b*) is seen the papule as it has developed and passed into the early papule of the planus stage, showing a flatness and enlargement of epithelial cells already becoming hyaline. Here and there may be seen small hyaline pearls. The papillæ are swollen and they form the round characteristic arches, between which is a small irregular infiltration composed of a few mast cells and leucocytes and a number of small pointed cells, the whole being just under the epidermis.

A section (No. 429) (from the same case with a hair follicle beside the planus papule) was taken from the back. It was interesting to observe that the hair follicle was quite normal, the papule having arisen quite apart from it, and although the irregular infiltration was seen round the hair follicle it had maintained its integrity.

In many cases of lichen the general eruption may subside, leaving a few waxy-coloured, flat, irregular papules, itching only moderately, and the patient may not trouble till the itching becomes more intense or the papules more pronounced. Or, again, there may never have been a general eruption, but only a local one which has been followed by these planus papules, and advice is not sought for months or even for years.

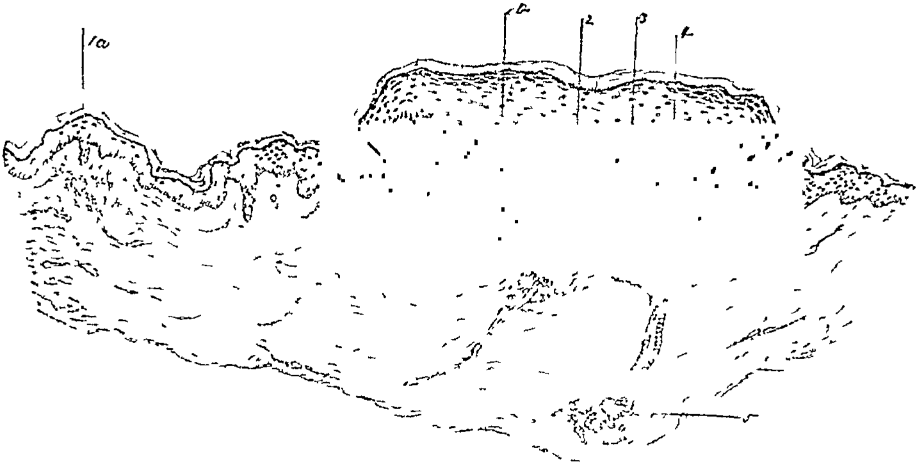
CASE 3.—The patient, a man, aged 48 years, had suffered for two years and he remembered having a small number of red, itching, pointed spots which gradually became flattened and white. There were small groups of papules occurring on the lower third of the flexor surfaces of both forearms. Some of the papules were isolated and large, of a dense consistence, waxy in colour, umbilicated and lined, and others were smaller and occurred in lines of four and five, while there was a beautifully-marked ring on the left wrist. In these papules, in lines and rings, there was a well-marked

FIG 1 (Section 573)



Pityriasis Rubra Pilaris 1 Stratum granulosum 2 Horny layer over papule 3 Flatness of epithelial cells 4 Infiltration situated under papule 5 Sweat duct with lumen slightly wider 6 Hair follicle 7 Infiltration round blood vessels 8 Dilatation of coil gland

FIG 2 (Section 429)



Lichen Acuminatus 1a Early commencement of a lichen indicated by an acuminate papule (lichen acuminatus) with infiltration underneath 1b Further development of 1a going on to show plane papule (lichen planus) 2. Papillæ round and swollen 3 Hyaline pearls 4 In papule enlargement and flatness of epithelial cells which have become hyaline 5 Coil glands with dilated lumen of duct and gland and swollen epithelium lilac tinting, but in the larger there was just the faintest suspicion of it.

A section (No. 560) (waxy papule of planus stage) was taken from the right wrist. In this section could be noticed the increased thickness of the horny layer, which was becoming hyaline. The cells of the stratum granulosum had become hypertrophied and the epithelial cells were larger, flatter, and more hyaline. The hyaline pearls were larger. The sweat ducts were slightly wider than normal. The typical lichen infiltration was composed of small pointed cells, deeply stained, occurring in and round the swollen papillæ body, closely adherent to, and often in lines along, the fine vessels. The endothelial cells of the capillaries were hypertrophied and swollen; some mast cells and leucocytes were scattered about. The connective tissue cells were swollen and increased in number.

Remarks.—These three sections establish (1) the difference between pityriasis rubra pilaris and lichen; (2) the gradual transition of the initial acuminate papule to the full developed flat, umbilicated, irregular, waxy papule of the so-called lichen planus; (3) the fallacy of the evidence that the hair follicles or sweat ducts take any part in the formation of the lichen papules; (4) as a result, that the umbilication is not due or in any way connected with the coil duct; and (5) the important part played by hyaline degeneration, not only in producing its waxy appearance, but also in accounting for the lesions, which were soft at first, becoming harder later.

The hypertrophic stage.—This stage follows as the sequel to the previous ones and seems to be often due to some central irritation, so that it is found following the course of a nerve. Varicose veins in other cases seem to have helped the original trouble to further development, while in quite another class of cases it is impossible to account for the patches sometimes occurring on the forehead and at other times on the wrists except by local irritation from some article of clothing. On inquiring closely it is generally possible to get a history of the initial eruption which has subsided except for the patches complained of, which are made up of the chronic inflammation, not only of the original papules, but of a hyaline degeneration of the tissues between them. These may remain for years, gradually becoming more thickened, often resembling a keloid elevation, varying in colour from a lilac tinting to a deep red, presenting various shapes, sometimes in lines, rings, and irregular plaques, and giving rise in some cases to no discomfort but in others to more or less constant itching. White lines or points may be observed. Scales of a bright white colour are often present, chiefly adhering in the centre. These patches may occur anywhere, but are more frequently seen on the lower limbs.

CASE 4.—In this case the condition had existed for five months. The patient, a man, 54 years of age, remembered distinctly having had about a year previously an itching eruption which lasted for some months. A thickened infiltrated plaque occurred at the junction of the middle and lower thirds of the inside of the left leg, being three inches in width and five inches long. It was very dense, excessively irritable, striated, faintly lilac in colour, and it presented a well-marked irregular outline.

Microscopical characters.—Section 454. Here might be seen hair follicles and sweat ducts dilated and filled out with a hyaline horny layer, hypertrophy of the cells of the stratum granulosum, and an increase in the number of the rows of cells. There were enlarged lymph spaces, owing to the contraction of hyaline epithelium. Well-developed hyaline pearls could be seen and the coil glands with their lumen filled out with hyaline material. There was uniform infiltration extending more deeply into the cutis.

Remarks.—It was interesting to notice (1) that the hair follicles and sweat ducts were now for the first time involved to any extent; (2) the enlargement of the lymph spaces; (3) the gradual enlargement of hyaline pearls; and (4) that pigmentation was more marked.

Verrucose.—This condition has been denied by some and improperly described by others. It is a rare development and certainly, as shown by the microscopical picture, indicates the highest type of lichen.

CASE 5.—In this case the patient was a man, aged 65 years, and the condition had been present for 10 years. There was a dense, hard, infiltrated patch situated over the lumbar region, presenting numerous white lines on its surface, some almost looking like deep cracks, irregular, warty-looking on its surface, quite fixed, itching excessively, at times presenting a lilac tinting all over, sometimes deeper in colour than at other times, but at no time showing any appearance of red.

Microscopical characters (Section 69).—Here everything was in a higher state of development. There were larger cells of stratum granulosum and more rows of them, further widening of hair follicles and sweat ducts, greater development of hyaline degeneration, and larger hyaline pearls. The lymph spaces were more widely dilated and infiltration had extended more deeply into the subcutaneous tissues.

Having thus stated what appears to me to be the true position of lichen I will take some of the points that, according to a recent discussion,[1] seem to vex the dermatological mind.

Nomenclature.—I would draw attention to the statement by the opener of the discussion which I have mentioned that it was at last time to do away with the term "ruber" in dealing with lichen planus. This, I am glad to say, I have systematically done for some years in my teaching, pointing out its uselessness even at the risk of being thought unorthodox, which is the very amusing reason given for its retention by another speaker who says: "I have stuck to it for fear of not being considered orthodox." Surely orthodoxy, though very necessary in the conduct of professional life, for example, tends when imported into science to the cramping of individuality and originality and becomes absurd. The opener of the discussion, however, I regret to say, did not continue in removing useless terms, but having removed the "ruber" on the ground that "the time has come to say to it, as we did to his (Hebra's) revered shade long ago, 'Requiescat in pace,'" he proceeded to create a new name for two cases, one of which he stated was a crimson red eruption of papules *very like* lichen planus, which he calls "lichen planus erythematosus." Then, a little later, he suggested that when the papules were very waxy-looking the term "lichen planus morphœicus" would be suitable. Why this desire to introduce new terms to describe the different shades of colour which may strike the eye of the observer in a disease of many shades and colours? Does it either advance this branch of science or enhance the reputation of the sponsor? Is it not rather an element of weakness, a wasting of time over useless nothings, instead of verifying the diagnosis by microscopical investigation.

Striæ and grey points.—These pathognomonic signs of the French school are useless from a clinical point of view, because they are common to many conditions of inflammation of the skin, being always well marked where there are a thickening and hardening of the horny layer, and not being in any way influenced by the alterations in the cells of the stratum granulosum, but only in lichen dependent on the hyaline condition of the horny layer, which becomes harder in some places than in others, emphasising the normal lines and furrows of the skin just as in psoriasis the waxiness of the horny layer produces the similar condition.

Morbid anatomy.—The last point which I wish to deal with in this discussion is the extraordinary statements made by two of the speakers on the morbid anatomy of lichen. Dr. J. H. McLeod said: "We found that the initial lesion was a cellular infiltration, and that that cellular infiltration was invariably of one type. There were certainly a number of blood-cells present, but the majority of the cells clearly belonged to the connective tissue type. A few of them were of the same class as Unna's plasma cells. The majority of them were typical connective tissue cells." My comment on this is (1) that the swollen connective tissue-cells have nothing to do with the infiltration, they present similar appearances in lichen to those found in other inflammations of the skin; and (2) that the cells of the infiltration are composed of small deeply-stained, somewhat pointed cells, easily distinguished from the connective tissue cells which are much larger than these tiny cells, being tightly fixed to the walls of the capillaries and often in lines. There are no plasma cells, as Dr. McLeod states, but leucocytes in small numbers, a few mast cells, and some pigmentation which becomes increased in the higher types. Dr. James Galloway, while appearing to endorse the statements of Dr. McLeod, went on to say that there were many points of similarity between the infiltration of lichen planus and lupus erythematosus. But this is certainly wrong. Any fairly accurate observer can see that there are no points of similarity either in its appearance, distribution, or in the other cells which accompany it. The whole picture of lupus erythematosus is different, presenting characters as distinct histologically as those which clinically differentiate the two diseases. In neither case ought there to be the slightest difficulty in diagnosing between the two.

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[1] British Journal of Dermatology, vol. xii., No. 12, December, 1900.

In conclusion, I hope this paper with the microscopical illustrations so well executed by Mr. Max Colhoun may serve to make the very interesting condition known as lichen more intelligible to those who may read it.

Cavendish-square, W.

INFANTILE SCURVY.

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IN view of the discussion raised in THE LANCET on the cooking of milk and its effects on nutrition the following cases of infantile scurvy which have recently come under my notice may prove of interest. Cases of this nature are far more common in private than in hospital practice. This is no doubt due to the fact that the same care is not devoted by the mother or nurse to the preparation of the child's food, and that even when fed on patent foods the child often gets in addition "tastes" of unboiled milk and other articles of diet. The children of the lower classes are rarely kept on a diet of sterilised milk or even on patent foods only for any very long time and, as these cases show, the development of scurvy is a very slow process.

CASE 1. *Scurvy due to a prolonged diet of sterilised cream and milk.*—The patient was a female, aged 10 months, living in Surrey. She was brought to me at the age of nine weeks, weighing eight pounds, just as much as when she was born. She had been fed on various kinds of diet. On a diet of cream, milk, water, sugar, and lime water, in suitable quantities and at proper intervals, she gained 73 ounces in 12 weeks and had not a single bad symptom. The food was sterilised for 20 minutes. I did not see her again for five months, during which time she had been fed on exactly the same diet, the same amount and at the same intervals, and the food had been continuously sterilised for 20 minutes. She had now general tenderness of the lower limbs, disinclination to move them, pain on movement, and some swelling of the middle of the right thigh. Two teeth were cut and the surrounding gums were swollen and rather dusky. Four more teeth were almost through. There was no evidence of rickets. The milk mixture was given boiled instead of sterilised, and in addition the child was given barley-water, fruit juice, and a little meat juice. On account of a family susceptibility to tuberculosis, two sisters having died from tuberculous meningitis, and not knowing the source of the milk-supply I did not care to run the risk of putting the child on unboiled milk. Recovery was rapid and uneventful.

CASE 2. *Scurvy due to patent foods.*—The patient was a male, aged 11 months, living at the seaside. For the first three months he was fed on a patent food advertised as suitable for an infant at that age. During the next three months he was fed on another patent food, provided by the same firm, for children at that age. At six months an attempt was made to put him on the third variety of the same firm's preparations, but his digestion was upset, and he was then fed on a malted milk. His first tooth was cut at five months. For three months he had suffered from variable pains, anorexia, and wasting. He was not anæmic. There was a moderate degree of rickets. He had seven teeth. The gums were dusky and spongy. There was general tenderness and pain on movement. On a suitable diet he recovered rapidly.

CASE 3. *Scurvy due to patent foods.*—The patient was a female, aged 11 months, living in the country. Since the age of five months she had been fed on patent foods only and seemed to thrive well, getting very fat. For a month she had been fretful, disinclined to move, and would cry on handling. For three weeks she had been treated for rheumatism. She was very fat, her limbs resembling Bologna sausages. She had seven teeth. The gums were spongy, purplish, and bled freely. The legs were kept partially flexed and she screamed when attempts were made to straighten them. There were general tenderness, pain, and inability to sleep. There was no evidence of rickets. She soon recovered.

CASE 4. *Scurvy due to sterilised milk.*—The patient was a male, aged 15 months, living in a London suburb. He had been fed on milk from a "milk laboratory" since a few months of age. Recently he had been at the seaside and had only returned the day before I saw him. He had 10 teeth, with deep purple congestion of the gums, was very anæmic, sweated freely, cried when moved, and presented general tenderness of the limbs and slight beading. There was marked swelling of the right leg and to a less extent of the right thigh and left leg. This was much the worst case of the series, but the patient recovered very rapidly.

The treatment in each case consisted in a diet of unboiled milk (except in Case 1), fruit juice, meat juice, and barley water. In the fourth case vegetable purées were also given and mashed sieved potato. All these cases occurred in infants of the upper middle class in the social scale and they had all been more or less under medical supervision. Climate does not [illegible] gh it is possible [illegible] copious supply [illegible] of the disease. In all cases the diet consisted of a cooked food, but the disease did not develop for many months. The first case was the mildest, although the food had been continuously sterilised for eight months and it was not necessary to stop cooking the milk in order to cure the disease. The milk was boiled for a few minutes instead of being sterilised for 20 minutes.

It strikes me as a remarkable fact that during the last seven years I have in hospital practice brought up a very large number of infants on boiled milk, with the addition of barley water after the age of two or three months, and yet during the whole of that time no one of them has developed scurvy. Many have had the milk boiled until they have reached the age of one year. The rate of gain in weight has always been satisfactory when the directions have been properly carried out. Consequently I am astonished to read in your valuable journal that a physician of one of the largest London hospitals actually states that numbers of infants "are made peevish, fretful, and even seriously ill by the pernicious effects of boiled milk on their nutrition." In large towns it is absolutely imperative that milk for infants should be boiled, though it is not so necessary that it should be sterilised. In 1895 I examined milk bought in London shops and found that it contained from 3,000,000 to 30,000,000 of micro-organisms in each teaspoonful. Surely no one can urge that such milk is better uncooked than cooked. Under the present methods of milking and distribution of milk it is quite impossible to prevent the contamination of milk and the rapid growth of micro-organisms in such a very nutrient fluid. The only means we can safely devise to minimise the risk is to cook the milk. No chemical treatment of the fluid is proved to be less harmful. It is an established fact that many epidemics have been traced to the milk-supply. Such epidemics are hardly possible from this cause if the milk is boiled, for the common disease germs are readily destroyed by the process. Many maintain that infected milk is a great cause of infantile tuberculosis, and if this is the case it still more strengthens the position of those who insist on the boiling of milk for infants.

Let us consider for a moment the arguments against cooking the milk. In the first place, it is said that it diminishes the nutrient value. Such an argument might be brought forward against many articles of food and yet would not induce us to eat the food uncooked. The experiments of Vassilieff on healthy young men showed that the nitrogenous ingredients and the fats of boiled milk are less readily assimilated than when the milk is unboiled. Koplik's observations on infants showed that the amount of unabsorbed nitrogenous constituents is practically the same whether the milk is boiled, pasteurised, or sterilised, and is greater in each case than when the milk is unboiled. Bendix came to the conclusion that, in the case of infants two years of age, the nutritive value of sterilised and unsterilised milk is practically the same. Weber's experiments on calves showed that the nutritive value of uncooked milk was greater than that of cooked milk. Though there is great liability to error in experimental work which involves very elaborate chemical processes it may fairly be concluded that the nutritive value of milk is somewhat lessened by the process of cooking. Its antiscorbutic properties are also diminished and, in my opinion, the longer the subjection of milk to a high temperature the greater the diminution in these latter properties. For this reason the proprietary foods made from milk are more likely to lead to scurvy than is a diet of boiled milk.

There is no doubt that sterilised milk as a continuous diet will in time produce scurvy. It is equally clear that such a diet must be continued for many months—eight months in Case 1 and then only a very mild form of the disease; more than a year in Case 4 and hence a more serious attack. In both these instances nothing else was given. But are we to condemn the cooking of milk for such a reason as this? I can point to a very large number of infants who have been fed on boiled milk for many months and have never developed scurvy and have gained weight as rapidly as the most anxious mother could wish. The other two cases illustrate still more strongly the disadvantages of cooked foods, especially the prolonged cooking to which the proprietary foods are subjected in order to preserve them. Even in these instances the scurvy took many months to develop and a little modification of the diet would have prevented it entirely.

In conclusion, I most strongly maintain that the boiling of milk for infants is essential, save under most exceptional surroundings; that the longer milk is cooked and the higher the temperature to which it is submitted the less will be its nutritive and antiscorbutic value; that such deterioration in its properties is of no serious importance, if it is not forgotten, for it can be very easily remedied; that any healthy infant can be brought up on a diet of boiled cow's milk, suitably diluted and mixed and given in proper quantities at due intervals; that failure to bring up infants on such a diet is rarely, if ever, due to the fact that the milk is cooked, but is due to some error in the mode of feeding or the amount given; that the very slight tendency to scurvy can be easily remedied by the addition of barley-water and a little fruit juice; and, finally, that healthy boys at a public school can drink uncooked milk with impunity as long as it is not contaminated with disease germs, but that to base on such a fact an argument that infants should be fed on unboiled milk is merely a delightful instance of illogical reasoning.

Upper Brook-street, W.

ON X RAYS IN THE TREATMENT OF LUPUS AND RODENT ULCER.

BY JAMES STARTIN, M.R.C.S. ENG.,

SENIOR SURGEON TO THE LONDON SKIN HOSPITAL.

IN September, 1899, I found the beneficial effects of the x rays in lupus, rodent ulcer, and certain other affections of the skin. I have been working with an instrument provided by Mr. Isenthal, consisting of a 15-inch sectional coil worked at 16 volts with a mercuric interrupter. The average speed of interruptions is about 250 a minute, the average current about from three to five ampères. I used at first a five-inch tube, then a smaller one made by Cox. I place the tube generally at a distance of five inches between the anti-cathode and the part to be exposed, and the duration of the exposure lasts from 10 to 15 minutes, giving four or five exposures on consecutive days. In cases of lupus the skin becomes slightly red after the first four exposures, the nodules bright and shining, and the pus dries up, with no doubt destruction of the bacteria. After a few days scabs form, then drop off, leaving a red glazed surface, which may or may not scab over again. This process goes on *until* no more scabs are formed and the surface is smooth and normal. The surfaces acted upon become slightly œdematous and a healthy epidermis begins to form. A good deal of reaction takes place in the diseased areas, such as we used to see on the administration of tuberculin a few years ago, but without any detrimental constitutional effects. This is followed by a copious discharge of serous matter which ceases in a few days.

Whether the x rays operate injuriously on the micro-organisms or whether phagocytosis becomes more pronounced under the slight stimulus has not yet been definitely made out. What, then, is this curative action so destructive to bacteria and what is the agent that produces it? In what manner do the ethereal vibrations of the x rays correspond to the ultra-violet, photo-chemical rays of the solar spectrum?

As far as my experience leads me at present the most suitable cases for treatment by the x rays are lupus, both true and erythematous, rodent ulcer, epithelioma, psoriasis, localised eczema, lichen, alopecia areata parasitica, and other parasitic diseases of the ringworm class. To these may be added superficial cancerous affections and dermal tuberculosis. When we can get the penetrative power to extend still further, if it be true that cultivated bacteria can be destroyed in from 15 to 20 minutes, the x rays show a future use in antiseptic surgery.

CASE 1.—The first case I wish to record is that of a man, aged about 60 years, who came under my notice in September, 1898, with a large rodent ulcer extending over the whole frontal region down to the supra-orbital and nasal region, with deep ulcerations, some extending to the periosteum, and having the distinct crateriform edge characteristic of rodent ulcer. I used various treatments by caustics, ethylate of sodium, chromic acid, salicylic collodium, powders and ointments with varied success. Nevertheless, the disease steadily advanced, so that in June, 1900, I decided to put him under the x-rays treatment and gave him his first exposure on the 18th of that month, repeating the exposure for seven consecutive days, for 15 minutes at six inches from the skin. After the first four exposures much disturbance of tissue was noticed. The skin became red and glazed, the edges red and inflamed, and a copious discharge took place. After a day or so all discharge ceased and the sore began to take on a more healthy appearance, granulation tissue beginning to form. He went home with a simple iodoform dressing and I saw him again in July. The appearance of the wound was more healthy, but still there were two large excavated ulcers of about the size of a two-shilling piece in the centre of the area. I decided to give him a few more exposures, seven, and again in October, with the result that the raised edges of the wound became flattened, granulation tissue and an apparently healthy skin forming on most of the old sites of disease.

CASE 2.—The patient was a strong man who came under my notice three years ago with a deep foul ulcer on the forehead, nose, and face near the inner angles of both eyes, covered with thick crusts and very tender and sore, caused by a wound which he had received from the branch of a tree. I put him under various treatments by caustics, ethylate of sodium and salicylic and iodoform dressings, as in the other case, with varied results, and on Oct. 22nd last I sent him into the hospital in Fitzroy-square and gave him 10 exposures to the x rays with very beneficial results. The ulcers on the forehead and nose have nearly healed and only the ulceration in the corner of the nose and right eye remains. It is difficult to direct the rays there on account of the near proximity of the eye. The sight is unaffected at present.

In both these cases there was some considerable dermatitis, which was to be expected, and we need not be afraid of it as it promotes that disintegrative resolution in the tissues which must be present in the formation of a healthy cicatrisation. The surrounding skin has also taken on a more healthy appearance. The scars that remain are more natural and resemble the surrounding skin.

CASE 3.—A girl, aged 17 years, came under my care at the hospital in May, 1890. It was one of the worst cases of true lupus that I have seen for some years, with perforation of the bridge of the nose. I commenced treating her with tonics, quinine, and arsenic and using an antiseptic dressing of salicylic acid, iodoform, and vaseline, and on June 20th I gave her seven exposures with much the same result as in the two previous cases. There was considerable disturbance in the ulcers with much discharge for a few days. Then there followed a complete drying up of the sores and the assumption of a much more healthy appearance.

CASE 4.—A young married woman, aged about 30 years, had well-marked butterfly lupus erythematosus on both cheeks and on the bridge of the nose. The patches, which were crimson red and inflamed, were of about the size of a two-shilling piece. This patient came under my care in October, 1897. I put her under treatment of various applications, salicylic collodion, &c., with some good results, but the case proved to be tedious, so I determined to put her under the x rays at intervals of three days for a few weeks on Nov. 5th last. She has now had six applications with capital results. Cicatrisation has taken place.

CASE 5.—This patient, a young woman, aged about 21 years, came under my care at the hospital in March, 1900, with psoriasis of the legs, the arms, and the body. After treatment with tonics, arsenic, and tarry preparations she got fairly well excepting one obstinate patch about six inches long by three inches broad on the leg. I exposed her to the x rays for seven exposures at intervals of about three days, with the result that in about a fortnight from the last exposure the whole patch completely vanished, leaving a healthy skin.

In the face of such facts it must be considered that we have in the x rays a valuable therapeutic agent.

Harley-street, W.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF COCAINE POISONING.

BY KENNETH FRASER, M.B., CH.B. ABERD.,

JUNIOR HOUSE SURGEON, ROYAL ALBERT EDWARD INFIRMARY, WIGAN.

A WOMAN, aged 59 years, was admitted on March 11th, 1901, to the Royal Albert Edward Infirmary, Wigan, suffering from rodent ulcer situated above, and to the outer side of, the right orbit. She had been operated on about a year previously, when a portion of the frontal bone had been trephined. On the present occasion she was considered to be beyond operative treatment. On the 21st formalin (40 per cent.) was applied to the surface of the ulcer, causing great pain. On the 23rd, previously to the application of the formalin, the affected part was sprayed with 10 per cent. of cocaine. She was sprayed twice a day. On the evening of the 25th the patient became quiet, spoke in a dazed manner, and answered questions after some hesitation; she then became irritable, lying with her head buried in the pillow, and soon drifted into unconsciousness. The pulse was rapid, full, and of high pressure. The respirations became laboured, irregular, and of the Cheyne-Stokes character. Convulsive clonic spasms passed over the whole of the body, beginning with the muscles of the mouth. Then the patient broke out into a cold perspiration and saliva ran freely from her mouth. The face was pale. The pupils were normal in size and reacted to light. There was no change in the temperature. On artificial respiration being tried the arms could not be raised above the level of the shoulders. Brandy was administered and five minims of nitrite of amyl were given and also inhalations of oxygen. Boric fomentations were applied to the affected part half-hourly. In the course of three hours the patient regained consciousness and dropped into a peaceful slumber The following morning she felt quite well but did not remember anything of the previous night. She had received in all about five grains of cocaine. I am indebted to Mr. Berry, under whose care the case was admitted, for permission to publish these notes.

MALIGNANT DISEASE OF THE TESTICLE IN AN INFANT.

BY H. J. CLARK, M.R.C.S. ENG., L.R.C.P. LOND.

THE following exceptionally rare case of malignant disease of the testicle in early infant life is worthy of record.

The second child of exceptionally healthy parents was born in January, 1899. At birth the testicles had descended and no abnormal condition was observed until the child was 10 weeks old, when a slight enlargement of the left testicle was observed, without, however, any apparent cause. The enlargement in the gland increased gradually until the child was 11 months old, when it had attained to the size of a small hen's egg. There was an entire absence of swelling in the inguinal or neighbouring glands. On removal the testicle weighed 29 grammes After operation the child did well and at present looks healthy and free from any neighbouring glandular implication.

Swanage.

MEASLES AT DARTMOUTH.—At the meeting of the Dartmouth Town Council held on July 9th Mr. J. H. Harris, the medical officer of health, reported that during the recent epidemic of measles 672 cases of that disease were notified. Mr. Harris added that there was an outbreak of measles in 1895, when 672 cases were also notified.

A Mirror

OF

HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus Morb.*, lib iv., Proœmium.

MILL ROAD INFIRMARY, LIVERPOOL.

A CASE OF CÆSAREAN SECTION FOR MALIGNANT DISEASE OF THE UTERUS; RECOVERY OF MOTHER AND CHILD.

(Under the care of Dr. NATHAN RAW.)

WHEN the cervix of a pregnant uterus is discovered to be extensively affected with malignant disease and the pregnancy has reached the seventh month there can hardly be any question that the most suitable treatment is a Cæsarean section followed by complete removal of the uterus, should that be possible. The mortality at the present day from Cæsarean section is low in cases in which it is performed before the onset of labour; but if the operation is not undertaken until labour has lasted for many hours the consequent exhaustion must necessarily exert a very harmful influence on the prognosis.

A woman, aged 30 years, was admitted into the Mill-road Infirmary, Liverpool, on May 10th, 1901, suffering from anæmia and pregnancy at the seventh month. Her father died from cancer of the stomach and her mother died from cancer of the breast She had had seven children, of whom three were alive and well; the others died in infancy. During the last four months she had had repeated and constant hæmorrhages from the vagina, together with an offensive discharge. On admission she was pale, extremely anæmic, and very weak. The pulse was 100, small, and thready. She had lost flesh rapidly and suffered constantly from headache. On examination per vaginam there was extensive cancer of the cervix of a fungoid nature, evidently of rapid growth; it bled very readily and was pretty firmly bound down and fixed in the right fornix. The uterus was not very moveable and on examination through the speculum the cervix had a cauliflower appearance. She was evidently going rapidly downhill, as the bleeding recurred two or three times every day. The whole circumstances were explained to her husband and herself and they both agreed to the proposition of Cæsarean section

[illegible] nder ether. Dr. Raw made [illegible] the thin abdominal wall. [illegible] to the middle line and the [illegible] large cotton sponges. The uterus was then opened by a long incision extending from the fundus to the lower segment. Unfortunately the placenta was attached right opposite the incision and Dr. Raw had rapidly to cut through it and to separate it from the uterine wall. It bled pretty freely, but the hæmorrhage was soon controlled The membranes were then hastily opened and the child was extracted by a leg and handed to an assistant. It made no effort to breathe for at least seven or eight minutes although the heart was beating well. Finally it responded to stimulation and was soon all right. On examination of the cancerous growth from within the abdomen it was found to be too extensive to remove completely, and as the patient was very collapsed it was decided to proceed no further The uterus was carefully sutured by 10 deep silk sutures and several superficial ones. No drain was passed through the cervix for fear of infecting the uterus from the malignant growth. The abdomen was closed without any drainage and the patient was put back to bed. She was profoundly collapsed and had to have several pints of normal saline solution per rectum as well as hypodermic injections of strychnine She soon recovered, however, the abdominal wound healed by first intention, and she made a steady recovery and convalescence.

The child was nursed by a foster-mother for a week and was then fed in the ordinary way. The mother is gaining in weight, the hæmorrhage has ceased as well as the offensive discharge, but, of course, the malignant growth is still present. She is, however, comfortable and free from pain, and the child is progressing favourably.

Remarks by Dr. RAW.—Cancer of the uterus is a terrible affliction at any time, but when complicated by pregnancy as far advanced as the seventh or eighth month it behoves the medical attendant to adopt some heroic line of treatment if he is to preserve the lives of both mother and child. It is a well-known fact in obstetric practice that cancer when once established in the cervix progresses at a much more rapid rate during pregnancy than when unimpregnated, and that the bleeding from the cancerous growth is profuse and continuous, especially during the later months of pregnancy; in fact, so excessive may it be as to endanger the life of the patient from progressive anæmia. To allow the pregnancy to go to full term would be to subject the mother to serious risk of her life either from severe hæmorrhage or rupture of the uterus, in addition to which the child would in all probability die either before or during the tedious labour. To attempt to deliver a living child through the cancerous mass either by turning or forceps would, I think, be futile, whilst even to perform embryotomy would set up increased hæmorrhage during the operation, which the obstetrician would have little chance of controlling. The medical attendant has to consider what is best for both mother and child, and there can be no doubt that Cæsarean section with, if possible, complete removal of the cancerous uterus is the correct and scientific treatment.

Sir James Simpson in referring to the operation of Cæsarean section said in 1871: "Accoucheurs sometimes—but fortunately very, very rarely—try to save the infant's life by having recourse to this operation [referring to Cæsarean section], an operation by which, however, the mother's life is almost inevitably sacrificed." What progress surgery has made during the 30 years since that opinion was written. A surgeon would now undertake the operation of Cæsarean section under proper conditions with a confidence that it would be successful, and there can be no doubt that very many lives, both maternal and infant, have been saved by this means. Of course, if the patient comes under our notice in the very early months of pregnancy the proper course to adopt would be to induce premature labour, but in this case the patient was first seen at the seventh month.

Dr. W. J. Sinclair states that "in advanced cases of cancer of the uterus when the disease is discovered at or about full term any treatment is unsatisfactory. Cæsarean section by any of the methods gave disappointing results. In eight cases quoted of ordinary Cæsarean section all the mothers died, whilst after Sänger's Cæsarean section of 13 women only three survived for a month or six weeks; most died directly after the operation." In the face of these terrible statistics it is satisfactory to note that this woman was saved as well as her child. It would have been an additional satisfaction to have removed the cancer, but this was impossible—in fact, any attempt to have done so would have been disastrous to the patient as the disease was too far advanced.

I have to express my great thanks to Dr. T. B. Grimsdale for his kind assistance and also to my colleagues for their great care in the treatment of the case.

LEEDS GENERAL INFIRMARY.

A CASE OF A PERITONEAL "BAND" INTERFERING WITH PERISTALSIS OF THE CÆCUM.

(Under the care of Mr. W. H. BROWN.)

IT is only of recent years that the importance of peritoneal adhesions has been appreciated. Many obscure and indefinite pains in the abdomen have been found to be due to peritoneal bands which have not caused any marked intestinal obstruction but have interfered with the peristaltic movements of some portion of the bowel It is not improbable that many cases of intractable dyspepsia are due to similar adhesions of the stomach

A man, aged 58 years, had been quite well up to last Christmas, but since that time he had been subject to a gradually increasing discomfort in the right iliac fossa. In the past six weeks a swelling had appeared at times, causing much pain when present. On admission he appeared to be fairly well On palpating the right iliac region a swelling could be provoked, in size resembling a clenched fist; at first this was very hard, but it then slowly softened and disappeared. When the swelling was at its height the patient suffered great distress. It seemed likely that something, probably a band, was interfering with the movements of the cæcum. The abdomen was opened over the cæcum and a band was seen about half an inch wide and three inches in length, anchoring the bowel to the abdominal wall just above Poupart's ligament. This was ligatured and divided. The patient made an uneventful recovery.

Remarks by Mr. BROWN.—The case related is interesting from the fact that there had been no previous inflammatory attack to account for the presence of the condition found at the operation. Without any signs of actual obstruction the band caused symptoms which suggested a gradual obstruction being in course of formation. The effect of the existence of similar bands partially preventing normal peristalsis may account for the story one hears at times that patients feel something "give way inside them" after which their former "colic" pains disappear. The cæcum in the present instance behaved much in the way that a horse does when restrained too suddenly—i.e., rearing; the peristaltic wave being checked the contracting bowel rose up and became perceptible through the abdominal walls.

Medical Societies.

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN.

Demonstration of Clinical Cases.—Fœtal Rickets.—The Treatment of Endocarditis.—Tuberculosis of the Choroid.—Syphilis transmitted to the Third Generation.—Meningitis treated by Drainage.—Pneumococcal Peritonitis.

THE provincial meeting of this society was held on June 29th at the Medical Institution, Liverpool, Mr. ROBERT JONES being in the chair.

Clinical cases were demonstrated by the CHAIRMAN, Dr. J. R. LOGAN, Mr. K. W. MONSARRAT, Dr. C. J. MACALISTER, Dr. LLOYD ROBERTS, Mr. W. THELWALL THOMAS, Dr. JAMES BARR, Dr. STOPFORD TAYLOR, Dr. NATHAN RAW, and Mr. G. P. NEWBOLT.

Dr. HENRY ASHBY (Manchester) related a case of so-called Fœtal Rickets. The mother was 46 years of age and the infant was her fourteenth child, born at term and well nourished. When seen at two weeks there were cranio-tabes, deformed chest walls, and five fractures, including both humeri, the left radius, the right ulna, and the left femur. Three weeks later the right femur fractured. The infant eventually made a complete recovery. Dr. Ashby doubted if such cases were examples of true rickets, but they rather resembled, he thought, the osteoporosis produced by feeding puppies on food deficient in salts of lime.

Dr. RICHARD CATON (Liverpool) read a paper on the Treatment of Endocarditis based upon about 500 cases of that disease occurring in acute rheumatism and chorea. He advocated (1) absolute rest in bed for several weeks; (2) the application of a series of small blisters in the region of the first four dorsal nerves in front, followed by poulticing; and (3) the internal administration of sodium iodide. To be of service this treatment must be commenced in the first fortnight or so.—Dr. WILLIAM CARTER bore testimony to the great utility of the method.—Dr. A. ERNEST SANSOM thought blisters a little less than worthless in endocarditis.—Dr. MACALISTER advocated blistering and rest both in endocarditis and in pericarditis. Instead of a blister an ointment of the red iodide of mercury (1 in 8) might be employed.—Dr. BARR spoke of the good effects obtained from blisters in the treatment of acute rheumatism.—Dr. H. R. HUTTON testified to the rapid disappearance of pericarditis under blistering.—Dr. CATON, in reply, said that in acute rheumatism he used the salicylates along with small blisters to the joints.

Dr. GEORGE CARPENTER and Mr. SYDNEY STEPHENSON communicated a paper upon Tuberculosis of the Choroid, which will be found at p. 134 of our present issue. The communication was illustrated by microscopical preparations and by numerous paintings of diseased eyes.—Dr. SANSOM and Dr. ASHBY discussed the paper.—Dr. WARRINGTON asked whether tubercles in the choroid were observed except in the last stage of illness.—Dr. CARPENTER, in reply, said that in the acute cases mentioned in the paper tubercles were found in the choroid from one day to six weeks before death. Tubercle in the choroid did not necessarily warrant a grave prognosis, since some of the cases became obsolescent.

Dr. D. M. **HUTTON** (Southport) read a note on a case of Syphilis transmitted to the Third Generation. The grandfather produced a certificate before his marriage certifying that having had syphilis he was cured. The mother suffered from specific psoriasis. The child died from congenital syphilis at the age of five weeks.—Dr. **ASHBY** thought that the child might have succumbed, not to syphilis, but to a pseudo-syphilitic process of septic origin.—Dr. **EDMUND CAUTLEY** inquired whether there was any post-mortem evidence of syphilis in the infant.—Dr. **GEORGE A. SUTHERLAND** could not accept the psoriasis present in the mother as pathognomonic of syphilis.—Dr. **HUTTON**, in reply, said that the whole question resolved itself into one of possibilities and probabilities. Transmission in this case could not be demonstrated, but it was highly probable.

Mr. **MONSARRAT** (Liverpool) read a note on two cases of Meningitis treated Surgically by Drainage. The results were fairly satisfactory. The choice of a route for drainage was discussed.—Dr **CAUTLEY** dwelt upon the initial difficulty of distinguishing between simple basic and tuberculous meningitis. In his own cases the result of surgical interference had been uniformly unfavourable.—Dr. **LOGAN** mentioned a case of chronic hydrocephalus where the lateral ventricle had been drained, but the child died some months later.—Mr. **DAMER HARRISSON** had passed chromicised gut into the lateral ventricles for the purpose of draining fluid into the base, but he was not inclined to proceed with the operation —Mr. **MONSARRAT**, in reply, thought no operation satisfactory that did not combine ventricular drainage with drainage of the subarachnoid space.

Dr. **JOHN H. BRYANT** read notes of a case of Pneumococcal Peritonitis which he had observed in a girl, aged four and a half years. The abdomen was opened, general acute peritonitis was found, and pneumococci were demonstrated in the effusion. At the necropsy there was no pneumonia or pericarditis, but pleurisy and peritonitis were present. Dr. Bryant was inclined to think that so-called idiopathic peritonitis was of pneumococcal origin.—Dr. **JAMES BARR** discussed general infection with the pneumococcus as shown by pneumonia, pleurisy, peritonitis, and meningitis.

The following communications were taken as read :—

Mr. **R. CLEMENT LUCAS**: Removal of a Nail from the Second Portion of the Duodenum.

Dr. **JOHN MCCAW** (Belfast): Notes of a case of Infantile Scurvy.

Dr. **MACALISTER** (Liverpool): Observations on Cirrhosis of the Liver and Endocarditis in Children.

Dr. **JAMES CARMICHAEL**: Bimanual Examination in the Diagnosis of Abdominal Disease in Children.

Reviews and Notices of Books.

A Civilian War Hospital: being an Account of the Work of the Portland Hospital and of Experience of Wounds and Sickness in South Africa, 1900, with a Description of the Equipment, Cost, and Management of a Civilian Hospital in Time of War. By the Professional Staff—**ANTHONY A BOWLBY**, C.M.G., F R C.S. Eng., Senior Surgeon; **HOWARD H. TOOTH**, C M.G., M.D. Cantab., F.R.C.P Lond.; **CUTHBERT WALLACE**, M.B., B S. Lond., F.R.C.S Eng.; **JOHN E. CALVERLEY**, M.B., B S, M.R.C.S Eng.; and Surgeon-Major **KILKELLY**, C.M.G., Grenadier Guards, Principal Medical Officer in Military Charge. With numerous Illustrations London: John Murray. 1901. Pp. 343. Price 12s.

THE reader of this book will, we think, rise from its perusal with the feeling that it is what it pretends to be and that it fulfils the description given on its title-page. It is a record of the fitting out and organisation of a civilian war hospital and of the work that it did in the field. Apart altogether from the scientific value (which is considerable) of the contributions by the professional staff to the more strictly medical and surgical aspects of the war it is an instructive and useful book, for it contains much carefully considered and well-arranged information with regard to a number of practical points which is likely to prove serviceable in the organisation, fitting out, and equipment of civilian war hospitals on the occasion of future expeditions of a similar character. And we may here say, *en passant*, that future wars when conducted on anything like a large scale will inevitably, as we believe, give rise to increased calls upon the civil profession of this empire. However good and bountiful Government provisions for war may be they cannot be made and maintained upon such a scale and in such variety in point of *personnel* and *matériel* as to cope with all the requirements. The cost alone of a permanent establishment would be prohibitive and in any case the provision would inevitably have to be largely supplemented by voluntary and philanthropic aid. To this end, we may parenthetically remark, we have advocated that as far as the *personnel* is concerned, a list should be kept and maintained by the Government of the members of the junior medical and surgical staffs of the large civil hospitals of this country and its colonies to whom recourse could be had for professional aid in time of need. If we have not already reached, we are nevertheless approaching, the time when Nelson's famous signal will have to be, not what England, but what the British Empire, expects as the duty of its subjects. When this time comes and is realised books of this kind will be largely consulted.

But to turn now to our more immediate purpose—namely, the consideration of the volume itself—we may say that on referring to its pages in order to see the number of subjects and passages which we had marked for notice or reference it becomes at once apparent that in order to review the work as it deserves to be reviewed a far larger amount of space than we can give to it would be demanded and even then much would be left unsaid. We hope, therefore, that our readers will peruse it for themselves.

We are glad to notice that it is gracefully dedicated to Surgeon-General Wilson, K.C.M.G., the principal medical officer of the army in South Africa and to the officers of the Royal Army Medical Corps and the civilian surgeons of No. 3 General Hospital. This serves to indicate the professional harmony and good fellowship which existed between the civil and military medical elements. The "Portland" was the first of the civilian hospitals to be equipped and sent to South Africa and was probably also the first voluntary hospital attached to the British army at the front.

Surgeon-Major Kilkelly, Grenadier Guards, and principal medical officer of the hospital, deals with the *personnel*, equipment, and interior economy, and in the course of 17 pages—after briefly alluding to the transport difficulty in war and the necessity for bearing in mind in fitting out war hospitals that the lighter the hospital the quicker and the more completely will it reach its destination, and after adverting to the evacuation system and principle which is followed and the machinery employed—manages to embody a number of useful and practical points in the course of his observations

Mr. Bowlby, the senior surgeon, follows with a brief description of the career and work of the hospital. Rondebosch, five miles from Cape Town, was the place fixed upon by the military authorities for it to commence its operations. This was a fortunate position in several respects, for it was in proximity to the three large base hospitals already established and in close companionship with No. 3 General Hospital at Rondebosch. Altogether the medical staff of the Portland Hospital had some 1000 beds available where they could see the sick and wounded, who had been sent down after the battles of Modder River and Magersfontein. They had thus an unrivalled opportunity of acquiring a large experience of gunshot wounds, and subsequently, when the epidemic of enteric fever began to be serious in the camp at Modder River station, of that disease. Orders were afterwards received for the hospital to proceed to Bloemfontein which was reached on April 14th after having been preceded by an advanced party to choose a camping ground and to make the necessary preparations. The hospital took the whole of its possessions with it and it was well that it did so, for it was almost impossible to get anything sent up to Bloemfontein for weeks afterwards. During its stay at Rondebosch of just three months the hospital had had altogether 477 patients. Everything went uncommonly well with the medical service and its hospitals during the earlier and very trying stages and events of the war; but at Bloemfontein, as we all know, things were very different owing, as we have contended, to conditions and circumstances which were beyond the power of the medical service to have foreseen and prevented. The general health of our troops at Bloemfontein was, mainly from disease causes, very bad. Enteric fever, diarrhœa, dysentery, &c., were prevalent and, after the nature of such camp diseases, went on increasing at a rapid pace and in a more than geometrical ratio. Many of the camps had become contaminated and the health of the troops immediately improved when the general in command, at the instigation of the principal medical officer, changed the site of the camping ground. The very great importance of this as a sanitary measure is a matter on which we have fully commented in the various articles which have appeared in THE LANCET about this and other campaigns and it is one which is not sufficiently accentuated in our text-books. The invariable rule should be in the event of any outbreak of infectious disease in camp to change the site and, indeed, under ordinary conditions of campaigning to do this periodically as a measure of prophylactic hygiene. With the month of July came a remarkable change—empty beds and empty tents; the whole of the sickness and overcrowding had come and gone, we are told, in three short months and the work of the Portland Hospital in South Africa soon afterwards came to an end. During its stay from December to July this work is summarised as follows. The hospital admitted 1009 officers and men, and of these 37 died, 159 returned to duty, 303 were discharged to convalescent camps or hospitals, 98 went to England, and 412 were transferred to other hospitals at the base. It may be mentioned that of 303 surgical cases only three patients died.

Chapter III., embodying notes on the equipment and *personnel* of civilian war hospitals, gives some very useful and practical details. We are all in favour of simplicity and practicability of detail generally, and especially with regard to medical and surgical equipment and appliances—matters which have not, we are glad to say, been lost sight of in this book. We observe that it is considered absolutely necessary that all hospitals at the seat of war should have one Royal Army Medical Corps officer in charge. An account of the various marquees and tents used for hospital purposes is given, with a comparison of their respective merits and demerits one with another, together with a record of results, with which, speaking generally, we agree, as we do with the remarks on the unnecessary weight and size—width especially—of the regulation iron bedsteads in use at military hospitals, as well as with those on medical and surgical stores, antiseptic dressin,gs x-rays equipment, medical comforts, &c. We may interpolate a remark here that some carpenters and artificers would form a useful addition to the hospital staff (field and base). as was done in the Afghan campaign of 1878-79-80. This brings us to ambulance wagons. We quite concur in the assertion that a perfect ambulance wagon for field service has yet to be devised. That of the army regulation pattern is strong but it is too heavy and cumbersome, and, like so many things which are the outcome of committees, it is designed to provide for, and to accomplish, too many objects. Those of American pattern are light and fairly good. The Indian tonga is stated, as the result of experience, to have been the best conveyance for the wounded in South Africa. Those of our readers who have been in India and who have journeyed by tonga to the hills will realise that these vehicles are very good of their kind, but the range of their usefulness in warfare is, we imagine, nevertheless a limited one, and a really good ambulance wagon for the sole purpose of carrying the wounded has yet to be constructed. Wherever available, the easiest, safest, and best transport for wounded is by water in towed flat-bottomed barges and for land transport by Indian dhoolie-bearers. As to vehicular wheeled transport, we have not yet, as we have said, discovered a method suitable for general purposes.

We come next to the section devoted to a description of the medical work of the campaign by Dr. H. H. Tooth, assisted by Dr. J. E. G. Calverley, which strikes us as affording an able, clear, and eminently readable account of the subject. The most important place is naturally given to enteric fever, without which the medical casualties of the campaign would have been relatively insignificant. After all that has been written and said upon this subject it is refreshing to read the impressions derived from a carefully considered inquiry into the facts—these being stated in a scientific and judicial spirit. The subject has been already so fully dealt with in our pages that there is no need again to discuss it now. It must suffice to state generally that we concur in the causes assigned for, and the medical history given of, the origin, dissemination, and course of the epidemic. The views of the writers in these respects are very similar in effect to those which we have put forward. Touching the possible part played by flies we may notice an interesting point which might be made the subject of future investigation. Cultivations were made at the laboratory of St. Bartholomew's Hospital from the excreta of flies voided on temperature charts which had been kept in the enteric fever tents but with a negative result as far as the isolation of the bacillus was concerned. The failure to demonstrate the typhoid bacillus is not surprising considering that more than three months had elapsed and that the bacilli might have been destroyed in the alimentary canal of the insect. The organisms might, however, as suggested, be carried about on the legs and bodies of the insects. The recent investigations of Dr. Horton-Smith recorded in his Goulstonian Lectures, 1900, in regard to the fæces not being by any means the only channel by which the bacilli are removed from the body, and to the very important part played by the urine in this respect, are very pertinently referred to in connexion with the extreme difficulty (to say nothing of the influence of other conditions) of preventing the spread of infection under the conditions of war. That the bacilli may live and appear in the urine for a long time is undoubted. These investigations are very significant and serve to show, at any rate, how futile it is, as is too often done, to draw conclusions from imperfect data.

The prevalence of diarrhœa or looseness of the bowels is so common among troops otherwise strong and healthy on service in hot climates that it may almost be regarded as physiological, but it soon oversteps its limits, and its relations to enteric fever and dysentery must never be lost sight of. As regards the statistics relating to enteric fever we may congratulate the medical staff on the successful results—a percentage of deaths amounting to 12·5 only. The figures showing the results of inoculation, although favourable to the practice, are still too small for drawing any accurate conclusion. If we do not enter upon the clinical remarks and description of cases of this and other fevers, dysentery, diarrhœa, and other diseases incidental to field service, it is not because we do not regard the writer's observations as valuable, for they distinctly are so, but because but little space remains to us for the consideration of the interesting and instructive section contributed by Mr. Bowlby and Mr. Wallace on the surgical work of the war.

In this section a succinct but sufficiently clear and detailed description is given of the weapons and projectiles used in modern warfare; the surgical aspects of modern rifle fire are considered, as are the results of the alteration from the old to the new rifle as affecting the surgical side of the question. The several points are separately taken up and discriminately weighed. When the small size of the Mauser bullet, its extreme range, and its comparative novelty in warfare are considered it is not surprising that some differences of opinion as to its effects should exist. Speaking generally there can be no doubt that both civilian and army surgeons were much impressed by the favourable course that the wounds, as a rule, ran; it was one of the most striking facts of the war. At one time it seems, say the writers, that almost any part of the body can be perforated with impunity, and the observer is inclined to agree with those who regard the Mauser as a humane bullet, while at another time and almost before that impression has passed away another case occurs which gives rise to the opposite opinion. Some striking instances are cited in illustration of this. The general trend of the authors' observations and experience is, on the whole, to modify the somewhat optimistic conclusions that have been expressed. One thing, however, appears clear—that to those who had the opportunity of comparing and contrasting the results of their experience in South Africa with those of previous wars the difference seemed marvellous, and a great change, amounting almost to a revolution, has taken place in the surgical treatment of gunshot wounds. With regard to wounds of the abdomen, while recognising that some wonderful recoveries occurred the writers evidently think that the gospel of the innocuous nature of bullet-wounds has gone too far. They have, in fact, been gradually driven to the conclusion that the great majority of men shot through the small intestine die, and think that the very generally expressed opinion that such wounds are comparatively seldom fatal is but little supported by fact. They are, very properly, emphatic on the fact that, although a bullet-wound is essentially a penetrating or perforating wound, it differs altogether from penetrating wounds inflicted by sharp-pointed instruments. There is always contusion beyond the area of the wound itself and the extent of this contusion varies with the velocity of the projectile and the nature of the injured tissue and, to some extent, with that of the projectile also

After the discussion of such subjects as the typical wounds caused by normal small-bore bullets, entrance and exit wounds, different kinds of bullets, "explosive" wounds, and the clinical course, healing, and treatment of wounds, we come to excellent chapters on Bullet Wounds of Bones and Joints and their Treatment, Injuries of Blood-vessels of the Cranium and Spinal Column, and Thorax, with a special chapter on Wounds of the Abdomen and its Contents—all written with discriminating care and independent judgment and here and there interspersed with original views and practical suggestions. The clinical cases cited throughout the volume strike us as being very pertinent to the subjects in hand. We must not forget to add that the volume is well and copiously illustrated, well got up, and furnished with a good index. After what we have said it is, perhaps, needless to add that we have read the book with pleasure and profit and are glad to be able to express a high opinion of its merits.

Modern Cremation: its History and Practice to the Present Date. By Sir HENRY THOMPSON, Bart., F.R.C.S. Eng., President of the Cremation Society in England since its foundation in 1874. Fourth edition, revised and enlarged. London: Smith, Elder, and Co. 1901. Five plates and other illustrations. Pp. 204. 8vo. Price 2*s.*

THE statistics concerning the cremation of human bodies, cremation societies, and crematoria throughout the United Kingdom and every other European country (except France) and in America have been carefully collected by Sir Henry Thompson and are published in the interesting and scientific little work before us. This book appeared first in four parts more than 20 years ago, but in the third edition (1899) the subject-matter, enlarged and improved, was presented in six chapters and an appendix. This arrangement has been adhered to and 17 pages have been added in the present edition. The volume deals with the subject of cremation in a delightfully lucid and scientific way. An interesting sketch of the history of the English Cremation Society is first given. The society is now 27 years old and among the members of its council have been such men as Sir Arthur Arnold, Sir Charles Cameron, Bart., M.P., Dr. R. Farquharson, M.P., and the Rev. Charles Voysey. Those who approve of cremation will be pleased to observe that in spite of much adverse criticism and even temporary opposition from an unenlightened Home Office the society has flourished and that the number of cremations performed yearly steadily increases. Up to December, 1898, a total of 1283 dead bodies had been cremated at Woking. Up to December, 1900, 1824 bodies had been thus treated and rendered incapable of putrefaction and harmless to the living.

A full account of the deputation sent by the society to wait on Mr. Asquith, then Home Secretary (1893), will be found in the third chapter. A select committee in the lower House was duly appointed to inquire fully into "defects in the present system of death-certification" alleged by Sir Henry Thompson and his friends to exist. The report of this committee completely indorsed the statements brought forward by the society's deputation. A change of Ministry occurred soon after and the question relating to death-certification has been shelved ever since. "This flagrant blot"—to quote from the author's preface—"on the conduct of our social arrangements still exists." As might be expected from a knowledge of the thoroughness of Sir Henry Thompson's scientific researches and observations, the arguments for cremation from a public health standpoint are sound and catholic in view. He makes the surprising statement that upwards of 2000 acres in the metropolis have been used as burial grounds for our dead—acres which might have been sites of residences for our overgrown population or open spaces for the recreation of the masses. The book is not only a scientific exposition of the *pros* and *cons* of cremation, but contains also a detailed account of the crematorium, of the ceremony and process of cremation, and of the exhaustive investigation made in every case of death, lest cremation and burial should be premature, or the crime of secret poisoning should be concealed by the impossibility of a future exhumation

LIBRARY TABLE.

Chemistry and Physics: a Manual for Students and Practitioners By WALTON MARTIN, Ph.B, M.D., and WILLIAM H. ROCKWELL, Jun, M.D. London: Henry Kimpton. 1901. Pp 374 Price 7*s.* 6*d.*—This work belongs to the series of modern text-books edited by Bern B. Gallaudet, M D, demonstrator of anatomy and instructor in surgery at the College of Physicians and Surgeons, Columbia University, New York. The following is the first sentence in the preface of this book: "In the education of medical students a knowledge of chemistry and physics is important, though from a practical point of view it need not be exhaustive." The book is not only not exhaustive, but it is most inadequate. This will be apparent when we mention that both inorganic chemistry and organic chemistry are dismissed in 182 pages. Theory is completely ignored, equations and formulæ are here and there wrong, whilst spelling is not entirely free from fault. We regard the section on physics in a more favourable light, but we know plenty of works which though they deal with the subject concisely and in a way adapted to the needs of the medical student, yet do so in a more masterly manner than is here displayed. The bulk of the illustrations are borrowed from the classic Deschanel. It is almost inconceivable that a work presumably devoted to physics for the special requirements of medical students should devote this much and no more to the "x" rays:—"'X' Rays.—This light from a Crooke's tube, termed radiant by him, has the property of passing through many substances formerly considered opaque while glass obstructs it. This light is popularly known as 'x' rays." This is all—not a word about Roentgen, the discoverer of the rays, and not a word about the use of the rays in medicine and surgery. The book is disappointing.

The Economic Disposal of Towns' Refuse. By W. FRANCIS GOODRICH, A.I. Mech. E London: P. S. King and Son. 1901. Pp. 356. With 75 Illustrations. Price 10*s.* 6*d.*—It is a satisfactory sanitary sign of the times that the disposal of refuse has been brought to such a pitch as to merit discussion in a book of the exhaustive character of the one before us. It is not very long ago that the destructor was unknown, at least as a satisfactory means of disposing of refuse. The evolution of the refuse destructor dates back perhaps about 30 years when, as Mr. Goodrich points out, the destruction of towns' refuse by burning in a furnace was attempted in the north of England, but, as might have been expected, the first furnaces were of a very crude kind, baking rather than destroying the refuse or merely charring or sterilising it perhaps and driving off gases which were a source of offence. The first destructor erected in the vicinity of London, we learn from this book, was that constructed by Mr. Charles Jones, M.I.C.E, which was designed to destroy the gases produced in the destructor cells—that is to say, it consisted of two distinct parts: a furnace and a fume cremator. It is now found, of course, that a fume cremator is superfluous, and the modern refuse-disposing appliance is so satisfactory in its working and in regard to its results as to leave no excuse to our sanitary authorities for "tipping" refuse and leaving it to dispose of itself in offensive heaps as best it may. The construction of destructors has given rise to a new department of engineering and the peculiar problems presented have been overcome with characteristic success We in this country may take to ourselves the credit of being the pioneers of this excellent movement. Mr. Goodrich has made his book more valuable than others that have hitherto been published on the subject because in its pages are described the various methods by which refuse is being dealt with all over the world, and thus the reader is brought into contact with the various difficulties of environment met with, chiefly climatic, in different countries. All the refuse destructors of the world are described, and perhaps connected with these the American practice is the most interesting to study. The work is of a highly instructive and practical character, giving the results of all the systems known where they have been in use or are in use in this country We are glad to note a chapter on the Value of Towns' Refuse for Steam Raising, in which the author enters into the average composition of ashbin refuse, the heating power of ashpit refuse, the average evaporative power of towns' refuse obtained in practice, the analysis of well-known coals used for household purposes, the chemical composition of various coals, the relative efficiency of coals, and the composition of coal ash. The tables recording these results are clearly valuable as affording a guide to the fuel value of all sorts and conditions of garbage. The last chapter contains a few notes on Disposal of Street Refuse, Trade Refuse, and Market Offal. In regard to the disposal of the last-named offensive substances it is evident that in this respect the continental system is ahead of anything which we have adopted here. Speaking of snow the author says that it is scarcely necessary to say that neither in this country nor in America has it yet been found possible to burn snow in destructor cells, yet it is claimed, he says, for at least one American destructor that by its means water can be burned. Mr. Goodrich has spared no pains to collect a vast amount of material with regard to one of the most important branches of sanitary administration. His book may be safely described as a standard work and is of both educational and technical value.

A Syllabus of New Remedies and Therapeutic Measures. By J. W. WAINWRIGHT, M.D. Chicago: G. P. Englehard and Co. 1901. Pp. 230. Price $1.—The aim of this book is good, but unfortunately its usefulness must of necessity be short-lived. It contains a conspectus of the new and chiefly synthetic remedies now having a recognised place in medicine. We may mention as examples lycetol, citrophen, chloretone, nosophen, heroin, and eucaine. The author has done well in collecting clinical excerpts on the value of these new remedies. Practitioners are constantly wanting to know about new drugs of which they have never before heard or of which at least they have had no experience. Since it furnishes information of this kind this compilation of new remedies and therapeutic measures will be valuable, although, as we have said, new preparations are being added to the list of medicaments every day and it is impossible for a book to keep pace with them. Well-written chapters on Anæsthesia, Local and Regional, Animal Remedial Preparations, and Cold and Heat are added.

Scientific Papers and Letters. By A. H. SMEE, M.R.C.S. Eng., F.C.S. Carshalton: William Pile. 1901. Pp. 200.—Mr. Smee has at various times written upon a wide range of subjects and as is shown in the selection of papers before us he is the author of many original ideas. The papers have in part appeared in scientific journals and in part in private letters to scientific colleagues. We have been struck with the method which he describes (in the papers "On the Detection of Germs and Organic Matters in the Atmosphere and the Air we Breathe") for the collection of the moisture in the air, the deposited water to some extent precipitating also the impurities. For this purpose Mr. Smee employs an ordinary glass funnel drawn out to a point at the narrow end and sealed. The funnel is filled with ice, the effect of which is to cool the exterior wall of the funnel upon which the moisture in the air slowly condenses. As this moisture accumulates it trickles down to the point of the funnel and may be collected in any convenient vessel placed below to receive it. The deposited liquid when dried over sulphuric acid on a microscopic slide deposits, he writes, remarkable crystals. The delicate odour of flowers is quite apparent in the aqueous deposit. Mr. Smee considers that nitrogenised bodies are present in a crystalline deposit, and in the crystals obtained from fluids deposited in the wards of hospitals where zymotic diseases exist the curious property was noted that they deliquesce after formation and then recrystallise in other forms. This method, which the author calls "cold distillation," seems to us to be worthy of further study and application, as perhaps it may throw some light upon the nature of the organic impurities of the atmosphere. Other papers in this publication refer to Water-supply, the Chemistry of Albumin and Fibrin, Sounds and Fog, and House Cisterns. On this last subject the author gives a rough sketch of a form of cistern which would meet the requirements, he thinks, laid down by the inspectors of the Local Government Board in their report on the East London Water-supply during the drought. Mr. Smee's cistern would not answer at all because in his sketch the service-pipe is placed at the top. In the event of the main supply being shut off, therefore, it would be impossible to draw off the water in the cistern except by means of the tap which he places below at the termination of a conical end, but then this would contain all the deposited impurities of the water.

The Acute Contagious Diseases of Childhood. By MARCUS P. HATFIELD, A.M., M.D., Professor Emeritus of Diseases of Children, North-Western University Medical School; Professor of Diseases of Children, Chicago Clinical School; Physician, Wesley Hospital. Chicago: G. P. Engelhard and Co. 1901. 8vo. Pp. 142. Price $1.—This little work is practically a *résumé* of the views of the later French and German pediatricians and the compiler has added thereto a few facts gleaned from his own experience. Eight diseases only are dealt with, and these include influenza. In treating the latter disease the author seems to think that every case should be regarded as probably primarily pulmonic in type, and that the medicines should be given with pulmonary complications in view. After attacks of scarlet fever sulphur disinfection is recommended, but we can hardly believe that the author intends to advise this method of disinfecting clothes and bedding or other articles the penetration of which by means of sulphurous acid is extremely difficult. The bacteriology of scarlet fever is somewhat fully dealt with and four rough diagrams are given. There are no other illustrations. In the treatment of variola salol is strongly recommended on the authority of Dr. Begg who, practising in China, has seen a great deal of the disease. He claims that in full doses frequently repeated salol hinders the full development of the pustules, tends to cause them to dry up at an early stage, and diminishes the itching and the need of scratching. A little more care might have been bestowed on the correction of the proof-sheets, for there are a good many mistakes, and two sentences on page 70 are hardly intelligible.

Analytical Records

FROM

THE LANCET LABORATORY.

PRIDEAUX'S PURE MILK CASEIN.

(PRIDEAUX'S PURE CASEIN AND LIFE FOOD COMPANY, LIMITED, MOTCOMBE, DORSET.)

THIS is an admirable product occurring in the form of a perfectly white, light, flaky powder soluble in water. It is separated from the milk by a special process which practically eliminates milk proteid in a pure and soluble state. Its solubility is a valuable feature of the preparation. It is practically tasteless and keeps indefinitely. Our analysis gave the following results which virtually confirm those already published: casein, 86·47 per cent.; lime salts (phosphates), 1·92 per cent.; soda salts, 1·01 per cent.; milk fat, 3·60 per cent.; and moisture, 7·00 per cent. If the moisture be entirely excluded this analysis shows no less than 93 per cent. of pure proteid. Careful testing for milk sugar was attended with negative results. We understand that the best quality of milk is used for the purpose and is obtained from English cows. We have not examined a preparation containing so high a proportion of proteid, and when this is coupled with the fact that this casein is soluble it is obvious that the preparation must possess extremely high food value. It readily peptonises and is therefore easily digestible. Soluble casein may have a very wide number of useful applications directed chiefly towards raising the flesh-forming value of a number of foods. Thus it could be added to bread, soups, beef-tea, tea, coffee, cocoa, and many other foods with undoubted dietetic gain. Moreover, it is free from milk sugar and hence could be used with decided advantage for the preparation of foods for diabetic patients. It contains a certain proportion of fat which, except by a series of laborious operations, and then only on the experimental scale, cannot be separated from the proteid. Soluble casein might be advantageously associated with beef preparations, especially those which are mere extracts. The solution of this casein presents the same characteristics as milk; it is slightly opalescent, but assumes exactly the opacity of milk when common salt or a little alcohol is added to it. Further, on boiling the solution and concentrating it a scum appears on the surface (albumin), just as when milk is concentrated by boiling. Dr. R. Hutchison has suggested[1] the preparation of a diabetic milk by separating from ordinary milk the casein, re-dissolving the proteid in weak alkali, and adding cream and a little saccharin to the product. Prideaux's soluble casein would appear to be excellently adapted for this purpose. Considering that it is the flesh-forming constituent of a natural food and that it is carefully prepared by a special method it must necessarily be a very powerful and concentrated form of nourishment.

TABLOID GALBANUM COMPOUND.

(BURROUGHS, WELLCOME, AND CO., SNOW HILL-BUILDINGS, LONDON, E.C.)

As is well known, galbanum is associated with assafœtida in the pilula assafœtidæ composita, assisting the stimulant, antispasmodic, expectorant, and laxative properties of the assafœtida. The tabloid galbanum compound contains four grains of the active official preparation.

CONCENTRATED CHICKEN SOUP.

(F. W. GODYE AND SONS, NELSON-STREET, BRISTOL.)

This soup is prepared in Ontario and is preserved in tins. We know for transport purposes that tins are most convenient, but we should regard it with satisfaction if this excellent soup could be preserved just as effectively in glass jars. However, a very careful examination of the liquor did not show the slightest sign of metallic contamination. The soup is of excellent flavour, possessing that glutinous property characteristic of freshly prepared chicken soup. The soup contains entire cooked portions of the chicken. It should make an excellent emergency ration and portable food, but, as we have hinted, there is a prejudice against tinned food which is not altogether without a reasonable basis and in the present instance the use of glass vessels would obviate this prejudice. In that case this soup would leave little to be desired.

UNSWEETENED CONDENSED SWISS MILK (EDELWEISS BRAND).

(THE SWISS MILK SOCIETY: LONDON AGENTS, H. GILBERTSON AND SONS, LIMITED, 11, ST. ANDREWS-STREET, HOLBORN-CIRCUS, LONDON, E.C.)

The feature of this excellent milk is, as analysis shows, that it is concentrated to approximately about one-third without the addition of sugar or of any preservative. The milk is quite sterile and keeps well even after the tin is opened. We could find no chemical preservative. The milk is of a creamy consistence and possesses a rich creamy flavour in which only the smallest suspicion of "scalding" taste can be traced. It is recommended on the label of the tin to mix one part of the concentrated milk with two or three parts of water. For the purpose of analysis we adopted the former proportion and the mixture so obtained gave the following results: total solids, 11·30 per cent.—consisting of milk fat, 3·17 per cent.; milk sugar, 4·00 per cent.; proteid, 3·51 per cent.; and mineral matter, 0·62 per cent. This shows that in accordance with the directions for use a milk of good quality is obtained. Especially is it important to add that all the cream is retained. We understand that the concentrated milk is prepared under bacteriological control and supervision, and, moreover, that the cows are fed for at least

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[1] THE LANCET, June 22nd, 1901, p. 1753.

10 months of the year on pasture and not stall-fed, a statement which is quite consistent with the excellent character of the milk which we examined. The fact that this milk is free from added sugar is an undoubted advantage for many dietetic purposes.

COFFEE AND CHICORY ESSENCES.

(ALEXANDER ELDER AND SON, BEVERHALL-ROAD, EDINBURGH.)

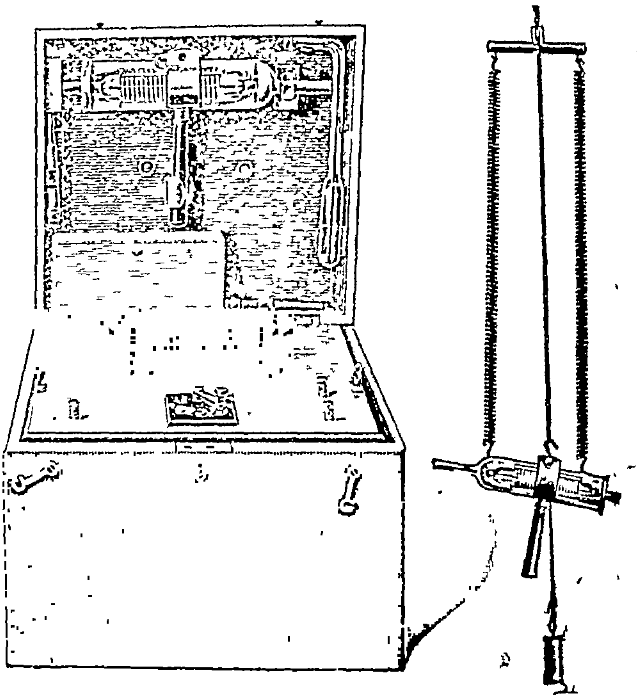
Two coffee and chicory essences were sent to us for examination, the first being sweetened and made syrupy with sugar, and the second containing no added sugar, but a small amount of chemical preservative being added to both. We do not doubt the genuineness of these preparations since we were able to extract from them the aromatic oils of coffee as well as caffeine. The manufacturers have succeeded to a large extent in retaining the agreeable aromatic properties of the freshly roasted berry. Our analyses gave the following results. Sweetened: moisture, 30·37 per cent.; extractives and sugar, 69·63 per cent.; caffeine, 0·22 per cent.; and mineral matter, 1·32 per cent. Unsweetened: moisture, 69 89 per cent.; coffee extractives, 30·11 per cent.; caffeine, 0·48 per cent.; and mineral matter, 2·25 per cent. In our opinion the unsweetened is the better preparation of the two. The analysis of a great number of coffee extracts on the market were recorded in THE LANCET Special Analytical Sanitary Commission on the Composition and Value of Coffee Extracts in THE LANCET of July 4th, 1894, p. 43. It will be found that the preparations now under examination compare very favourably with the extracts then analysed and chiefly in regard to the proportion of the stimulating principle—caffeine.

New Inventions.

MEDICAL OZONISERS.

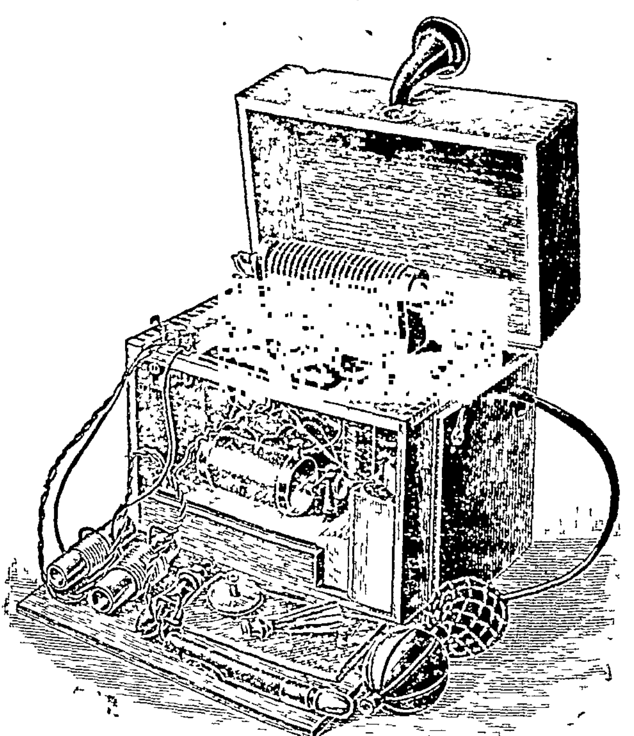
OZONE has had relatively but little application in therapeutics, chiefly, perhaps, on account of the difficulties associated with its production, but now that inexpensive and, moreover, portable apparatus for the production of ozone is obtainable there is no reason why ozone should not be tried more extensively in medical practice in a number of ways in which its well-known powerful oxidising property might be made use of. It is this property which renders ozone an unstable body and in the presence of moisture makes it fatal to germs, and so suggests its useful application in the treatment of wounds, for its cleansing and healing effects are due to this same instability—that is, the ease with which it gives up oxygen in a nascent and powerfully active state. The sterilising power of ozone is well shown when ozonised air is bubbled through water infected with the typhoid bacillus; its decolourising power is also easily shown by passing ozonised air through water of a brown or peaty colour, and it has been suggested that ozone might be used with advantage to bleach public water-supplies which show a yellowish brown tinge due to the presence of vegetable matter. Its destructive effect upon offensive matters, again, may be easily demonstrated by passing ozonised air through water foul with sulphuretted hydrogen. Its freshening effect upon the air of an apartment, a sick chamber, a hospital ward, or a crowded place is soon obvious where an ozone generator is at work. All these remarkable properties suggest how ozone might be used with distinct advantage in medicine and in surgery. It has been used in the form of ozonised air for the purpose of inhalation, exercising a disinfectant action along the respiratory tract and effecting a distinct increase in the number of red corpuscles and thus ministering to an anæmic condition. The simplest way, perhaps, of producing ozone is by means of the electric discharge, although there are other methods, which, however, are not suitable for medical purposes. Amongst the ozone generators which we have examined from time to time, none, perhaps, is so compact or so certain in action as the particular one known as the "Andreoli generator." It is very simple in construction, consisting of a partially-exhausted glass tube with an aluminium wire passing down the whole interior of the tube provided with a terminal for connecting with one of the wires from the induction coil. Outside the tube are a number of parallel coils of aluminium almost completely enveloping the vacuum tube. The pole of the vacuum tube is connected with one wire from the induction coil while the aluminium coil is connected with the other wire. The discharge proceeds silently and a steady production of ozone ensues. The battery power need not be very great, indeed, the whole apparatus complete, including battery coil and generator, may be contained in a portable case. A portable ozoniser answering to this description is illustrated in the accompanying figure (Fig. 1). It is known as the "Alpha medical ozoniser and 'applicator,'" and comprises a battery of

FIG. 1.



The "Alpha" Medical Ozoniser and "Applicator."

FIG. 2.

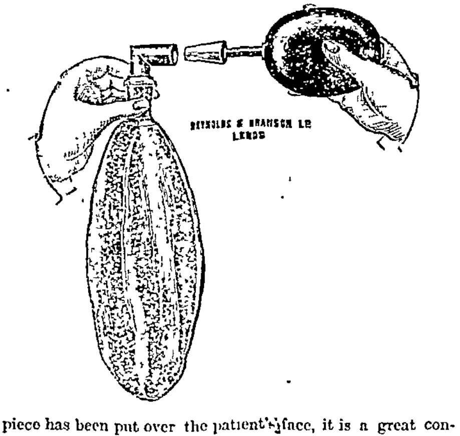


The "Beta" Ozoniser and Inhaler.

four so-called dry cells fitted with a regulating switch, an [illegible], and immediately behind it is the ozone generator. In the lid of the case is seen what is known as the "applicator," which is designed for the application of a stream of ozonised air to suppurating or gangrenous surfaces. On the right of this "applicator" is seen a glass tube which is used for the purpose of forcing ozonised air through water with a view to its purification and sterilisation. To the right of the illustration the "applicator" will be seen suspended on spiral wires provided with a counterpoise, so that the instrument may be suspended from any convenient point out of the way of the operator or patient. All the parts and accessories fit neatly in the case.

Another form of ozoniser is seen in Fig. 2 In this case provision is made for inhaling the ozone produced through a trumpet-like exit-tube fitted in the lid. For this purpose the lid is closed over the generator and air is gently aspirated over the coil from beneath. In this way ozonised air may be inhaled. This apparatus, however, is also an ingenious combination of other electrical applications. Thus, by means of the two switches shown in the illustration the current (primary) can be turned on for actuating a small electric lamp for the examination of the throat or nose or for administering a current (secondary) through the body by means of two terminal handles or by plate electrodes or by wire brush, all of which are shown in the illustration. This handy little apparatus is known as "the 'Beta' ozoniser and inhaler" and weighs only 11¼ pounds, while its dimensions are 10 inches by 6¼ inches by 9¾ inches. We have made a number of experiments with regard to the ozonising properties of this apparatus and with satisfactory results. The effect of ozone upon fœtid air is remarkable—it gives a sense of freshness which suggests its useful application in the sick room. Of course, the amount of ozone obtainable from the tube is proportional to the amount of electrical energy used. By means of a transformer for which special terminals on the ozoniser are provided ozone may be generated in powerful quantities by the alternating current from the main These examples of ozonisers were submitted to us for inspection and trial by Messrs. Allen and Hanburys of 48, Wigmore-street, W.

A SIMPLE FORM OF PUMP FOR INFLATING THE ETHER-BAG INSTEAD OF BY BREATH INFLATION.



THERE are times during the administration of ether when the bag collapses and when it has to be inflated. Then, too, at the commencement of anæsthesia, soon after the face-piece has been put over the patient's face, it is a great convenience to have a bag nearly full of air ready to affix to the ether apparatus Hitherto the anæsthetist has often had to inflate the bag with his own breath—a practice by no means pleasant or advisable either for patient or medical man. With this form of pump the difficulty is easily overcome and already I have found it very useful in my practice. It was shown at the meeting of the Yorkshire Branch of the British Medical Association on March 27th, 1901. It was made for me by Messrs. Reynolds and Branson, Limited, Leeds.

HERBERT J. ROBSON, M.R.C.S. Eng., L.R.C.P. Edin.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A QUARTERLY meeting of the Council was held on July 11th, Sir WILLIAM MAC CORMAC, Bart., K.C.B., K.C.V.O., the President, being in the chair.

The PRESIDENT reported the result of the election of three members of Council on July 4th, as already reported in THE LANCET of July 13th, p. 98. Mr. A. W. Mayo Robson, Mr. W. Watson Cheyne, and Mr. R. Clement Lucas were introduced, made declarations in the terms of the oath prescribed by the Charter of 1800, and took their seats as members of the Council.

A report from the Board of Examiners in Dental Surgery was read, approved, and adopted. The chief alterations made in the regulations for the Licence in Dental Surgery are as follows: additional courses in dental bacteriology and dental materia are required from students who enter at a recognised dental hospital and school on or after May 1st next; and the second professional examination is divided into two parts. This latter change is to come into force at once.

A report was received from the Committee of Management, and as arising out of this report the Council referred to the Committee of Management for consideration and report whether or not it is desirable that some alteration should be made in the regulations relating to the preliminary examinations in arts for candidates for the diplomas of the two Colleges.

At the last meeting of the Council a Member of the College was asked to explain his association with two pamphlets. The explanation required was considered by the Council and accepted, but the Council expressed to the Member the hope that he would no longer associate himself with these pamphlets.

A letter was read from Mr. Thomas Bryant reporting the proceedings of the General Medical Council at their late session. The thanks of the Council were given to Mr. Bryant for his services as the representative of the College.

The PRESIDENT reported that on July 4th, the day appointed for a meeting of Fellows, the required quorum of 30 was not obtained, 15 Fellows *only, including five members* of Council, having attended.

Mr. G. H. MAKINS applied for leave of absence from some of the meetings of the Board of Examiners on account of his presence being required at the meetings of the Government Committee on changes in the Royal Army Medical Corps.—Leave was granted.

The best thanks of the Council were given to Mr. Henry Morris for a donation of books; they included seven volumes of anatomical plates and the works of Albinus.

As already reported in THE LANCET, Mr. H. G. Howse was elected *President* and Mr. T. R. Jessop and Mr. F. Howard Marsh were elected Vice-Presidents. The following committees were appointed:—Museum Committee: Mr. Owen, Mr. Morris, and Mr. Cheyne. Library Committee: Mr. Pick, Mr. Page, and Mr. Godlee. Committee for General Purposes: Mr Cooper, Mr. Gould, and Mr. Langton. Finance Committee Mr Butlin, Mr. Tweedy, and Mr. Willett. The following professors and lecturers were appointed:—Hunterian Professors: Mr. Charles Stewart, Mr. Frederick Gymer Parsons, and Mr. William McAdam Eccles. Arris and Gale Lecturer: Dr. Thomas Grigor Brodie. Erasmus Wilson Lecturer Dr. Charles Powell White.

A unanimous vote of thanks was accorded to Sir William Mac Cormac for the manner in which he had for five years discharged the duties of President.

The next meeting of the Council will be held on August 1st.

THE LANCET.

LONDON: SATURDAY, JULY 20, 1901.

The London County Council and Penny Ices.

FOR many years we have pointed out the dangers attending the penny-ice trade. Accidents have occasionally occurred, and serious cases of illness, sometimes followed by death, have been recorded which were traced to the eating of penny or halfpenny ices purchased at the street-corners. The press at large have given publicity to these facts and at least some provincial towns have been moved to take action—notably, the corporations of Brighton and Liverpool. At last the London County Council has followed this good example. So far back as in our issue of August 24th, 1878, p. 264, we described in detail the penny-ice trade and then insisted that it would be comparatively easy to legislate on the subject. We explained that the penny-ice man differed in a remarkable manner from the generality of Englishmen of the same humble class. He was actuated by a much higher ambition and therefore would be more careful not to transgress the law. As a rule, these Italian itinerant street-vendors are very abstemious and thrifty people. They do not waste their money on drinking or other forms of extravagant merry-making. On the contrary, their one object is to save money so as to be able, after from 10 to 20 years' hard work, to return to their own country. They reckon in that time to be able to hoard up enough money to buy a small farm, probably in the Calabrian mountains, with the right of shooting over the neighbouring hills. Thus, the penny-ice man looks forward to ending his days as a landed proprietor and a sportsman. Persons actuated by such an ambition are generally orderly citizens and will not compromise so fair a future by getting in the bad books of the police.

Nevertheless, there is a serious difficulty in the way of enforcing the needed sanitary reform. The shooting licence and the farm can only be purchased if there is a very large profit on the penny ices. On the other hand, if the penny-ice man is compelled to live in a healthy tenement and to make his ices on premises where the surroundings are so well ordered that there shall be no risk of contamination, then it is to be feared that a large share of the profits will be eaten up in rent. So far as possible, therefore, these Italians cluster together, notably on Saffron-hill. They thus not only secure the companionship of fellow-countrymen, but they have close at hand all that they need for their trade. Ice in sufficient quantities and cheap is not to be obtained in all parts of London at four o'clock in the morning. It is at this early hour that the penny-ice man sallies forth with baskets and old bits of cloth or flannel to buy his store of ice. Then he must also find close at hand the milk, eggs, and colouring material that he needs and at once proceed to make his ices. It is only when this is done and the mixture can be left to freeze that he begins to think of breakfast and of dressing himself for his day's outing. Doubtless the fastidious would prefer that he should dress himself properly, and in any case that he should wash himself before making the ices, but this, we fear, is altogether too ideal a conception to be practical. It would necessitate his rising even earlier in the morning or starting later on his rounds—and many of these men go five or six miles, and sometimes even further, before they can reach a place that has not already been secured by some competitor.

The Public Health Committee of the London County Council recently brought up a report which was adopted by the Council and which recommended legislation forbidding the manufacture, sale, or storage of ices in any cellar or room in which there is an inlet or opening to a drain, or in any other place where there is any risk of contamination or infection. Failure to notify any case of infectious or contagious disease occurring among persons employed in this trade would lead to summary conviction and a penalty not exceeding 40*s*. Finally, every ice- "cream" vendor must exhibit on his barrow a notice giving the name and address of the person from whom the ices have been obtained. Many ices are made in small backyards of overcrowded tenement houses. In these yards there is generally one closet, or more than one, frequently in a very filthy condition, and there is a drain in the yard for the rain-water, which is often out of order or which has the trap broken. It is likewise very doubtful whether these yards are systematically swept and cleaned out. Should a law such as that which is now proposed be enforced, where are the ice-men to make their ices? It is not proposed to suppress the penny-ice trade altogether, nor is it desirable, we take it, to create a monopoly in favour of some large establishment that may offer the required sanitary guarantees. Yet somewhat similar monopolies exist with regard to a similar class of men—namely, the piano-organ grinders. These men cannot, as a rule, afford to buy a piano-organ, but must hire it from the middle-man. Cab-drivers also generally have to hire their cabs. From the public health point of view it would certainly be a great advantage if the ices were made in large and properly controlled establishments, a sort of wholesale penny-ice manufactory, where the itinerant penny-ice man could go for his daily supply. But it is to be feared that a great portion of the profit is due to the fact that the penny-ice men themselves manufacture the ices. If their profits had to be shared with a wholesale manufacturer they might have a much longer time to wait before they became landed proprietors in their own country. Yet there is so much economy to be realised in the subdivision of labour and in wholesale processes that something in this direction is perhaps possible. Like all economic revolutions it would, however, cause considerable disturbance and some distress. There are not only the penny-ice men to be considered, but the retail tradesmen who supply what they require, and here the question arises as to whether the ices are always made with suitable ingredients.

When we inquired into this matter we found that though cochineal was generally used to simulate raspberries or strawberries aniline-red crystals were also sometimes employed. With the latter 30 gallons of ice coulds be coloured for 1*d*., while it would cost 1*s*. 6*d*. to colour the same quantity with cochineal. Frozen water and sugar and colouring matter which can be sold as raspberry ice cost about 1*d.* the pint. But the chief demand is for "cream" ices and these cost much more to produce. There must be a little milk thickened with arrowroot, and even though an egg or two may be occasionally employed too many are required to colour the ice economically, and therefore saffron or turmeric is added. But as saffron is about 20 times dearer than turmeric the latter is used when the customers are not over particular. Of course, a little cheap and rotting fruit will greatly "improve" the "delicacy," and some inexpensive gelatin of suspicious origin will give body and consistency to the mixture. Altogether there are various economical contrivances by which the value of the ices can be enhanced, though these are not free from danger to health. Therefore it would indeed be a great advantage if instead of being made in the secrecy of a backyard and in proximity to an overflowing dustbin these widely consumed "delicacies" were manufactured on large and well-managed premises, specially arranged for that purpose, where responsible persons would have a reputation to maintain which it would not pay to lose for the sake of effecting some petty economy. It does not suffice to enact laws condemning unwholesome processes and insanitary surroundings—some thought must be given to the creation of opportunities by which the penny-ice men will be able to observe the new regulations.

The Sanitary State of Hong-Kong.

WE hear from more than one source that the present sanitary state of Hong-Kong is most unsatisfactory, and there is much evidence to show that for many years past very little has been done in the way of improving the state of affairs. On the contrary, in some directions changes have taken place for the worse. It seems that as long ago as the year 1875 the late Dr. AYRES reported on the sanitary condition of the colony in a most unfavourable sense, but finding that no improvement resulted from his endeavours in that direction he was led to give up a hopeless struggle. A few years later, in 1882, Mr. OSBERT CHADWICK made another report, which was in due course printed and presented to both Houses of Parliament. Mr. CHADWICK recommended amongst other things that 600 cubic feet of air space per head should be provided in all rooms which were sub-divided into cubicles and that the ground surface of buildings should be covered with concrete. The latter recommendation was enforced after the plague epidemic of 1894, but the former recommendation has not even yet been adopted, and the amount of air-space insisted upon is at the present time only 400 cubic feet per individual. Many other alterations were advised by Mr. CHADWICK, but they have not been carried out Some of the most important of the improvements which he recommended had reference to the dwellings of the poorer classes—that, for example, the houses should be provided with continuous back alleys, and that insanitary properties should be purchased and demolished. Mr. CHADWICK concluded his report with these words: "I trust that even should the suggestions be found undesirable or impracticable my report will show the necessity for strong and complete measures of sanitation, and I trust that they will be undertaken for the immediate benefit of the public health without waiting for the necessity to be demonstrated by the irresistible logic of a severe epidemic." Twelve years later, on the outbreak of an epidemic of plague, the necessity which existed for the reforms was abundantly proved.

The attention of the inhabitants of Hong-Kong has lately been strongly directed to a consideration of the conditions under which they have long been and still are living. The presence of bubonic plague has impressed them, and a series of trenchant articles written by Mr. ALFRED CUNNINGHAM has apparently for the moment caused their chronic apathy to be replaced by a feeling of excitement approaching panic. The articles have been republished in the form of a pamphlet[1] which contains, also, a reprint of leading articles bearing upon the subject which have appeared in the *Hong-Kong Daily Press* and the *China Mail*, and some letters which have appeared in the former paper. There appears to be no shadow of a doubt that the drainage of Hong-Kong is inadequate, that there is not enough water to flush the sewers, and that the soil is saturated with decomposing fæcal matter. A Sanitary Board exists, but this Board has no administrative functions, and the recommendations of the Board are sometimes wholly ignored. The responsibility for the present state of things therefore rests with the Executive Government—that is to say, with the Colonial Office. Dr. F. W. CLARK, the medical officer of health of Hong-Kong, has lately (May 30th, 1901) succeeded in getting the Sanitary Board to pass two resolutions recommending the Government to make arrangements for flushing the sewers. The first resolution was as follows:—

> "That the board recommend the Government to utilise all the fresh water which now runs to waste in the trained and untrained nullahs of the city by building dams and forming tanks for the automatic flushing of the sewers and storm-water drains."

The resolution is so obviously sensible that it seems at first sight curious that Dr. CLARK should have had any misgiving as to the effect of such a recommendation passed by the Sanitary Board. It is in this connexion that we go into detail in regard to the matter. Dr. CLARK in the course of his speech said that the position of the Board recalled the parable of the importunate widow, and the resolution was strongly criticised by the president of the Board, the Hon. W. CHATHAM, who presumably represented the Government as an official member. The ground of opposition of the official nominee was that the nullahs were sometimes dry and that water was therefore not always available, and that it was especially liable to be deficient in quantity when it was most required—that is to say, during the hot season. But it must be said that Dr. CLARK did not propose to rely solely on this source and his next resolution (as he pointed out, the necessary corollary of the first) was that a supplementary supply of sea-water should be pumped to make good the deficiency. The resolution was as follows:—

> "That the Government be requested to again consider the question of the flushing of the sewers and storm-water drains

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[1] The Need of Municipal Freedom in Hong-Kong, by "Scrutator," with articles and correspondence thereon, reprinted from the *Hong-Kong Daily Press* and *China Mail*. Hong-Kong: The *Daily Press* Office, 14, Des Vaux-road. 1901.

of the city with sea-water pumped from the harbour to suitable storage tanks."

Both these recommendations were passed and the Board then discussed a third motion, having regard to storm-water drains. Dr. Clark moved :—

"That the Government be requested to consider the advisability of trapping all inlets to the storm-water drains, in view of the fact that the 'report on the latrine and urinal accommodation of the city and its connexion with the fouling of the storm-water drains,' forwarded to the Government in 1899, showed that the contents of the storm-water drains are as foul and in some cases even fouler than the contents of the sewers."

The fact that such advice on the elements of sanitation has to be forced on the attention of the Government of Hong-Kong year after year clearly shows the existence of a state of things which is discreditable to the authority responsible and dangerous to the community.

Mr. Cunningham's articles, to which a brief allusion has already been made, are vigorously written. They display in some places a warmth of feeling which it is not necessary or desirable that we should imitate, but which is doubtless quite excusable in one compelled to live under such uncomfortable conditions and suffering daily and hourly from the neglect of the governing authorities to carry out their obvious duties. It cannot be pleaded that the colony is too poor to be able to afford to pay the expense necessary to ensure efficient sanitation. Sir Henry Blake, in his report on the financial condition of Hong-Kong, lately pointed out that the condition of the colony was "most flourishing—that its future promised to be bright and that there was a large excess of revenue over expenditure." But in almost every respect the general management of the colony appears to be open to improvement. The deficiency of the water-supply has been mentioned, but in addition to this the inhabitants have other causes of complaint. The roads are bad, the town is overcrowded, and the sanitary staff is undermanned. "The sanitary staff," says Mr. Cunningham, "consists of a doctor and about 20 inspectors who are not paid sufficiently well to induce a man with sanitary training and experience to accept such a post." A single sanitary officer is certainly not enough ; it is necessary that he shall occasionally be away on leave, and it is stated that it happened that he was away lately on the outbreak of an epidemic of plague. The condition of the dwellings of the poor in Hong-Kong forms a constant source of danger to the whole town. The houses are greatly overcrowded ; they are ill-lighted and insufficiently ventilated. Vested interests are treated tenderly in Hong-Kong, and Mr. Cunningham does not darkly hint—he plainly says : "The unofficial representatives in the Legislative Council are concerned in these vested interests." Such an accusation cannot be allowed to pass without inquiry. The health of the people of Hong-Kong depends to a large extent on the sanitation of the place. Cases of plague must in the ordinary course be occasionally imported. The spread of the disease in the town will depend largely on its hygienic conditions. Overcrowding and insanitary dwellings will have their effect in increasing the number of cases and the mortality. It is said that the overcrowding is actually encouraged by the action of the "unofficial representatives of the executive council." Such a statement, publicly made, widely spread and uncontradicted, certainly deserves the attention of the Colonial Secretary.

This alleged scandal forms but one part of the subject. Whatever the truth may be about this particular accusation we are more concerned to show that there is no doubt that the whole question of the sanitation of Hong-Kong requires a thorough and impartial investigation and prompt action that the place may be put into a sanitary and a civilised state with the least possible loss of time. Dr. Clark, the medical officer of health, has apparently done and is doing the best he can under the most trying conditions. He requires support and help. Nothing is more discouraging to a man whose heart is in his work than a knowledge that he has not the power to ensure that what ought to be done shall be done, and done quickly. The persistency of the importunate widow was not an unfeminine characteristic, but a Sanitary Board should be invested with some power more immediately effective than importunity.

The Public Hospital and the Private Individual.

The voluntary support of charitable institutions has always appealed strongly to the generosity of Englishmen. It is well in accord with the national character that men who have inherited a great name and great wealth, or who have amassed large fortunes through commercial enterprise, or, which is rarer, who have met with exceptional professional success, should spare a portion of their wealth to some benevolent institution in which they are interested and of the excellence of which they are convinced. With different peoples the expression of philanthropy, as of other qualities, takes different forms. In Great Britain it is natural and congruous for such expression to take the form of unostentatious substantial benefit conferred upon less fortunate or suffering fellow-citizens. In ancient Rome the victorious and enriched conqueror thought that he could in no way better benefit his fellow-men than by providing some gigantic spectacle. A day's amusement seemed the appropriate offering due from his aggrandisement to his humbler fellows, and the plaudits of a multitude gratified his ears when at his personal expense some score of gladiators were butchered to make a Roman holiday.

Even in later days than those of classic Rome the love of ostentation that is deep-rooted in the nature of many peoples has led successful men to demonstrate their public benevolence by providing some exceptional opportunity for general festivity and enjoyment. But the sober and solid Anglo-Saxon character prefers more lasting benefits—to endow a hospital, to provide a free library, or in some way or other to advance the public good on a large scale appeals to us as a finer and more satisfactory expression of practical goodwill towards our fellow-creatures. In this way many a person, whose name is perhaps unknown except in the small limits of his native place, has conferred the truest benefits on successive generations of fellow-townsmen. And of men who have on a huge scale advanced the public welfare by tremendous efforts of philanthropy and self-sacrifice Great Britain has provided probably more than any other one country as yet, though undoubtedly the United States of America run us close. In every class, in every sect, in every social arrangement there will be found among us some name piously remembered for great philanthropic exertions. The political and religious freedom of the country, indeed, has fostered a noble competition of unselfishness and stimulated efforts that are apt to languish where State provision is too predominant. It cannot for a moment be maintained, then, that there is a lack of charitable feeling in Great Britain, or that men of wealth are chary with money when public benevolence is needed, and yet a review of the financial position of some of the great London hospitals might well suggest the opposite conclusion. To be in debt is almost the usual condition of a large general hospital. Its name may be a byword for skill and kindness, and thousands of poor folk yearly reap benefits within its walls. Great physicians and surgeons may have been fostered in its wards, and the richest and the noblest may have had reason to bless the institution where such abilities have been developed. Is it not a paradox that institutions such as these should have constantly to beg for money to continue their very existence and to seek alms that they may be able to confer their blessings on the sufferers of the city? If any gifts deserve SHAKESPEARE'S beautiful epithet "twice blessed" most assuredly they are those that help the needs of a great hospital. Here it is a double work that is constantly going forward. It is not only that the sick poor are being ministered to, but day by day the teachings of experience are being given to students in whose hands mainly lies the future physical welfare of the nation.

The individual rarely realises how much he may owe to the opportunities for training that can only be provided by great hospitals. Such reflections as we have expressed must have assuredly been in the mind of Lord PORTMAN when he gave his generous thank-offering of £1000 and a yearly subscription of 10 guineas to Guy's Hospital. Lord PORTMAN had been ill, and with his contribution to the funds of Guy's Hospital he wrote a letter stating that he owed his recovery under Providence to the medical men and nurses all of whom had been trained at that institution. Here is such a proof of gratitude and generosity as cannot be too widely known or too warmly praised. We should have no need to wonder whether we can provide on this side of the water a philanthropist of the vast power and the patriotic spirit of certain Americans if Lord PORTMAN'S example were but to be generally followed by the many men of wealth and position who can well afford to walk in his steps. Let those who have the wealth and the opportunity realise that their duty is not really finished when they have paid their medical man's account, but that something is, indeed, due from them to the hospital which sent him to their aid properly equipped for the service which they need. Such thank-offerings as this of Lord PORTMAN resemble, but are more than, the votive offerings hung upon the walls of the temple by mariners saved from shipwreck. They are prompted, no doubt, partly by feelings akin to that reverent gratitude of old, but with the enlightenment of a later age they not only ease the conscience of the donor but they also go far towards securing an equally happy relief from suffering for others who may be stricken. Very many rich men and women fall sick, recover, and are grateful to the medical men under whose care their illness has had a happy termination. What proportion, we wonder, ever found in their recovery a reason for subscribing in some way to a hospital? Yet it needs but little reflection for them to see that such a call upon their charity is really made with all justice. We do not disregard the large number of charitable gifts that are actually made. We hold that this country can point to no worthier national emblems than to the many great hospitals which bear the proud legend, "Entirely supported by voluntary contributions." What we do insist on, though, is the fine particular opportunity for charity towards hospitals—an opportunity frequently arising and too seldom employed—that Lord PORTMAN has demonstrated to all who may be similarly placed by his contribution to the funds of Guy's Hospital.

Annotations.

"Ne quid nimis."

PORTABLE ISOLATION AND EMERGENCY HOSPITALS.

A BILL has been adopted by both Houses of Parliament which gives local authorities the power to transfer to the county councils any isolation hospital which they may have built. The object of the Bill is evidently to encourage the construction of such hospitals by extending the area on which the rates to meet the cost may be levied. So far so good; but this does not cover all the necessities of the case. There are two requirements to be considered. First, there are the ordinary cases of infectious disease which need isolation and which occur under what may be termed non-epidemic conditions. It is a comparatively easy matter to make the necessary provision for these. Secondly, there is the possibility of an exceptional, virulent, and widespread epidemic. It is quite certain that the great majority of sanitary authorities are not prepared for such a contingency. There may be one or more isolation hospitals, but they would be insufficient for a really widespread epidemic. As an example of our meaning we may take the epidemic of typhoid fever at Maidstone. During the last two weeks of September, 1897, 509 cases of typhoid fever were notified and it is unreasonable to suppose that a small town of only 32,000 inhabitants, which in no wise anticipated such a severe and sudden epidemic, should have been provided beforehand with isolation hospitals large enough to hold so considerable a proportion of the population. The result was that the Salvation Army barracks, several schools, and other buildings had to be converted into emergency hospitals. This, of course, necessitated some delay, which was mischievous, and the buildings, when secured, had to be fitted up, which meant further delay. Finally, as these buildings were not erected for hospitals they were naturally not suited for the purpose. Still, this was the best that could be done under the circumstances. But cannot something better now be organised in view of future emergencies of this description? Possibly some central authority or authorities—such as the county councils—might lay up a store of portable field hospitals. These hospitals might be built of varying sizes, holding from some 12 to 50 beds each, and any number of them might be set up in rapid succession one by the side of the other. Sanitary authorities would then only have to construct permanent isolation hospitals for what might be regarded by the Local Government Board as the reasonable needs of the district. But any such temporary provision as is here in question should not be allowed to prevent—as conceivably it might—the provision of suitable permanent structures and the acquirement of the necessary site or sites upon which the temporary structures could be erected. Assuming, however, the suggestion to be carried out a telegram to the central authorities could be sent and the hospital, with all the accessories, could be on the spot within 24 hours and could be erected and ready to receive patients in the space of another 24 hours. As the epidemic spread so would more hospitals be sent for. When the epidemic was over the hospitals could be pulled down, disinfected, and sent back with equal promptitude, although we have grave doubts whether, in the case of certain diseases, disinfection could be properly carried out, and such hospitals with the wear and tear to which they would be subject would soon cease to be thoroughly satisfactory. Moreover, in the winter months difficulty might be experienced as regards heating. In summer some such provision as is suggested is already held in readiness in the shape of tents by certain authorities. The local authorities would pay a rent for the use of these hospitals which, in the course of time, might repay the capital expended in their purchase. Assuming the practicability of this scheme efficient and sufficient accommodation might be provided with great promptitude to the poorest local authorities. Under such circumstances there would be no excuse for delay and inefficiency in isolating the victims of an unexpected and far-reaching epidemic.

MYASTHENIA GRAVIS WITH LESIONS FOUND IN THE THYMUS GLAND AND MUSCLES.

CONSIDERABLE attention has been lately paid to the condition known as myasthenia gravis, but up to the present time no pathological change has been demonstrated either in the nervous system or muscles to account for the condition. In the *Neurologisches Centralblatt* for this month, however, there is published by Laquer and Weigert a case in which definite changes were found in the muscles. The case is that of a man, aged 30 years, who in 1896 suffered from giddiness, palpitation, and feeling of weakness after exertion. In 1900 he experienced difficulty in raising the arms and at the same time had drooping of the right upper eyelid; a few months later there was marked weakness in chewing and also in the muscles of the larynx, and after prolonged reading aloud the patient became hoarse. The muscular weakness was well shown in the deltoid muscle. After examination of the patient a severe attack of cardiac failure occurred from which he was with difficulty revived. After four months' improvement took place and he returned to work, but in four weeks he again became weak, with difficulty in swallowing, nasal speech, and weakness of the neck and lumbar muscles, so that he could no longer raise himself. The muscles gave the myasthenic reaction The difficulty in respiration became distressing owing to the paresis of the diaphragm and intercostals, but the patient remained fully conscious till the time of death. At the necropsy there was found in the situation of the thymus gland a tumour about five centimetres in length and breadth and about three centimetres in thickness. It lay in close connexion with the pericardium but did not involve the great veins. From the lungs a tag had become firmly adherent to the tumour. The nervous system and the muscles appeared to the naked-eye to be normal On microscopical examination the tumour was found to consist of small cells, lymphoid cells which form the chief part of the normal thymus, larger epithelioid cells also normally present in the thymus, and Hassall's bodies. In many of the veins within the tumour the walls were destroyed and the tumour cells had grown into the lumen and the same appearance was also present in the arteries. But of most exceptional interest was the condition found in the muscles. In the deltoid and diaphragm it was found that at many points both in the sheath of the muscles and between the muscle fibres there was a great invasion of small lymphoid cells which closely resembled those found in the thymus tumour and to a lesser extent the larger epithelioid cells were also present. The muscle fibres themselves, however, appeared to be normal. In the heart muscle similar foci of cells were found, but much less than in the skeletal muscles. Nothing abnormal was found in the nerves, spinal cord, or brain. The combination of myasthenia gravis with disease of the thymus is noteworthy, and though the same condition may have been present in some cases it is hardly likely that such marked changes in the muscles should have escaped the observation of those who have carefully examined these cases microscopically.

DEATHS FROM LIGHTNING.

Two deaths are reported from Sussex during the thunderstorm on July 6th. Both victims were agricultural labourers and were at work in the fields at the time the storm burst over the district. When the rain came on one sought shelter in a shed situated under some trees, the building having a corrugated iron roof. The lightning struck the building. The labourer was also struck and according to the evidence of the medical witness it was his opinion that the lightning left the deceased by a chain which hung out of his pocket and to which two knives were attached. Rigor mortis set in quickly. In the other case the victim was seeking shelter when he was struck down. He was found in a field drain. His clothes were smouldering. The skin on the right side of the face resembled the condition found in the second stage of burning. The body was scorched in places. Both deaths occurred within a few miles of each other in the Ashdown Forest district.

INCREASING STERILITY OF AMERICAN WOMEN.

DR. GEORGE ENGELMAN of Boston read a paper on the subject of the increasing sterility of American women at the annual meeting of the American Medical Association held in June, basing his conclusions upon numerous cases carefully investigated by himself, the conclusions being confirmed by independent investigators such as Dr. Wilbur of Michigan, Dr. Abbott and Dr. Kuszynsky of Massachusetts, and by the studies made by Dr. Chadwick of Boston of the records for that city of the eighteenth century. The various results closely conformed to one another and substantiated the accuracy of the whole. The main facts and conclusions were as follows. 1. The sterility of women has increased, and their fecundity has diminished, in the United States to an excessive degree of late years. Thus, in the eighteenth century 2 per cent. of American women are recorded as sterile, while the average fecundity was five children per married woman. "At the present day the sterility of the American woman is greater, and her fecundity less, than that of the women of any other nation except France." Thus, in St. Louis, 21 per cent. of women of the labouring classes are sterile, the proportion rising to 24 per cent. among women of the higher classes. In Massachusetts the ratio is 20·2 per cent generally for women, and in the city of Boston it is 23·7 per cent. in the labouring classes. 2. The fecundity of American women was five children per family in the eighteenth century, 4·5 in the beginning of the nineteenth century, "and now at the end of that century it is between 1·8 and 2·1 per family." The exact figures are 2·1 in Missouri, 1·8 in Michigan, and 1·8 in Boston for native American women. With regard to occupations and professions, the interesting fact is recorded that fecundity is lowest amongst women graduates of colleges, the proportion being 1·3 per woman. 3. Comparing these figures with those obtained from the immigrant Irish population, it is found that a high ratio of fecundity prevailed among Irishwomen, the figures being 4·2 for St. Louis, 3·5 for Boston, and five for Michigan. For German women the figures were also high—viz., 3·4 for St. Louis and six for Michigan. The fecundity for all female foreigners in Massachusetts was 4·9. 4. Dr. Engelman records his conviction that an increase of secondary or artificially induced sterility (prevention of conception by chemical and physical measures) is largely responsible for the results amongst American women. Miscarriages, too, are correspondingly frequent—viz., 10 miscarriages on an average in 27 labours among native-born American women, the proportion being the same among negro women. There is not, observes Dr. Engelman, an increase of primary sterility from gonorrhœa, utero-ovarian disease, and the like among American women, thus confirming the previous conclusion that the increase of sterility was due to artificial measures and not to primary disease 5. The ratio of primary sterility in American women during the eighteenth century was 2 per cent., that of Russia is at present 2 8 per cent., and of Norway 2·5 per cent., these figures giving the average proportion in peoples of good moral and physical health. Dr. Engelman concludes that wilful and self-inflicted sterility is the cause of the relatively low fertility of women in America and other countries, and affirms his conviction that the ultimate results are an increase of suffering in women who give themselves up to it, apart from the national evils which may follow in the train of depopulation should the practice become more numerically prevalent and compensating causes be removed.

YERBA MATÉ AND AFTERNOON TEA.

A CHERISHED British institution is, it seems, in danger, if not of abolition at all events of considerable, and possibly of fundamental, modification. "At the 'five-o'clock,'" says Dr. Dedet in the *Archives de Médecine Navale* for June, "the American herb *maté* is about to become the substitute of tea, or of all other refreshing beverages." How and when the popular refection known as "five o'clock tea" first came into vogue is not so clear as might, perhaps, be expected. As in some other institutions of lesser, and of greater, importance the origin of the agreeable function is more or less wrapped in obscurity. According to some authorities lawn tennis and the practice of indulging in the cheering cup of an afternoon stand to each other in the relation of cause and effect, whereas in the opinion of other equally positive observers the custom of post-meridian tea-drinking is referable to the more remote period when the lately resuscitated game of croquet began to invade our grass-plots However this may be, Dr. Dedet desires to sound a note of warning before the substitution which he announces shall have become an irrevocable fact. It was in 1874, while serving in the French navy, that he made the acquaintance of maté for the first time. His ship was stationed at Montevideo and in the *salons* of that lively South American city it was then usual to inhale the vapour of a simmering (*mijotant*) infusion of the leaves from a *bombilla* or narrow-mouthed vessel through a tube ending in a globular mouthpiece. The apparatus apparently circulated amidst the company from mouth to mouth, just as the pipe of peace used to circulate when Red Indian braves were assembled in conclave. At that time maté was unknown in Europe, even as a medicament, but since then, according to Dr. Dedet, it has become known as a first-class *agent d'épargne* and cardiac tonic, with possibly febrifuge qualities as well. An analysis made by M. D. Parodi shows that in 1000 parts of yerba maté (ilex paraguayensis) there are 40 of caffetannic acid, seven of caffeine, with smaller quantities of resin, fat, and essential oil. In people who suffer from diseased kidneys the employment of maté is likely to give rise to hæmaturia. Dr. Dedet had recently a patient at Martigny-les-Bains, an ambassadorial attaché, aged about 40 years, who was accustomed to drink an infusion of 30 grammes of maté in 1000 of water "to enable him to work at night." The diplomatist was a martyr to oxaluria, and by a process of exclusion his disability was unmistakeably brought home to the infusion. At once he abandoned the habit, whereupon his symptoms improved, and at the end of 12 months he was able to report himself completely free from all nephritic trouble. "I think," says Dr. Dedet in conclusion, "that like coffee, tea, &c., yerba maté should be interdicted in persons whose kidneys are defective. If this plant should enter further into European alimentation cases in support of mine will no doubt be recorded. I publish mine to open the road."

PUPILLARY DISTURBANCES IN MENTAL DISORDERS.

AN interesting contribution to this subject has been published in a recent *Thèse de Paris* by Dr. Roger Mignot. Apart from the attention devoted to the clinical study of the pupillary symptoms in general paralysis, but little has been done hitherto in this direction as regards other mental disorders. After a lengthy physiological description of the nervous mechanism which subserves pupillary reflexes Dr. Mignot points out that even as regards general paralysis different authors have arrived at varying conclusions. Thus, to speak only of the pupillary reflex to light, Thomsen and Mendel found alteration of this in 47 per cent., whereas Francotte found it in 88 per cent. of cases of general paralysis. To prevent difficulties in collating results it was necessary that the same technique should be adopted under conditions as nearly similar as possible. Thus Dr. Mignot found that among 22 cases of advanced general paralysis inequality of the pupils was met with in 63 per cent., *abolition of the light reflex in 77 per cent.* and diminution in 22 per cent., and alteration of the accommodation reflex in 50 per cent. As regard non-paralytics, the statistics of authors differed. Oebeker found inequality of the pupils in 2 per cent. and Thomsen found immobility of the pupils in 2·1 per cent. Verga and Castiglioni regarded pupillary disturbances as not special to any form of mental alienation and found them in 74 per cent. of cases of insanity generally. Dr. Mignot from careful and repeated observations concludes that pupillary disturbances are not infrequently met with in organic dementia, senile dementia, paranoia, degenerative insanity, intermittent insanity, and the alcoholic insanities. He confirms the observation of Kraepelin that in dementia præcox mydriasis is frequent (30 per cent. of cases). He moreover shows that pupillary inequality may be met with in 32 per cent., disorder of the light reflex in 62 per cent., and of the accommodation reflex in 12 per cent. of cases of dementia præcox. Characteristics of the latter disorder are the variability and alternation of such pupillary changes which may be present in one form now and be altered to-morrow. Among 12 sufferers from senile melancholia alterations of the light reflex were found in 11 cases, this reflex being found to be absent on occasions in two cases. He concludes that while alterations of the pupillary reflexes are frequent and progressive in general paralysis, organic dementia, and senile dementia they are of a changeable and variable character in the other psychoses above mentioned, especially dementia præcox and senile melancholia.

THE ANNUAL MEETING OF THE MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

THE sixtieth annual meeting of the Medico-Psychological Association of Great Britain and Ireland will be held in the Medical School of the Queen's College, Cork, on Thursday and Friday, July 25th and 26th, under the presidency of Dr Oscar T. Woods, who will deliver an address and distribute medals and prizes on the opening day at 2 P.M. After the President's address the following papers will be read. Mr. John Carswell, Convener of Committee on Inebriates of the Corporation of Glasgow, on the Working of the Inebriates Act; Dr. Thomas Drapes, medical superintendent, District Asylum, Enniscorthy, Ireland, on Insanity and Phthisis; Mr. Michael J. Nolan, medical superintendent, District Asylum, Downpatrick, on Residual Lunatics and Recent Legislation; Dr. F. W. Edridge-Green, London, on Evolution of the Colour Sense; Mr. E. D. O'Neill, medical superintendent, the Asylum, Limerick, on the Superannuation Question— its Effect on Asylum Officials, with Suggestions for further Legislation on the Subject. On Friday, July 26th, commencing at 10 A.M., Professor Dixon and Professor Bergin will read a paper on Stereoscopic Radiography and Dr. Joseph Shaw Bolton, Woodford Bridge, will give a lantern demonstration on Gross Lesions of the Cerebrum; Dr. George T. Revington, medical superintendent, Central Criminal Asylum, Dundrum, Ireland, will read a paper on Mental Conditions Resulting in Homicide; and Dr. W. C. Sullivan, H.M. Prison, Pentonville, London, will make a communication on Crime in General Paralytics. At 2 P.M. Dr. John Keay, medical superintendent, District Asylum, Inverness, will initiate a discussion on the Care of the Insane at Night; Dr. A. R. Urquhart, physician superintendent, James Murray's Royal Asylum, Perth, will deal with the Effect upon Patients of Changes of Asylums; Dr. Daniel F. Rambaut, assistant medical officer and pathologist, Richmond District Asylum, Dublin, will read a paper entitled a Case of Cerebral Hemiatrophy; and Mr. R. R. Leeper, resident physician, St. Patrick's Hospital, Dublin, will take for his subject Three Cases of Melancholia presenting Symptoms of Unusual Clinical Interest. The paper will be illustrated by microscopic specimens and photographs. The social arrangements include an "At Home Day" by the President, Dr. Oscar T. Woods, and Mrs. Oscar Woods, on Friday, July 26th, from four to seven o'clock at the District Asylum, Cork; and an excursion to Killarney on Saturday, July 27th. The annual dinner will take place at the Imperial Hotel, Cork, on Thursday, July 25th, at 8 P.M.; tickets £1 1*s.* each. The address of the honorary secretary is 11, Chandos-street, Cavendish-square, London, W.

THE LONDON SCHOOL NURSES SOCIETY.

THE annual report of the above society for the third year of its existence has just been issued. The object of it is to supply carefully trained nurses to inspect the children in London Board schools with regard to such infectious diseases as ophthalmia and "sore heads," whether the latter be due to tinea or pediculi or other forms of disease affecting the hairy scalp. We learn from the report that according to a statement by the chairman of the London School Board made on Oct. 4th, 1900, the society "sends qualified visiting nurses to the poorest schools to attend to the small ailments of the scholars on the principle that there is no more sure way of securing the health of the people than to arrest small ills at the beginning." We do not quite understand whether by the word "attend" the chairman meant "treat," or whether it is simply that if the nurse finds a child with sore head or eyes she should warn the mistress as well as the parents of the child that they should have the disease medically attended to. If the nurse prescribes treatment we should say that she was going beyond her duty, but if she simply acts as a kind of sanitary inspector we think that the work is worthy of all praise. We observe that the society is supported by voluntary contributions and that the number of schools visited regularly is 63, of which number six are apparently not under the School Board. The remaining 57 we gather are those under the Board and we cannot see why a body which demands by "precepts" a sum of over two millions out of the pockets of the ratepayers, a large proportion of which is wasted upon education which is by no means elementary, should not be able to supply the sum of £500 which, according to the report, is all that the London School Nurses Society needs. To provide means for the examination of sore eyes and sore heads is not nearly so romantic an occupation as issuing precepts for continuation schools and the higher grade education; it is, however, infinitely more useful and probably even that school board bogey Mr. Cockerton would not make a surcharge if the Board were to vote a contribution to the London School Nurses Society.

THE MIDWIVES BILL.

ON June 26th the eighth annual meeting of the Association for Promoting the Compulsory Registration of Midwives was held at 47, Cadogan-square. Lord Balfour of Burleigh, who moved the adoption of the report in his private and unofficial capacity, made a speech upon the matter which is dear to the heart of the association, which speech was reported in our issue of July 6th, p. 46. The association was advised to bring up the question again next session and there is not the slightest doubt that they will do so. We would remind our readers that with regard to this matter there must be no attitude of *laissez faire*. The promoters of the Bill are earnest men and women who know what they want. The medical profession, although some four-fifths of the English practitioners who would have been affected by the Bill introduced last year, had it passed, were against the Bill, yet do not seem to have any very clear idea of what they do want. There is a general consensus of opinion that the present state of matters, by which any woman, no matter how ignorant or unclean, may attend her sisters in childbed, is indefensible. But the difficulties of formulating an alternative and workable system are extreme. When Mr. Tatton Egerton's Bill passed its second reading, which it did on March 9th, 1900, we set ourselves to point out in our leading columns[1] the various modifications which we considered indispensable. As it turned out the Bill never arrived at the third reading and so never got a place upon the Statute Book. But the members of our profession should remember that the subject has by no means been dropped and that in all probability the next session of Parliament will see Mr. Tatton Egerton's Bill, or one very similar to it, introduced again.

A DEARTH OF ASSISTANT MEDICAL OFFICERS.

AT a meeting of the Metropolitan Asylums Board on Saturday, July 13th, the Hospitals Committee reported that owing to inadequate responses to advertisements they were experiencing considerable difficulty in filling vacancies in the medical staff of the hospitals service. The committee believed that the board were not singular in that difficulty, for they understood that the dearth of candidates was felt by many other authorities. The supply of qualified men was evidently falling short of the demand, and that fact appeared to be mainly accounted for (1) by raising the standard of the examinations; (2) by the extension of the students' curriculum to five years; and (3) by the substitution of qualified for unqualified medical men as assistants. Moreover, as was well known, a very large number of medical men had taken duty in South Africa in connexion with the war, many of whom would probably remain there. At the present time the committee were not in a position to suggest a remedy for the difficulty referred to, but with the busy season of the year upon them it was possible that an emergency might arise which would require to be dealt with in an exceptional way and they therefore felt it their duty to ask for the powers set forth in the following recommendation—viz.: "That during the period of the summer vacation special powers be given to the Hospitals Committee to deal in such manner as they may think necessary with any emergency that may arise in relation to medical attendance upon the infectious sick in the hospitals of the Board, a report being made to the Board by them upon any measures which they may have taken in pursuance of this authority." The recommendation was agreed to.

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[1] THE LANCET, March 17th, 1900, p. 783.

THE CHAIR OF PATHOLOGY IN THE UNIVERSITY OF SYDNEY, NEW SOUTH WALES.

As will be seen from a notice in our advertisement columns the chair of pathology in the University of Sydney is vacant and applications for it are invited. The salary, a fixed one, is £900 per annum and a pension of £400 per annum is allowed on certain conditions after 20 years' service. The sum of £100 will be allowed for passage expenses from Europe or America. The successful applicant is to begin his duties on March 1st, 1902. Further particulars may be obtained from the Agent-General for New South Wales, 9, Victoria-street, London, S.W., to whom applications, stating applicant's age (which must not be more than 40 years) and qualifications, and accompanied by four copies of each testimonial submitted, should be sent not later than Sept. 14th, 1901.

THE HOUSE OF LORDS AND THE EARLY CLOSING OF SHOPS.

THE report of the Select Committee of the House of Lords on the early closing of shops has just been issued. It is an instructive and important document though it can scarcely be said to convey any information of a novel character. Nevertheless its publication should be welcome as an effective reminder of a long-standing grievance for which reform is urgently needed. The Committee has satisfied itself that many shops still remain open from 80 to 90 hours a week; and even when the shops are closed there is still work to be done in packing goods, tidying, and making up the books. Eighty-four hours for a week of six days means 14 hours per day; and in 1888 the highest medical evidence was collected showing the injury of such long hours on the health, especially of young persons. On the present occasion this opinion has been repeated by the Presidents of the Royal College of Physicians of London and the Royal College of Surgeons of England respectively. Sir William Mac Cormac further urged that the evil increased with time and, he said, "it is gradual and progressive in its effects, and it goes on, I am afraid, in a cumulative degree." More than 290 petitions or resolutions passed by tradesmen's associations were received in favour of the Early Closing Bill; the London pawnbrokers alone objected. While acknowledging that the early closing associations had effected some good by voluntary action the evil, it was maintained, could only be eradicated by legislation. It is the inmates of the smaller shops who suffer most, and these tradesmen are quite as anxious to close earlier as are the more well-to-do shopkeepers. Nor is there any evidence that such action on their part would greatly inconvenience the poorer class of purchasers. The representatives of trade unions, of co-operative stores, &c., have all borne witness in favour of early closing. It is generally felt that voluntary action has done all that it is ever likely to accomplish and that legislation merely regulating the hours of labour of shop assistants will not be effective, for so long as the shops remain open the work will continue. The report concludes by saying that the evidence collected clearly shows that the present hours are "grievously injurious to health," therefore early closing "would be an immense boon to the shopkeeping community, to shopkeepers and shop assistants alike." Consequently the Select Committee recommends that town councils should be authorised to pass provisional orders for the closing of shops in their districts. These orders should be confirmed by Parliament in the usual manner so as to acquire the force of law. Thus so far as it goes this report is satisfactory, but what will be done? As far back as 1886 the House of Commons appointed a committee to inquire into the same subject, and it likewise reported that the long hours were injurious and often ruinous to health, yet, as we have seen, the grievance and the injury still continue. Will the evidence now collected by the House of Lords Committee produce any better fruit?

GLASGOW UNIVERSITY CLUB, LONDON.

THE summer dinner of the Glasgow University Club, London, was held at the Café Royal, Regent-street, W., on July 10th. Lord Balfour of Burleigh presided and the company, which reached a total of 95, included the Bishop of Ripon, the Earl of Mansfield, the Lord Provost of Glasgow, Sir Henry Craik, and Mr. J. A. Campbell, Member of Parliament for the Universities of Glasgow and Aberdeen. After the loyal toasts Lord Balfour of Burleigh proposed the toast of "The Club." Speaking on the subject of Mr. Carnegie's benefaction to the four Scottish universities he said that one of the objects of this great gift was to insure that no undue obstacle should be placed in the way of a liberal education being brought within the reach of those who were likely to profit by it. Mr. Carnegie had devoted for all time a sum of £100,000 a year for the benefit of these universities. The first charge on the fund, as finally constituted, was a definite sum of £50,000 a year for strengthening the departments which had hitherto been least supported—modern languages, modern literature, engineering, and other subjects of that kind. The first claim upon the remaining £50,000 would be the payment of the fees of such of the students as might apply for that benefit. There were some who looked with misgiving on this latter part of the scheme, believing that it was better that the fees of students should be paid by themselves or by their friends and that adventitious support was likely in the long run to be injurious; but Mr. Carnegie had met this difficulty by inserting a clause in the trust-deed which would enable students in after-life to repay to the trust the sums which they had received from it, so that there need be no sacrifice of their independence. No examination would be made into the circumstances of applicants, and Lord Balfour believed that this great gift would be fraught with excellent consequences for university life in Scotland. In concluding he highly commended the services rendered to the club by Mr. Norman MacLehose, who has just retired from the position of one of the secretaries. Sir Henry Craik proposed "The City of Glasgow" and Lord Provost Chisholm replied. The toast of "The Guests" was proposed by Mr. J. A. Campbell, M.P., and acknowledged by the Bishop of Ripon and the Earl of Mansfield. The bill of fare included haggis as one of the courses.

THE ARMY MEDICAL SERVICE.

IT would seem that the proceedings of the Committee of Inquiry instituted and presided over by Mr. Brodrick, the Secretary of State for War, are not intended to be of the wide and extended nature that was at first supposed, but are to be circumscribed within comparatively narrow limits. The committee will, it is understood, mainly confine their attention to the Army Medical Service and the Royal Army Medical Corps, with a view to find out what is required to be done to render them popular and efficient by bringing them into harmony with the requirements of the medical schools and the medical profession. It is not intended apparently that the organisation and state of army hospitals generally, or of those in South Africa in particular, should come within the scope of the investigation, although it is very likely that it may be found impossible to exclude these and other subjects from the inquiry. Mr. Brodrick has from the first expressed his intention of laying certain subjects and plans before a committee of experts for their consideration and advice, and it may well be that he seeks to put an end, once and for all, to future difficulties and dissensions by some bold, broad, and liberal scheme for creating the really good medical service which he has foreshadowed for the army of the future. The present Army Medical Service is organised on a purely military basis and it is possible, too, that with the aid of a number of civil hospital physicians and surgeons he may be seeking to devise a scheme by which scientific and professional attainments shall be more fully recognised in the army for reward in the future than they have been in the past, and that medical officers selected for the higher posts shall not only be good administrators but qualified to act as professional consultants in the districts and hospitals under their supervision. We shall see. Major-General Sir G de C. Morton, K.C.I.E., late Adjutant-General in India, Colonel Sir J. Willcocks, K.C.M.G., and Colonel Sir E. W. D. Ward have been added to the Committee. We still think that the Army Medical Service should have been more fully represented on the Committee, and the addition of the above three very able non-medical officers lends force to the protest to that effect which we have already raised. We trust, at all events, that some medical officer of experience with regard to administrative matters will have the opportunity of giving evidence if Mr. Brodrick does not see his way to make any further addition to the *personnel* of the Committee.

TEACHERS OF PUBLIC HEALTH IN LONDON AND THE CURRICULUM FOR THE DIPLOMA IN PUBLIC HEALTH.

AT a recently held meeting of teachers of public health in London the following resolution was passed with reference to the regulations laid down by the General Medical Council in December, 1900 :—

> That, in the opinion of this meeting of the teachers of public health in London, it is very desirable that a candidate for the diploma of Public Health should be required to attend a systematic course of three months' practical instruction in public health at a recognised school in lieu of three months' attendance with a medical officer of health. This course to run concurrently with those on bacteriology and chemistry. After this course the candidate should be required to attend day by day for three months with a medical officer of health and be associated with him in the discharge of his duties, routine and special, of public health administration.

The teachers consider that the regulations as laid down by the General Medical Council, even if they are not impracticable, will not produce as good results as would the scheme suggested by the teachers.

THE DRUNKARDS BILL.

So far as it goes the Drunkards Bill, which has now passed through the House of Lords, is calculated to prove distinctly beneficial as well to the inebriate himself as to the public. By its provisions the habitual drunkard convicted as such will be prohibited under penalties from purchasing intoxicating liquor on licensed premises for a term of three years. Licensees, on their part, will be liable if they knowingly sell, or permit the sale of, intoxicants to such a person. Of even greater importance from the social and domestic standpoint is the clause which allows the wife or husband of a habitual drunkard to obtain a separation order. Those who have been unfortunate enough to witness the misery and often hopeless ruin brought about in homes where the head is a drunkard will hail this clause as an earnest of domestic salvation. We would express a hope that in any case of separation under this Bill provision shall be made for such control of financial matters by responsible persons as shall insure the regular maintenance of those most nearly interested. The Bill further prohibits any person while drunk from taking charge of children under seven years of age. It provides that street drunkenness apart from disorder shall be treated as an indictable offence, and that publicans will be liable if they do not use their endeavours to prevent intoxication on licensed premises. It is to be hoped that in its progress through the House of Commons a measure which is now by no means oppressive will not from urgency of other business or from any other cause fail to receive that full consideration which it deserves.

THE PREVENTION OF CRUELTY TO CHILDREN.

The National Society for the Prevention of Cruelty to Children, as we learn from its latest annual report, has recently entered upon the thirteenth year of its existence. The last year's record is, on the whole, satisfactory. We may truly say that, except in so far as it still shows a certain, though not a great, excess of expenditure over income, it is a highly satisfactory record. The number of cases of cruelty inquired into was 2977 in excess of the number for the previous year. This fact at first sight does not suggest the most hopeful auguries. In reality it is not a sign of parental retrogression. It is rather to be taken as the latest high-water mark of the society's advancing and extending activity. Concurrently we learn that there has been a decrease in the number of reported cases of active ill-treatment, of exposure, of causing to beg, and of moral wrong. Still more encouraging is the statement, which is supported by the proof of recorded cases, that parents who formerly were cruel to their children have learned, even through the medium of punishment, the lesson of humanity. As the report rather quaintly puts it : "Something *better* in the experiences of the family has made the sacrifices of the new life worth while." In other cases a knowledge of the society's interest in children has acted as a deterrent upon callous and neglectful parents. Reformation of character is, as we have repeatedly stated, as much a primary object of the society's efforts as is the prevention of cruelty. It aims at so administering the powers intrusted to it by law that judicious common-sense will find its due exercise as well as the sometimes indispensable machinery of punishment. Here and there in the report complaint is made that local magistrates do not sufficiently avail themselves of the powers of correction intrusted to them but prefer to adopt a let-alone policy even where there is evidence of serious misdemeanour. In one case of culpable and fatal neglect a conviction was obtained on appeal to a higher court and the offending parent was severely punished. In other cases justices have shown themselves, fully alive to the curative value of preventive legislation and have done all in their power to promote its objects. These evidences of divergence in legal opinion can only be the result of misunderstanding which a better acquaintance with the aims of the society and the unfortunate condition of social life in many families will go far to rem
A suggestion contained in the report contemplates creation of a State Department which shall devote energies to the protection of children's interests. We m confess that this proposal does not commend itself to judgment. The State has already done much by framin series of useful Acts all bearing upon this subject, and b doing it has furnished the public with every reasonable me of redress. A national society exists which has pro itself abundantly capable of performing the duties of authorised and disinterested protector. With these visions in being and in operation we fail to see any adequ justification for a new arrangement which must inevita

be relatively perfunctory in its character, unsympathetic, mechanical—in a word, official We would rather leave well alone, and having powers of law employ these with the aid of self-help inspired by humanity and good sense.

THE CHEMISTRY OF ARTIFICIAL FLOWERS.

MANY persons have been rudely shocked to find that a flower for which perhaps they gave a considerable sum and which they took to be genuine proved subsequently to be artificial in every particular Within our own experience not long ago the attention of a gentleman sitting at dinner was drawn to the fact that his shirt-front and coat were gradually being covered with streaks of a brilliant red colour. He was wearing a bright carnation in his button-hole which at quite a short distance, as it subsequently appeared, deceived perfectly. Even the perfume was admired. The "flower" had just been watered to freshen it and it was then seen that on the water-drops detaching themselves they were of a brilliant red colour while the "carnation" gradually assumed a faint variegated appearance owing to some of the colouring matter being washed out General incredulity was expressed that, at first sight, the flower could be anything but real. A laboratory examination, however, soon brought the whole truth to light, and the results are remarkable and certainly a credit to the ingenuity of the designer. There was not the vestige of a carnation about it. The "flower" consisted of slices of turnip neatly cut and dyed with acid magenta; the stems and leaves were of twisted cloth dyed a dark green with chromium; the bloom was a very fine starch powder delicately dusted over the stems and leaves; and the support to the whole clever fabric was a concealed iron wire A synthetic amber-coloured oil known as "*œillet*" completed the deception in giving a perfume wonderfully imitative of the genuine carnation. Altogether we can hardly conceive of a cleverer deceit and it is satisfactory to be able to add that so far as our observations went it is free from positive harm except to wearing apparel. On carefully searching the various materials for irritating substances and poisonous metals we could not obtain the slightest evidence that such were present. It is clearly possible, however, that the colours used for artificial flowers may contain substances injurious to health—such as, for example, arsenic.

THE QUANTITY OF WATER IN FOODS.

IT is not very generally realised how much water there is in solid food. Certain it is that no natural food is without water, varying in amount from 5 to 97 per cent., or only 3 per cent. short of pure water itself. Milk, of course, must be taken as the type of a complete food and yet it contains, even straight from the cow, very nearly 90 per cent. of water, or, to be more accurate, from 87 to 88 per cent. That is to say, more than four-fifths of milk consist of water, and as this is the condition in which it is naturally furnished the inference is that the fats, the sugars, and the proteids were intended to be taken in a diluted state. Indeed, the composition of other foods would teach the same thing, although, paradoxical as it may seem, some solid foods contain more water than does milk. This is especially true of vegetables and fruits. Thus the turnip contains over 90 per cent. of water, the cabbage nearly the same amount, and the cucumber and the vegetable marrow about 95 per cent.; whilst amongst fruits the strawberry contains nearly 90 per cent. of water, the apple 82 per cent., and grapes 80 per cent. Even the various meats used as food contain an amount of water far in excess of the amount of solid constituents. Thus three-fourths of beef and mutton consist of water. The housekeeper, perhaps, scarcely realises when consulting the butcher's price-list that three-fourths of the meat are water and are paid for with the rest at the rate of a shilling or more per pound. Lamb contains less water, namely 64 per cent., pork still less, 60·9 per cent, and bacon only 22·3 per cent. It would appear that as the flesh foods increase in the amount of fat the proportion of water, as a rule, diminishes. Coming to birds, the flesh of the fowl and duck contains about 70 per cent. of water and that of the pigeon 75 per cent., while the flesh of the goose contains only 38 per cent., the last being another example of the fat increasing with a corresponding diminution in the proportion of water. Fishes contain from 40 to 80 per cent. of water. The egg, one of the most powerful of nutritives, contains 65 5 per cent. of water, the white consisting of 86 per cent and the yelk of 50·9 per cent The latter, of course, is the more nourishing part. As a rule foods containing a small proportion of water are not fit for human consumption until they are cooked, which commonly means reducing them to a digestible state by adding water and boiling or baking, and so when they are actually partaken of they contain a good percentage of water Wheat flour, for example, contains only 12 per cent. of water, while bread contains nearly 50 per cent. It would appear to be necessary, therefore, that food should be in a decidedly moist condition before it is fit for use, and thus water plays a rôle in food which at first sight perhaps does not seem evident. Bacteria cannot live or act except under a wet environment and chemical change under absolutely dry conditions is impossible; therefore without moisture life would cease and the great vital processes would come to an end.

THE PRESIDENT OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

MR. HENRY GREENWAY HOWSE was on July 11th elected President of the Royal College of Surgeons of England. Mr. Howse was a student of Guy's Hospital, whence he qualified with the Membership of the Royal College of Surgeons of England in 1865 He obtained the M.B. of London in the following year, and the Fellowship of the Royal College of Surgeons of England and the M.S. of the University of London in 1868. Mr. Howse has been a member of the surgical staff of Guy's Hospital for many years and he is now the senior surgeon and the lecturer on surgery. He has contributed numerous papers on various surgical subjects to Guy's Hospital reports, to the Transactions of the societies, and to the medical journals. We offer him our congratulations on the honour conferred upon him.

THE DISTRIBUTION OF PLAGUE.

A TELEGRAM received at the Colonial Office from the Governor of Mauritius on July 12th states that for the week ending July 11th two fatal cases of plague had occurred. At Hong-Kong for the week ending July 13th there had been 26 cases of plague with 21 deaths. With regard to the plague cases in the lazaretto at Frioul our Paris correspondent writes: "The daily press has been making a great fuss about seven cases of plague which have occurred on board the transport Laos among the Arabs whom the ship had embarked at Djibouti on her return from Cochin The matter is of but little importance. In all 15 cases occurred among the Arabs, one case being landed at Port Said. On arrival at Marseilles the ship was isolated at Frioul, the passengers were placed in quarantine, and the Arabs put on board a hulk which was also isolated. There were three deaths. All the passengers and the medical staff attending them were inoculated with Calmette's serum The Arabs at first refused inoculation and only consented after the death of one of their number. No new case has occurred and the passengers and returned troops are shortly to be allowed to go free. There is no other centre of infection in Marseilles, all infection being confined to Frioul, and despite the great heat the death-rate is no higher than is usual at this time of the year. The incident affords proof of how carefully organised is the Marseilles Sanitary Department and what good security it offers against Europe being invaded by plague through that port." During the week ending July 7th fourteen cases of plague and seven deaths from the disease have been notified throughout all Egypt. Nine of these cases and six deaths have occurred at Zagazig, three cases and one death at Alexandria, and two cases at Port Said. Eleven of the cases occurred among natives and three among Europeans (all Greeks). A Greek youth, aged 18 years, employed in a baker's shop in the European quarter of Port Said, was admitted into hospital on July 4th with typical symptoms of plague. Dr. Baker, the sanitary inspector, examined the inmates of the surrounding houses, and found in the next house, occupied as a grocer's shop, a Greek boy, aged 13 years, suffering from similar symptoms. This boy also was immediately isolated and the whole quarter was thoroughly disinfected.

THE Council of the Royal Society has awarded the Mackinnon Studentship to Mr. J. J. R. Macleod, M.B. Aberd., Demonstrator of Physiology in the London Hospital Medical College, for the purpose of enabling him to carry out researches in pathological chemistry. The studentship is founded under a bequest to the Royal Society by the late Sir William Mackinnon, Director-General of the Medical Department of the Army, for the foundation and endowment of prizes or scholarships for the special purpose of furthering natural and physical science, and of furthering original research and investigation in pathology. The studentship is of the annual value of £150. There were 14 applications for the studentship.

THE King held an Investiture at Marlborough House on July 16th, when the honour of Knight Commander of the Royal Victorian Order was conferred upon the following gentlemen:—Sir Thomas Smith, Bart., F.R C.S. Eng. ; Deputy Surgeon-General Henry Julius Blanc ; and Mr. William Henry Bennett, F.R.C.S. Eng. The following gentlemen were invested with the Insignia of Commanders of the Order:—Mr. Donald William Charles Hood, M.D. Cantab. ; Mr. John Hammond Morgan, F.R.C.S. Eng., and Mr. Charles Arthur Morris, F.R.C.S. Eng.

WE are sure that we are only giving expression to the feeling of the whole of the medical profession in offering our sympathy to Sir Richard Douglas Powell in the sorrow which has fallen upon him by the death of his son, Lieutenant Charles Folliott Borradaile Powell of the Mounted Infantry, Yorkshire Light Infantry, who was killed at Rietfontein on July 13th. Lieutenant Charles Powell was the second son of his father; his elder brother, of the Royal Welsh Fusiliers, is now serving in South Africa.

IN regard to the case of Stocks and Crossman *v.* Watson, upon which we commented in a leading article published in our issue of July 13th (p. 91), we think it right to say that the interests of the medical men who were successful on the claim and counter-claim in this action were looked after by the British Medical Protection Society.

THE new Dental Hospital of London, Leicester-square, has received a legacy of £1000 under the will of the late Miss Hannah Harvie of Cheltenham.

THE BRITISH CONGRESS ON TUBERCULOSIS.

THE British Congress on Tuberculosis will be opened on Monday, July 22nd. It will be inaugurated by the president, the Duke of Cambridge, on behalf of the King, who is patron of the Congress and who is deeply interested in its work. The headquarters of the Congress are at the Queen's Hall, Langham-place, W., but the opening meeting will take place in St. James's Hall, Piccadilly, at 3 P.M. on July 22nd, and two other general meetings will be held at the same place and hour on July 23rd and 24th. On July 25th a fourth general meeting will be held in the Queen's Hall, where on the following day the Congress will be closed by a final general meeting. There are to be four sections of the Congress. Section I. will be the State and Municipal section, and will meet daily at St. George's Hall, Langham-place, W. ; Section II. is to deal with Medicine, including Climatology, and its meetings will be held in the large hall of the Royal Medical and Chirurgical Society, 20, Hanover-square, W.; Section III., for Pathology, including Bacteriology, will meet at the Queen's Hall; and Section IV., the Veterinary section, will hold its meetings in the Marlborough Hall, adjoining the Polytechnic, Regent-street, W. In each case the meetings will last from 9.30 A.M. to 1.30 P.M. There will be a museum in connexion with the Congress, and this will be located at the Queen's Hall and will be open daily.

The Congress will consist of honorary members, delegates, and members. Honorary members will be persons nominated by any foreign Government or university, or by the executive committee; delegated and ordinary members will be other persons, British, colonial, or foreign, who may wish to attend, including representatives from Governments or institutions within the British Empire. Delegated and ordinary members will receive their cards on forwarding the sum of £1 to the secretary-general of the Congress, 20, Hanover-square, W. Arrangements have been made with all the principal railway companies in Great Britain to issue tickets to the members of the Congress at a fare and a quarter for the return journey, available from July 20th to July 29th inclusive. These tickets are obtainable from the booking clerks at all important railway-stations on production of a certificate signed by the secretary of the reception committee which will be posted at the same time as the Congress ticket to all those who subscribe and enrol themselves as members. The Queen's Hall, Langham-place, will be open as a general reception-room and central bureau for the registration of delegates and members, the distribution of Congress tickets, and for the reception of applications for special entertainments. The reception-room will be open on Saturday, July 20th, from 10 A.M. to 1 P.M., for registration of names and distribution of tickets. It will also be open between these hours on Sunday, July 21st, for the convenience of members from a distance. On Monday, July 22nd, the Queen's Hall will be open from 9.30 A.M. to 5 P.M. for registration and distribution of tickets and from 9 P.M. to midnight there will be a reception here by the president of the council and the executive officers of the Congress.

On Tuesday, July 23rd, the sections will begin their work, and at the second general meeting on the afternoon of this day Professor R. Koch of Berlin will give an address. The chair will be taken by Lord Lister. From 9 o'clock to 12 on the same evening the Lord Mayor and Lady Mayoress will hold a reception at the Mansion House. On Wednesday, July 24th, there will be in the morning, at 20, Hanover-square, a joint meeting of the Sections of Medicine and Pathology for a discussion on Tuberculin. Professor Brouardel of Paris will address the third general meeting in the afternoon. At this meeting Mr. Henry Chaplin, M.P., will be the chairman. From 4.30 to 7 P.M. a garden party will be given by the ladies' reception committee in the Royal Botanic Gardens, Regent's Park. The fourth general meeting, to be held on Thursday, July 25th, will be addressed by Professor McFadyean, of the Royal Veterinary College, and Lord Spencer will preside. From 4.30 to 5 30 P.M. the council of the Sanitary Institute will hold a reception at the Parkes Museum of Hygiene, and from 9.30 P.M. to 12 a reception will be given by the Earl and Countess of Derby at the Victoria and Albert Museum. On Friday, July 26th, Lord Derby will preside at the final meeting of the Congress. Sir J. Whittaker Ellis will give a river party at Richmond on the same afternoon, and in the evening the foreign vice-presidents and foreign delegates will be entertained at dinner at the Hotel Cecil On Saturday, July 27th, from 4 to 7 P M., the Duke and Duchess of Northumberland will give a garden party at Syon House

The papers to be read at the Congress will practically cover the whole field of the subject of tuberculosis In Section I "The Statistical Aspect of Tuberculosis" will be considered first Then will follow "The Notification of Tuberculosis," "The Prevention of Tuberculosis during Childhood," "The Influence of Housing and Aggregation," "The Control of Meat Supplies," "The International Aspects of Tuberculosis," "The Control of Milk-supplies," "The Provision of Sanatoria," and "The Rôle of Hospitals and Dispensaries for Consumption in the Prevention of Phthisis" In Section II there will be a discussion on the question, "What Influence has Climate on the Treatment of Consumption, and how far can cases be grouped for Treatment in Certain Climates?" This will be followed by discussions on "The Therapeutic and Diagnostic Value of Tuberculin in Human Tuberculosis," and "Sanatoria for Consumption" Section III will consider "The Morphological and Physiological Variations of the Bacillus Tuberculosis and its Relations (*a*) to other acid-proof Bacilli, (*b*) to the Ray Fungus and other Streptothrices;" "The Varieties of Tuberculosis (Morbid Anatomy and Histology)," and "Mixed Infection in Tuberculosis" Section IV will discuss "The Diagnosis of Tuberculosis in Animals during Life," "Tuberculosis and the Milk Supply," "Tuberculosis and the Meat Supply," and "The Legislative and other Measures necessary to combat Tuberculosis amongst Animals" A large number of papers dealing with these questions will be read by recognised authorities

The following are the principal officers of the Congress President of Organising Council, the Earl of Derby, Chairman of Organising Council, Sir William Broadbent, F R.S ; Chairman of General Purposes Committee, Professor Clifford Allbutt, F R.S ; Chairman of Reception Committee, Sir James Crichton Browne, F R.S ; Chairman of Finance Committee, Sir James Blyth , Hon Treasurers, Lord Avebury and Sir James Blyth ; Hon. Secretary-General, Mr Malcolm Morris ; President of Ladies' Reception Committee, the Countess of Derby ; Hon Foreign Secretary, Dr StClair Thomson , Hon Secretary of Reception Committee, Dr Alfred Hillier ; Hon Secretary of Museum Committee, Dr W Jobson Horne ; Hon Secretary of Architectural Section of Museum, Mr Thomas W Cutler ; Hon Assistant-Secretary, Sir Arthur Trendell, C M G The following are the presidents of sections Section I, Sir Herbert Maxwell, M P , F R.S ; Section II , Sir R. Douglas Powell , Section III , Professor Sims Woodhead, F R.S Edin , Section IV , Sir George Brown C B

COMPLIMENTARY DINNER TO SURGEON-GENERAL JAMESON, C B

MR. G LENTHAL CHEATLE one of the honorary secretaries, has sent us the following list of names to be added to those which we published in our issue of July 6th, 1901, as those of members of the medical profession and others who wish to do honour to the late Director General of the Army Medical Service —Sir George Philipson, Surgeon-General A F, Preston, Surgeon General J B C Reade, C B , Surgeon-General Martin Surgeon General A C C De Renzy, C B , Dr H H Tooth C M G , Dr Conan Doyle, Dr Dudley Buxton, Mr Woodhouse Braine, Mr Thomas Wakley, jun , and Dr H Tilley The dinner will be held at the Hotel Cecil on Wednesday July 24th

VITAL STATISTICS

HEALTH OF ENGLISH TOWNS

IN 33 of the largest English towns 6483 births and 3439 deaths were registered during the week ending July 13th The annual rate of mortality in these towns, which had been 14·8 and 15·1 per 1000 in the two preceding weeks, further rose to 15·6 per 1000 last week. In London the death-rate was 14·2, while it averaged 16·6 in the 32 large provincial towns The lowest death rates in these towns were 9·4 in Halifax, 10·1 in Croydon and in Plymouth, 10·3 in Derby, and 10·6 in Bristol , the highest rates were 20·0 in Portsmouth, 21·2 in Preston, 25·9 in Liverpool, and 26·7 in Birkenhead The 3439 deaths in these towns last week included 567 which were referred to the principal zymotic diseases, against 399 and 431 in the two preceding weeks , of these, 297 resulted from diarrhœal diseases, 95 from measles, 63 from diphtheria, 53 from whooping cough, 41 from scarlet fever, 16 from "fever" (principally enteric), and one from small-pox. No death from any of these diseases was registered last week in Brighton or in Halifax ; in the other towns they caused the lowest death rates in Croydon, Norwich, and Huddersfield, and the highest rates in Portsmouth, Sheffield, Liverpool, and Birkenhead The greatest mortality from measles occurred in Gateshead and Birkenhead , from whooping cough in Swansea and Bradford , and from diarrhœal diseases in Leeds, Portsmouth, Sheffield, Liverpool, and Birkenhead The mortality from scarlet fever and from "fever" showed no marked excess in any of the large towns The 63 deaths from diphtheria in the 33 towns included 24 in London, six in Liverpool, five in Manchester, four in Leicester, and four in Leeds One fatal case of small-pox was registered in Liverpool, but not one in any of the other 32 towns , six small-pox patients were admitted into the Metropolitan Asylums hospitals during the week, and 12 remained under treatment on Saturday, July 13th The number of scarlet fever patients in these hospitals and in the London Fever Hospital at the end of the week was 2918, against numbers increasing from 1522 to 2895 on the 11 preceding Saturdays , 324 new cases were admitted during the week, against 369, 408, and 363 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 141 and 165 in the two preceding weeks, fell again last week to 133, and were 44 below the corrected average The causes of 20, or 0·6 per cent , of the deaths in the 33 towns were not certified, either by a registered medical practitioner or by a coroner All the causes of death were duly certified in West Ham, Bristol, Leeds, Sheffield, Nottingham, Bradford, and in 15 other smaller towns , the largest proportions of uncertified deaths were registered in Liverpool and in Portsmouth

HEALTH OF SCOTCH TOWNS

The annual rate of mortality in the eight Scotch towns, which had been 17·3 and 19·0 per 1000 in the two preceding weeks, fell again to 17·2 per 1000 during the week ending July 13th, and showed an excess of 1·6 per 1000 over the mean rate during the same period in the 33 large English towns The rates in the eight Scotch towns ranged from 11·5 in Aberdeen and 12·7 in Leith to 23·6 in Greenock and 24·2 in Dundee The 549 deaths in these towns included 29 which were referred to diarrhœa, 22 to measles, 22 to whooping-cough, seven to scarlet fever, six to "fever," two to diphtheria, and one to small pox. In all, 89 deaths resulted from these principal zymotic diseases last week, against 86 and 81 in the two preceding weeks These 89 deaths were equal to an annual rate of 2·8 per 1000, which was 0·2 per 1000 above the zymotic death rate last week in the 33 large English towns The fatal cases of measles, which had been 25 in each of the three preceding weeks, declined last week to 22, and included 14 in [illegible] and six in Edinburgh The deaths from diarrhœa, which had been 13 24, and 19 in the three preceding weeks, rose to 29 last week, and included 15 in Glasgow, five in Dundee, and three in Edinburgh The deaths from scarlet fever, which had been seven in the two preceding weeks, were last week again seven, of which five occurred in Glasgow, where the two deaths from diphtheria and the one death from small pox were registered The six deaths from fever last week showed an increase of five, and included two in Glasgow The deaths referred to diseases of the respiratory organs in these towns which had been 95 in each of the two preceding weeks, fell last week to 75, and showed an excess of four over the number in the corresponding period of last year The causes of

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING JUNE, 1901.

(*Specially compiled for* THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1901.	NOTIFIED CASES OF INFECTIOUS DISEASE.											DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.											Deaths from all causes.	Death-rate per 1000 living.	Deaths of infants under one year to 1000 births.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cholera.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhoeal diseases.	Total.	Annual rate per 1000 persons living.			
LONDON...	4,543,757	4	1619	856	2	178	5	12	303	1	2980	8·5	1	165	63	64	116	1	16	—	90	516	1·5	4662	13·4	103
West Districts.																										
Paddington	144,154	—	34	27	—	11	—	1	9	—	82	7·4	—	—	1	1	2	—	1	—	2	7	0 6	118	10·7	93
Kensington	176,787	—	42	12	—	2	1	1	13	—	71	5·2	—	2	—	1	2	1	—	—	1	7	0·5	151	11·1	64
Hammersmith	112,619	—	30	17	—	6	—	—	6	—	59	6·8	—	—	1	3	8	—	—	—	3	15	1·7	98	11·3	143
Fulham	138,426	—	61	27	—	2	—	1	5	—	96	9·0	—	—	2	—	7	—	—	—	4	13	1·2	117	11·0	112
Chelsea	73,879	—	13	9	—	2	—	—	4	—	28	4·9	—	2	1	—	1	—	—	—	1	5	0·9	79	13·9	79
City of Westminster	182,502	—	42	19	—	9	—	—	6	—	76	5·4	—	5	1	2	4	—	—	—	3	15	1·1	184	13·1	103
North Districts.																										
St. Marylebone	133,060	1	28	28	—	6	—	—	18	—	79	7·7	1	—	2	2	2	—	1	—	2	10	1·0	151	14·8	74
Hampstead	82,287	—	18	8	—	3	—	—	4	—	33	5·2	—	—	—	1	—	—	—	—	1	2	0·3	56	8·9	34
St. Pancras	235,297	1	82	61	—	12	—	—	23	—	179	9·9	—	8	1	8	9	—	1	—	10	37	2·0	271	15 0	138
Islington	335,325	—	90	55	1	16	1	2	19	—	184	7·2	—	6	3	7	6	—	—	—	2	24	0 9	321	12·5	86
Stoke Newington	51,328	—	9	4	—	1	—	—	3	—	17	4·3	—	—	—	1	1	—	1	—	2	5	1·3	32	8·1	66
Hackney	219,780	1	105	79	—	11	—	1	18	—	215	12·8	—	5	2	5	4	—	1	—	1	18	1·1	209	12 4	88
Central Districts.																										
Holborn	59,205	—	28	11	—	—	—	—	2	—	41	9 0	—	5	1	1	3	—	—	—	—	10	2·2	80	17·6	131
Finsbury	101,283	—	54	24	—	3	—	—	10	—	91	11·7	—	3	4	1	4	—	—	—	3	15	1·9	136	17·5	104
City of London	26,627	—	15	5	—	2	—	—	1	—	23	11·3	—	—	1	—	—	—	—	—	1	2	1·0	39	19·1	114
East Districts.																										
Shoreditch	118,554	—	84	22	—	8	—	—	8	—	122	13·4	—	5	6	2	—	—	1	—	7	21	2·3	157	17·3	132
Bethnal Green	129,700	—	85	46	—	11	1	1	18	—	162	16·3	—	3	3	3	4	—	1	—	3	17	1·7	126	12·7	88
Stepney	298,884	1	114	70	1	9	—	—	15	—	210	9·2	—	32	9	1	4	—	1	—	11	58	2·5	387	16·9	99
Poplar	168,887	—	48	43	—	15	—	1	9	—	116	9 0	—	10	3	2	10	—	1	—	6	32	2·5	185	14·3	116
South Districts.																										
Southwark	206,219	—	140	41	—	8	—	—	14	—	203	12·8	—	14	6	2	7	—	3	—	4	36	2·3	288	18·2	140
Bermondsey	130,348	—	97	28	—	1	—	—	11	—	137	13·7	—	14	3	4	2	—	—	—	2	25	2·5	166	16·6	111
Lambeth	302,460	—	86	27	—	11	1	—	15	1	141	6·1	—	10	3	3	9	—	1	—	7	33	1·4	337	14·5	99
Battersea	169,364	—	36	21	—	8	—	1	11	—	77	5·9	—	9	1	1	4	—	1	—	4	20	1·5	135	10 4	97
Wandsworth	233,943	—	52	25	—	5	—	—	13	—	95	5·3	—	7	1	3	5	—	—	—	3	19	1·1	192	10·7	122
Camberwell	259,897	—	103	63	—	10	—	—	22	—	198	9·9	—	9	3	4	5	—	1	—	3	25	1·3	257	12·9	103
Deptford	110,732	—	37	29	—	—	—	—	9	—	75	8·8	—	5	3	—	4	—	1	—	1	14	1·6	111	13·1	94
Greenwich	96,188	—	24	12	—	1	—	—	9	—	46	6·2	—	9	1	1	7	—	—	—	1	19	2 6	82	11·1	101
Lewisham	128,423	—	37	19	—	2	—	—	2	—	60	6·1	—	2	—	2	1	—	—	—	1	6	0·6	102	10·4	102
Woolwich	117,619	—	25	24	—	3	1	3	7	—	63	7·0	—	—	1	3	1	—	—	—	1	6	0·7	95	10·5	90
Port of London	—	—	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

23, or more than 5 per cent., of the deaths in these towns last week were not certified

HEALTH OF DUBLIN

The annual rate of mortality in Dublin, which had been 18 2 and 20 7 per 1000 in the two preceding weeks, further rose to 21 0 during the week ending July 13th During the past four weeks the death rate has averaged 20 0 per 1000, the rates during the same period being 14 1 in London and 16 9 in Edinburgh. The 151 deaths of persons belonging to Dublin registered during the week under notice were two more than the number in the preceding week, and included 10 which were referred to the principal zymotic diseases, against five and seven in the two preceding weeks; of these four resulted from whooping-cough, four from diarrhœa one from scarlet fever, and one from diphtheria These 10 deaths were equal to an annual rate of 1 4 per 1000, the zymotic death rate during the same period being 1 9 in London and 1 8 in Edinburgh The deaths from whooping-cough and from diarrhœa showed an excess over the numbers recorded in recent weeks The 151 deaths in Dublin last week included 26 of infants under one year of age and 32 of persons aged upwards of 60 years, the deaths of infants showed an increase, and those of elderly persons a decline from the numbers in recent weeks Three inquest cases and two deaths from violence were registered, and 53, or more than one-third, of the deaths occurred in public institutions The causes of eight, or more than 5 per cent, of the deaths in Dublin last week were not certified.

VITAL STATISTICS OF LONDON DURING JUNE, 1901

T[illegible] table will be found summarised [illegible] to sickness and mortality in each [illegible]oughs in the county of London With regard to the notified cases of infectious diseases it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 8 5 per 1000 of the population, provisionally estimated at 4 543,757 persons in the middle of the year In the three preceding months the rates had been 5 3, 5·2, and 8 5 per 1000 respectively The rates were considerably below the average in Chelsea, Kensington, the City of Westminster, Hampstead, Stoke Newington, and Wandsworth, while they showed the largest excess in Hackney, Finsbury, Shoreditch, Bethnal Green, Southwark, and Bermondsey Four cases of small pox were notified in London last month; of these, one belonged to St Marylebone, one to St. Pancras, one to Hackney and one to Stepney Five small-pox patients were admitted into the Metropolitan Asylums during the month, and five remained under treatment on Saturday, June 29th The prevalence of scarlet fever was slightly less excessive than in the preceding month, among the various metropolitan boroughs this disease was proportionally most prevalent in the City of London, Shoreditch, Bethnal Green, Southwark, and Bermondsey The Metropolitan Asylums Hospitals contained 2752 scarlet fever patients at the end of June, against 1533, 1491, and 2291 at the end of the three preceding months, the weekly admissions averaged 343, against 142, 179, and 339 in the three preceding months The prevalence of diphtheria showed a further increase upon that recorded in any recent month, the greatest proportional prevalence of this disease occurred in St. Pancras, Hackney, Finsbury, Bethnal Green, Stepney, Poplar, and Camberwell boroughs. There were 1169 diphtheria patients under treatment in the Metropolitan Asylums Hospitals at the end of June against 1084, 960, and 1101 at the end of the three preceding months, the weekly admissions averaged 175, against 134, 117, and 160 in the three preceding months Enteric fever was slightly more prevalent than in the preceding month, among the various metropolitan boroughs the greatest proportional prevalence of this disease occurred in Paddington, Hammersmith, Shoreditch, Bethnal Green, and Poplar The number of enteric fever patients under treatment in the Metropolitan Asylums Hospitals, which had been 162, 121, and 95 at the end of the three [illegible] to 125 at the end of June, [illegible] last month, against 18, 16, [illegible]nths Erysipelas was proportionally most prevalent in St. Marylebone, St Pancras, Finsbury, Bethnal Green Bermondsey, and Greenwich The 12 notified cases of puerperal fever included three in Woolwich and two in Islington.

The mortality statistics in the table relate to the deaths of persons actually belonging to the various metropolitan boroughs, the deaths occurring in the public institutions of London having been distributed among the various boroughs in which the deceased persons had previously resided During the four weeks ending June 29th the deaths of 4662 persons were registered, equal to an annual rate of 13 4 per 1000, against 18 2, 17·6, and 15 4 per 1000 in the three preceding months The lowest death-rates last month in the various metropolitan boroughs were 8 1 in Stoke Newington, 8·9 in Hampstead, 10 4 in Battersea and in Lewisham, 10 5 in Woolwich, and 10 7 in Paddington and in Wandsworth, the highest rates were 16 9 in Stepney, 17 3 in Shoreditch, 17 5 in Finsbury, 17 6 in Holborn, 18 2 in Southwark, and 19 1 in the City of London During the four weeks of June 516 deaths were referred to the principal zymotic diseases, of these one resulted from small pox, 165 from measles, 63 from scarlet fever, 64 from diphtheria, 116 from whooping-cough, one from typhus, 16 from enteric fever, 90 from diarrhœal diseases, and not one from any ill defined form of continued fever The lowest death-rates last month from these diseases occurred in Paddington, Kensington, Hampstead, Lewisham, and Woolwich, and the highest rates in Shoreditch, Stepney, Poplar, Southwark, Bermondsey and Greenwich The fatal case of small-pox was that of a person belonging to St Marylebone The 165 deaths from measles showed a marked decline from the average number in the corresponding periods of the 10 preceding years, this disease was proportionally most fatal in Holborn, Stepney, Poplar, Southwark, Bermondsey, and Greenwich The 63 fatal cases of scarlet fever nearly corresponded with the corrected average number, among the various metropolitan boroughs the greatest proportional mortality from this disease occurred in Finsbury, Shoreditch, Stepney, Southwark, Bermondsey, and Deptford The 64 deaths from diphtheria showed a decline of 84 from the average number in the corresponding periods of the 10 preceding years, this disease showed the highest proportional fatality in Hammersmith, St Pancras, Bethnal Green, Bermondsey, and Woolwich The 116 fatal cases of whooping cough showed a considerable decline from the corrected average number, among the various metropolitan boroughs this disease was proportionally most fatal in Hammersmith, Fulham, Holborn Poplar, and Greenwich The 17 deaths from "fever" were about one half the average number in the corresponding periods of the 10 preceding years; the highest "fever" death rates occurred in Stoke Newington, Shoreditch, Bethnal Green, Southwark, and Deptford The 90 deaths from diarrhœal diseases were 70 less than the corrected average number, among the various metropolitan boroughs the proportional mortality from this cause was highest in St Pancras, Stoke Newington, Shoreditch, Stepney, and Poplar In conclusion, it may be stated that the aggregate mortality from these principal zymotic diseases in London during June was nearly 39 per cent below the average Infant mortality in London last month, measured by the proportion of deaths of children under one year of age to registered births, was equal to 103 per 1000 The lowest rates of infant mortality were recorded in Kensington, Chelsea, St Marylebone, Hampstead, and Stoke Newington, and the highest rates in Hammersmith, St Pancras, Holborn, Shoreditch, Southwark, and Wandsworth

THE SERVICES

ROYAL NAVY MEDICAL SERVICE

THE following appointments are notified —Staff Surgeon J Andrews to the *Fox*, on commissioning for the manœuvres

ROYAL ARMY MEDICAL CORPS

Lieutenant Steele is placed under orders for South Africa Major G H Barefoot has assumed command of the Depot at Aldershot. Surgeon Lieutenant T G McAllum, M M S C, and Lieutenant S F Briggs, M M S C, are attached to the Cambridge Hospital Aldershot, for duty Lieutenant Colonel A Young (r p) is selected for employment at Perth. Lieutenant O R Evans holds himself in readiness to embark for India. Surgeon-Lieutenant J R Bibby, 1st Gloucestershire Volunteer Artillery, has joined at Aldershot for a month's course of instruction Major Patrick Maurice Carleton retires on retired pay Dated July 19th, 1901 Lieutenant

James Barkley resigns his commission. Dated July 17th, 1901. Civil Surgeon Ernest George Ffrench to be Lieutenant. Dated May 28th, 1901. Lieutenant-Colonel R. W. Barnes (retired) is granted the local rank of Colonel while in charge of a general hospital in South Africa. Dated June 8th, 1900.

VOLUNTEER CORPS.

Rifle: 2nd (Renfrewshire) Volunteer Battalion Princess Louise's (Argyll and Sutherland Highlanders): Surgeon-Lieutenant-Colonel M. H. Taylor resigns his commission, with permission to retain his rank and to wear the uniform of the battalion on retirement. Dated July 13th, 1901. 2nd Volunteer Battalion the Queen's Own (Royal West Kent Regiment): James Hamilton to be Surgeon-Lieutenant. Dated July 13th, 1901.

VOLUNTEER MEDICAL STAFF CORPS.

The Glasgow Companies:—Francis James Charteris to be Surgeon-Lieutenant. Dated July 13th, 1901. John Thomson Kilpatrick Thomson to be Surgeon-Lieutenant The Woolwich Companies: Surgeon-Captain C. H. Hartt to be Surgeon-Major. Dated July 13th, 1901.

VITAL STATISTICS OF THE DUTCH NAVY FOR THE YEAR 1899.

Home stations:—Average strength, 4418; admissions to hospital, 1019 per 1000, including 221 per 1000 on account of venereal and skin affections; death-rate, 2·5 per 1000. East Indian possessions:—Europeans: strength, 2365; admissions, 1748 per 1000, including 583 per 1000 on account of endemic diseases (chiefly paludal), and 350 per 1000 on account of venereal affections; death-rate, 7·1 per 1000. Natives: strength, 920; admissions, 1180 per 1000; death-rate, 9·7 per 1000. Various foreign stations:—Strength, 1652; admissions, 1220 per 1000; death-rate, 1·2 per 1000. The mortality on home service seems very low, but the above figures do not represent the whole of it. In the following towns—Willemsoord, Amsterdam, Helvoetsluis, Rotterdam, Leyden, and Flushing—there are hospitals to which the wives and children of men belonging to the navy are admitted as well as the husbands and fathers, and apparently the statistics referring to the latter are excluded from the general table. The number of patients (men, women, and children) treated in these establishments during the year was 4523, and amongst them there were 55 deaths. In addition to statistics the report contains a variety of miscellaneous information. At Leyden the medical officer in charge vaccinated eight children aged respectively from seven months to three and a half years. It is customary in the Netherlands to insert the lymph in 10 separate places, and in the present instance the whole 80 punctures were attended by well-developed pustules. The same officer revaccinated 258 adults, but as in revaccination only five punctures are usual the total number of these was 1290. The results were certainly remarkable, 43 per cent. of the punctures were followed by pustules which are said to have been characteristic. In about 25 per cent. of the cases, however, lymphangitis and adenitis likewise supervened, while in 5·4 per cent. more there was "peri-vaccinal erythema." In an interesting appendix Dr. van Dewenter gives an account of his anthropometric investigation of 283 naval cadets, aged from 13½ years to 16½ years. It would seem to be one of the sequelæ of the training which these young men undergo that they should fail to become long-headed! Each year their crania increase about two centimetres in circumference, but it is "the transversal diameter which augments rather than the frontal." Dr. van Dewenter's communication is plentifully illustrated by diagrams and tables.

AFFAIRS IN SOUTH AFRICA.

There is, we regret to say, a good deal of sickness at the front, in addition to the casualties that occurred at Vlakfontein, about which and the alleged murder of some our wounded so much stir has arisen. The list of those rously ill, and mainly from that army scourge enteric a long one. The death-rate among the Boer women en in the concentration camps was a lamentably t an improvement, has, we are glad to say, taken espect. The sickness and suffering which war ls upon the powerless and innocent are indeed Mr. Kruger and his advisers should surely ll that before thrusting war upon this e official publication of papers relating to n Lord Kitchener and Commandant- strong side-lights thrown upon them by the papers captured by Sir Bindon Blood, the statements in Parliament, and the appearance of Mr. E. T. Cook's book on the "Rights and Wrongs of the Transvaal War," there should be no lack of evidence and material on which to form an opinion about it. We know now about as much as is to be known as to the causes which led to it, the preparations which were made for its occurrence by the Boer Government, and the determination on the part of Mr. Kruger and the hostile commanders to continue it until their terms, and not those of this country, are granted. They really abate no jot of the demands which they made when they delivered their ultimatum and followed it up by invading our territories at the beginning of the war in 1899. That is really, when summarily and dispassionately stated, the present position of affairs, and it seems to cut the ground from beneath the feet of those who are advocating a policy of conciliation, the fact being that Mr. Kruger and the Boers, so far from regarding themselves as beaten, proclaim that they are as hopeful of success and as determined on maintaining their independence as ever they were. We have learned one thing, at any rate, in the present case—that the capture and annexation of territories and their capitals are not tantamount to the submission and subjection of the population: they are by no means conterminous results. Where the irreducible minimum which a foe will accept is what in the opinion of the other side is not even an admissible subject in any discussion about terms there is obviously only one course open—namely, to go on with the fighting—and this, in the opinion of most people in this country and the colonies, will have to be done if the integrity of the British Empire is to be maintained. The Boers are losing every week men, horses, rifles, and ammunition which cannot be replaced and the process, if slow, is still one of steady disintegration of their forces. As regards their attacks on trains it has been shrewdly suggested that a batch of Boer prisoners should in future be put in the foremost trucks or carriages of every train, and as regards the relief and aid of families in concentration camps there were both common-sense and humour in the inquiry of someone in the body of a meeting whether Mr. Kruger, who held the money-bags, had been asked to subscribe. According to the last detailed statement of British casualties published by the War Office there have been 16,717 deaths since the beginning of the war up to the end of last month, and the actual reduction of the force through the war from all causes amounts to 20,418.

DEATHS IN THE SERVICES.

Inspector-General of Hospitals and Fleets Thomas Henry Knott, R.N., on July 5th, aged 59 years. He entered the Navy in 1867, was promoted to Staff Surgeon in 1872, to Fleet Surgeon in 1883, to Deputy Inspector-General in 1892, and to Inspector-General in 1898.

Deputy Inspector-General Thomas Beswick Purchas, R.N. (retired), on July 6th, aged 76 years. He entered the Navy in 1847 as assistant surgeon to Her Majesty's ship *President*, stationed at Cape Town. In 1857 he became Staff Surgeon, previously to which he was Surgeon to the *Flying Fish*, one of the squadron that accompanied His Royal Highness the Prince of Wales on his visit to Canada. In 1863, when stationed at Japan, he took part in the action off Nagasaki. In 1869 he was promoted to Fleet Surgeon. He retired in 1876 with the rank of Deputy Inspector-General. The deceased gentleman was a prominent Freemason and served the office of Past Assistant Grand Director of Ceremonies and was P.Z. and P.A.G.Soj. in the Royal Arch degree.

Deputy Inspector-General Richard Domenichetti on July 12th, at his residence, Woodhall Spa, aged 78 years. An obituary notice will be found in another column.

On July 17th the King presented medals of the Grand Priory of the Order of the Hospital of St. John of Jerusalem in England for conspicuous services to the Ambulance Department. The recipients were: Sir John Furley, Chief Commissioner of the Central British Red Cross Committee, Hon. Bailiff; Mr. William Henry Morgan, Hon. Associate of the Order, chief superintendent of the Metropolitan Corps, St. John Ambulance Brigade; Mr. Richard Berdett-Sellers, Hon. Associate of the Order, M.R.C.S. Eng., chief surgeon, Rochdale Corps, St. John Ambulance Brigade; Mr. Marshall Hopper, Hon. Serving Brother of the Order, chief superintendent of the Hull Corps, St. John Ambulance Brigade; Mrs. Priscilla Laverack, Hon. Serving Sister of the Order, Hull Nursing Division, St. John Ambulance Brigade; Mr.

Robert Slater, private, Hull Corps, St. John Ambulance Brigade; Dr. Charles Henry Milburn, Esquire of the Order, Deputy Commissioner No. 6 District, St. John Ambulance Brigade; Dr. George Thomson, Hon. Associate of the Order, chief surgeon, Oldham Corps, St. John Ambulance Brigade; and Mr. Benjamin Sellars, first officer, Oldham Corps, St. John Ambulance Brigade.

Correspondence.

"Audi alteram partem."

"UNBOILED v. BOILED MILK."

To the Editors of THE LANCET.

SIRS,—In the letters which have been addressed to you on this subject I have been struck by the absence of any reference to experimental data. Yet there is a large amount of experimental evidence bearing directly upon the points at issue. May I ask for a little space to consider the subject from this point of view?

One must distinguish sharply at the outset between (1) the *digestibility* of the milk and (2) its *absorbability*. By the former I mean the ease with which it is peptonised in the stomach; by the latter the extent to which it enters the blood and is available for purposes of nutrition. Jessen,[1] experimenting on healthy men found that a pint of *raw* milk has completely disappeared from the stomach in three and a half hours; a pint of *boiled* milk in four hours. Verhaegen,[2] however, found that boiled milk required less time for digestion than that, while Reichmann[3] even goes so far as to state that 300 cubic centimetres of boiled milk remains for an hour less in the stomach than an equal quantity of milk taken raw.

It is obvious from this that the results of experiments on the relative digestibility of boiled and unboiled milk are not unanimous, but at all events boiled milk has not been proved to be much *less* digestible. Any one, moreover, who has taken the trouble to compare the relative density of clot formed by raw and by boiled milk under the influence of rennet must have recognised that any slight difference there may be is certainly in favour of boiled milk and not the reverse. And yet it is the density of the clot which determines the ease or otherwise with which milk is disposed of by the stomach.

As regards the comparative *absorption* of boiled and unboiled milk experiments have also yielded rather discordant results. Randnitz[4] found that dogs did not absorb the casein of boiled milk quite so well as that of raw milk, but the absorption of fat was the same in the two cases. Vassilieff[5] found that the nitrogen and fat of raw milk were better absorbed by healthy young men than the same ingredients after boiling, but this conclusion is disputed by Gaschibowsky.[6] It has also been found in the case both of infants and of calves that sterilised milk which has been kept at or about the boiling point for more than an hour is absorbed quite as well as milk which had merely been boiled in the usual way.[7]

The supposed loss of nutritive matter in the "skin" which forms on boiled milk is not of any real importance. 100 cubic centimetres of milk when boiled for 15 minutes lose only 0·273 gramme of proteid[8] As a matter of fact the "skin" consists largely of phosphate of lime of which there is already too much in cow's milk.

It is my habit in out-patient practice at the Hospital for Sick Children to order that the milk shall be boiled in every case. Amongst several hundreds of infants so fed I have but rarely had any difficulty in obtaining the normal increase of weight. This is not a mere general impression, for I make a point of having these children weighed every week and a careful record is kept of the increase in weight and the exact method of feeding. I am convinced that such satisfactory results as I find to be the rule could not be obtained if the nutritive value of milk really were, as Dr. Clement Dukes asserts, greatly impaired by boiling.

As regards the supposed risk of producing scurvy by the use of boiled milk it will be sufficient to quote the following paragraph from Holt's well-known text-book on the Diseases of Childhood (p. 210).

> Since the introduction of the practice [illegible] feeding the question has been raised ir[illegible] may not be a cause of scurvy. I hav[illegible] question in the records of three institu[illegible] years "sterilised milk" was the standard food for all artificially-fed infants. The number of children under 18 months who have had this diet is nearly 1000. During this period but two cases of scurvy were observed, and in neither case had the child been upon a diet of sterilised milk. However, I have recently seen in private practice two cases of scurvy in which the cause seemed to be prolonged sterilisation at a high temperature—i.e., 212° F. for over an hour. In some of the cases in which the sterilised m[illegible] have been the cause of scurvy [illegible] which was at fault and not the [illegible] under personal observation who [illegible]lised" milk and a proprietary [illegible] he patient recovered although [illegible]ur cases observed by Winkes no [illegible]no substitution of "sterilised" [illegible] three instances had been pro[illegible]ptly recovered. In these cases [illegible]

In any case the risk of scurvy is one of quite secondary importance. All that one has to do in order to obviate it is to see that a little fresh fruit juice is given to the child occasionally.

Everyone will agree with Dr. Dukes that the ideal to be aimed at is a milk-supply of such assured purity that there can be no risk of disease being conveyed from the cow or the dairy to the consumer. But everyone will also agree that, whatever may be the case in such exceptional circumstances as those in which Dr. Dukes has the advantage to be placed, the milk-supply of the great bulk of the community is not yet in this ideal condition. As long as it can be truly said, as Dr. Dukes has himself admitted,[9] that "milk has been shown to be a fertile cause and communicator of disease in communities," and as long as it remains true, as he has also remarked,[10] "that between the cow's udder and the human stomach the milk may be so poisoned as to cause death to the recipient," so long, I am convinced, will the medical profession do wisely to urge that (again to quote Dr. Dukes): "No milk should be drunk until it has been boiled, even although its nourishing value is thereby diminished." That any real proof of this diminution of nourishing value has yet, however, been adduced I, for one, will not admit.—I am, Sirs, yours faithfully,

ROBERT HUTCHISON.

London Hospital College, July 12th, 1901.

To the Editors of THE LANCET.

SIRS,—I believe that this controversy would have been summarily dismissed as rank heresy were it not for the fact that the heretic is such a distinguished man as Dr. Clement Dukes. If it were possible for the milk to be transferred *direct* from the gland to the human stomach there would have been no necessity for either boiling or sterilising it. But in practice we find that by the time milk is actually consumed it has been exposed to numerous foci of infection (both wilful and accidental) and is in consequence charged with countless bacterial forms.

Milk is an exceptionally good medium for the growth of organisms, and they thrive therein without causing any perceptible change in its appearance. With the appearance of acidification some organisms (notably cholera vibrios) are, no doubt, destroyed; but so much time usually elapses that milk in most cases is used up before this occurs.

All these risks can be easily avoided by boiling or sterilising; and there is no evidence on record to show that these methods cause any sensible lowering in the nutritive value of milk.

Dr. Dukes maintains that all that is really wanted is more efficient inspection of cowsheds and dairies. I might as well ask him to apply this reasoning to the water-supplies, to endeavour to prevent their contamination, and to do away with all sand or biological filters. No matter how stringent be the precautions taken, it is as impossible to prevent the entrance of microbes into milk as it is in our water-supplies.

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[1] [illegible]

[2] Physio[illegible]

[3] [illegible]

[4] Z[illegible]

[5] C[illegible]

[6] [illegible]

[7] See [illegible] p. 393; ([illegible] Médicale [illegible], 1892, p. 77.

[8] Solomin, Archiv für Hygiene. 1897, Band xxviii., p. 43.

[9] School Diet, second edition, 1899, p. 89.

[10] Ibid., p. 90.

Dr. Fred. J. Smith observes, in THE LANCET of July 6th, p. 50, that he has seen children made "peevish and even seriously ill" by the effects of boiled milk. But is he quite sure that the cause of this is to be found in milk and not elsewhere? And what evidence is there to show that unboiled milk would have given more satisfactory results in the case of those children?

I am, Sirs, yours faithfully,

M. L. DHINGRA, M.D. EDIN.

Albemarle-street, W., July 8th, 1901.

"LEGISLATION AGAINST NATIONAL INTEMPERANCE."

To the Editors of THE LANCET.

SIRS,—I crave your courtesy so far that you will afford me space for a final reply to Dr. Archdall Reid. We have reached that stage in the controversy when the *tu quoque* argument is apt to be used, and I do not desire that this important discussion should flicker out, so far as I am concerned, with Dr. Reid's peculiar view both of logic and summation of facts. Dr. Reid has a little joke (not at my expense but at his own, of course) regarding the presence of a dragon at three minutes past midnight on Nov. 10th, 1900, curling his whiskers on the cross of St. Paul's. He says that if he asserted that the dragon occupied this ecclesiastical situation nobody could disprove the assertion. Now this very example delivers Dr. Reid and his peculiar ideas regarding the nature of proof into my hands. I shall not spare mine enemy. The case of the dragon would be settled for myself (and I imagine for all sensible men) by considerations connected, first, with proofs of the existence of such a creature; next with questions of its ability to scale St. Paul's (Dr. Reid's dragon would possess wings, no doubt); and, thirdly, with the state of Dr. Reid's mind—here I need not say that I imply nothing personal, of course—when he asserted that he saw the whisker-curling operation. If he merely alleged that a dragon did curl his whiskers, without saying that he saw the operation performed, his case would be less worthy of consideration. Now, judged scientifically, I say we have no evidence in this case that dragons exist; therefore, all the rest goes by the board into that sea of speculation in which Dr. Reid's natatory efforts are not likely to keep him afloat very long if he trusts to the dragon illustration as a species of lifebuoy. He asks me for evidence that "acquired" characters are never transmitted. I suggest in turn that such evidence does exist. This is a reasonable view enough, but Dr. Reid, with an eel-like gesture, slips out of his difficulty on the pretence that I ask him to "prove a negative." That strain of his has "a dying fall." I have heard that argument used many times when the task of proving his own case was beyond the powers of an opponent. Suppose I assert that it is impossible that a dragon should have "curled his whiskers on the cross of St. Paul's." Dr. Reid says that I cannot prove my view to be correct because I "cannot prove a negative." Am I to take it, then, as a corollary of this monstrous proposition, that Dr. Reid asserts that, say, a lunatic's ideas cannot be contradicted? The real case is, that Dr. Reid and myself are both face to face with certain facts of inheritance and each of us seeks to explain them. He chooses one explanation; I choose another. I do not deny that congenital characters are inherited, but I contend that acquired characters may also be transmitted. It is no question of "proving a negative" at all; it is a question whether Dr. Reid's exclusive view as regards "acquired" characters is to prevail. If he has no stronger argument to offer than his dragon illustration as against my contention he must be indeed in "a parlous state." One word more. Dr. Reid professes to scout Spencer, Eimer, Hertwig, Cunningham, and other advocates of the view that "acquired" characters may be handed on. Nobody asks him to "review the works of Spencer" in THE LANCET, but this rejoinder of his, I hope, none of your readers will regard as disposing of the fact that some of our most distinguished biologists are opposed to the Weismannian and Galtonian doctrines tooth and nail. Already I have referred Dr. Reid to cases reported in your own pages. He will find others in Eimer's and Hertwig's works. He says nothing, for example, of the experiments I alluded to on the division of ova, each division reproducing a perfect animal, and yet he avers there is no evidence on my side for him to criticise. In a word, Dr. Reid shuts his eyes conveniently to the evidence on the other side, and then, with his optic on the dragon seated on the cross of St. Paul's, asks me to desist from requesting him "to prove a negative." "I ask him for evidence," says Dr. Reid, and in turn I have suggested where he will find it. If he does not care to criticise it—he has criticised a good deal of evidence on his own side in your pages—that is his own affair. Meanwhile let me say that I believe that the whole question of heredity is still *sub judice*. It is sheer folly for Dr. Reid, as it would be folly on my part, to pretend that either of us has reached an adequate explanation of the varied phases of inheritance. But I protest forcibly at the same time against the idea that the advocates of Weismannian or Galtonian doctrines have proved their case as against the heredity of acquired characters. That case, as pushed to extremes, may, at present, be adequately represented by Dr. Reid's ecclesiastically minded dragon.

I am, Sirs, yours faithfully.

Edinburgh, July 6th, 1901. ANDREW WILSON.

EPSOM COLLEGE.

To the Editors of THE LANCET.

SIRS,—I beg to thank you warmly for your admirable leading article in THE LANCET of July 13th, p. 90, on the position, aims, and difficulties of Epsom College—nothing could be better. But there is one error in your report of my observations at the dinner that needs correction. The amount collected and expended upon the pensioners and foundation scholars within the past 14 or 15 years has been between £70,000 and £80,000, not between £17,000 and £18,000.

I omitted to state that by the will of the late Mr. J. F. France, ophthalmic surgeon to Guy's Hospital, he has left about £10,000 to found additional pensions for *medical men*, to be awarded at the discretion of the council upon which he had served nearly 50 years. He had also arranged to complete the purchase of a tenth scholarship for girls at the schools of the Royal Asylum of St. Anne's. These also are entrusted to the council to award. Altogether my old teacher has expended £22,000 on the purchase of these scholarships for young girls at St. Anne's and in providing for these additional pensions for aged medical men.

I am, Sirs, yours faithfully,

C. HOLMAN,
Treasurer of Epsom College.

27, Soho-square, W., July, 1901.

"THE ARMY MEDICAL SERVICE."

To the Editors of THE LANCET.

SIRS,—Following your recent leading article on the above subject in which you express regret for the absence on the committee of reorganisation "of an army medical officer of high administrative rank and experience" and "trust that the committee will be empowered to call any witnesses whom they may desire to examine," and the reply of the Secretary of State for War in the House of Commons on July [illegible]th that "the committee was a consultative one." only, that "the proceedings would be private" and that they "would not take evidence," one turned to your issue of July 13th in the hope of finding some reference to the position taken up by the War Office as narrated in the replies to the questions asked by Dr. Farquharson and Sir Charles Dilke, and in the absence of such will you allow me to make a few remarks?

I take it for granted that the department will concur in th views which you express in the article in question; and, indee without a member on the committee of high army medic rank "with a knowledge of military organisation and the re quirements of field medical service," it is difficult to understan how the outcome of this scheme placed before the committe emanating apparently from the War Office itself irrespective o the Army Medical Office, can adequately meet the arm wants and solve the difficulties under which the Roya Army Medical Corps labours. It is true that this com mittee comprises the names of professional men of hig civil standing, a lieutenant-colonel of the Royal Arm Medical Corps who also represents Ireland and the pro fessional head of the India Office, yet, with the one limited exception, it members cannot possess that practica knowledge of the medical needs and the details of army routine organisation and command bearing on the efficient performance of the duties placed upon the corps, which is the outcome of "having gone through the mill" and of experience of "where the shoe pinches", nor can they fully gauge "the general medical requirements of the army they are invited to consider" when deprived of the only means capable of eliciting the needs—the evidence of those who have "borne the burden and heat of the day" We have heard much lately of War Office reformation based on business principles, *yet in respect of the medical section the* primary essential to success—probing of the defects and laying bare the wants and opposing conditions to efficient work by interrogation of those having practical knowledge and experience of details—is ignored And this committee, on whom so much public interest is centred and on whose conclusions so much of future army results depend for good or ill will work in private and "the terms of reference" placed before them it is "not proposed to publish"!

Well, Sirs, this committee is formed for the purpose of redressing the past and preventing the recurrence of the complaints which have given it birth yet it must be apparent to anyone who glances over the past 30 or 40 years that the military authorities might have retained the goodwill of the profession which it had in 1860 61 and obtained an efficient body of professional men by making the conditions palatable to men of good standing and such as would permit of efficient performance of the duties placed upon them, and so have obviated the present necessity for action, but what do the facts of the past 30 or 40 years reveal but a condition of affairs, excluding from the purview the formation of the Royal Army Medical Corps calculated to alienate the men whom the country required and to oppose efficient organisation and work Any time during that period a well contented department would have advertised itself, and it would only have required the War Office to make its numerical wants known to have met with the response from the profession which it obtained in the early "sixties", but so far from this condition pertaining we know that the contrary was the fact and the results we see in the necessity for the present committee I venture to say that few if any thinking members of the department during the period mentioned had the faintest belief in the existence of a wish on the part of the military authorities for a strong and efficient medical service—indeed, their acts negative such a conclusion, and when the past and the present are taken together the hope of a thoroughly well-organised and well contented corps capable of performing satisfactorily the important army duties placed upon it grows small indeed. In the past it is quite certain that the responsibility for the defects of the department, including the shortcomings in the present war, rests with the War Office sections which have determined the conditions under which the work had to be done, and it is to be desired that in the future it will be borne in mind in assessing responsibility how insignificant a part the Army Medical Service played in the present in formulating the conditions necessary for its vitality and efficiency Indeed, the studied indifference to its wishes and voice constitutes the worst feature in respect to its future well-being

I am, Sirs yours faithfully,
FRANCIS H WELCH, F R C S Eng,
Lee S E July 15th, 1901 Surgeon Colonel, A M S (retired)

THE GENERAL MEDICAL COUNCIL ELECTION

To the Editors of THE LANCET

SIRS,—The Council of the British Medical Association having kindly permitted a meeting to be held at Cheltenham during the annual week it has been arranged to hold a meeting at St Mary's Hall on Friday morning, August 2nd, at 9 15 A M All the Direct Representatives of the profession will be invited to attend and to speak on medical politics and the same courtesy will be extended to all gentlemen who intend to become candidates The meeting will be open to all members of the profession, whether members of the Association or not As it is probable that many gentlemen will desire to speak a time limit will be fixed

I shall be glad to receive communications from any member of the profession who is desirous of taking part in the meeting I am, Sirs, yours faithfully,
T GARRETT HORDER.
32, Windsor place, Cardiff, July 16th, 1901

VELDT SORES

To the Editors of THE LANCET

SIRS,—I am reported in THE LANCET of July 13th, p 82, in the account of the meeting of the Pathological Society of London held on July 3rd, as saying that the coccus of the veldt sore "would grow in a moist heat of 86° C, in a dry heat of 110° C, and it had retained all its virulence in a dry film for 61 days This should read the coccus would survive and grow after being subjected for five minutes to moist heat of 86° C, dry heat 110° C, or prolonged drying for 61 days

I am Sirs, yours faithfully,
Middlesex Hospital, July 16th, 1901 N BISHOP HARMAN

"BRITISH MEDICAL MEN AND GERMAN WATERING-PLACES"

To the Editors of THE LANCET

SIRS,—I read with a mixed feeling of interest your correspondent's article about British Medical Men and German Watering places I wonder how many of the gentlemen who carefully inspected these watering places have inspected in the same manner the watering places at home

I also have paid visits to most of the German watering-places before I wrote my work on "Sea Sickness and Health Resorts," but I am glad I did not neglect to visit the English watering places first I maintain that the majority of cases sent to German watering places would do much better if sent to watering-places at home, besides saving themselves great fatigue, expense and many of the *social disadvantages associated* with these German watering-places

The majority of the cases which are sent or go to Germany for Schott s treatment return without any benefit and would improve much better under ordinary treatment at home on account of the cases being unsuitable for Schott s treatment

A German doctor in conversation once said to me that the English doctors were always grumbling about the profession being so poor, yet, he said "you send all your rich patients abroad and keep all the poor ones at home" There is a good deal of common sense in this remark. I think a medical man should always consider whether there is not an English watering place where he can send his patient in preference *to sending the patient abroad*, *further, if he is not acquainted* with the properties of any springs, let him write to one of the local men and he will be sure to receive a courteous reply giving him every information

I should very much like to see the faces of a number of German doctors if it was proposed to them to come and visit our watering places with a view of learning their advantages and sending their patients I am sure it would be a study

There are I know, certain diseases that are more benefited by certain German waters and I further know that there are a certain class of people who will go to German watering places, but I protest against sending our patients over wholesale and forgetting we have watering places at home

I am, Sirs, yours truly,
Manchester square W July 15th 1901 THOMAS DUTTON

"THE CONTAMINATION OF POST-OFFICES"

To the Editors of THE LANCET

SIRS,—With reference to the letters which have recently appeared on this subject in THE LANCET it cannot be too clearly understood that it is maintained by those who are opposed to the present action of the Postal Telegraph Clerks' Association that if the course suggested by that association were adopted it could supply *no guarantee that any needful* sanitary alterations in post office buildings would be carried out

Before, however the assertions made by your correspondents can be accepted as evidence of their aptitude to mould public opinion on these matters it would be well that the public should be enlightened in the very numerous inaccuracies with which their letters abound. In Mr Belderson's letter a very strong point is endeavoured to be made from Mr Balfour's statement on June 7th in the House of Commons that every one of the Tweedmouth recommendations had been carried out A careful perusal of his letter discloses most extraordinary confusion on the part of its writer who in his numerous references to the proceedings before Lord Tweedmouth's Committee has apparently entirely failed in distinguishing between the report of that committee and the evidence which was submitted to it. Lord Tweedmouth's Committee did not in its report state that "much still requires to be accomplished before the post-office buildings of the country will be placed in a universally satisfactory condition as regards their sanitation," nor did it "lay down several canons for the guidance of the officials." On the contrary, the following was its report and so important is this matter that I trust you will pardon me for quoting it *in extenso*:—

> *Sanitary arrangements.*—A good deal of evidence was given as to the alleged insanitary condition of certain post-offices. No doubt in some few cases owing to the rapid development of post-office work and the consequent increase of the staff the offices may not be in all respects satisfactory, but the Post Office appears to us to take all possible steps to remedy such cases, and it is kept acquainted with the actual condition of the large post-offices throughout the United Kingdom by annual reports from its local medical officers. A large number of these officers have furnished us with reports on the offices which they inspect, and these reports appear to us to be on the whole very satisfactory.

Again, as further evidence of the want of accuracy on the part of those who are pioneering this movement for the Postal Telegraph Clerks' Association, reference is made by Mr. Belderson to the knowledge of Dr. Ransom of the unsatisfactory condition of the new Nottingham post office. I am in a position to state that it is known that inquiry was made of Dr. Ransom in connexion with certain statements which he had seen fit to make and that it was found he had absolutely no personal knowledge of the condition of that building beyond the very limited one of the public office, upon which evidence it transpired he had based his assertions.

Again, with regard to Mr. Garland's allegations in THE LANCET of June 29th, p. 1860, as to the excessive prevalence of tubercle amongst telegraphists and his attributing it to the insanitary conditions of post-office buildings, it is worthy of note that the medical officers have for years interested themselves in this subject and only recently have collected statistics concerning it. These statistics just issued reveal that this disease exists only to a very limited degree amongst all grades of postal employés, and that its greatest incidence is found to be not on the telegraphists but on the letter-carriers. A feature exhibited by these statistics which in the present agitation should not be lost sight of is that in a considerable number of cases the faulty dwellings and habits of the men have been held to have been provocative of the disease, and in conclusion this impels me to raise the question, Do these men who are now making such urgent demands of the Government and on the public purse strive to maintain as high a standard in the hygienic conditions of their homes and home life as that they now insist upon as essential when engaged in their work for the public? I fear not.

I am, Sirs, yours faithfully,

July 13th, 1901. P.M.O.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The Plague Epidemic.—The Famine.—An Invasion of Locusts.

THE mortality from plague for the whole of India has further declined from 847 in the previous week to 683 for the past seven days. The Bombay districts seem to remain stationary. In Bengal the disease has rapidly subsided and in the affected districts only a very few cases are now reported. In Calcutta the deaths are only about 20 per week. In Bombay city also there is a distinct improvement. I have previously remarked on the similarity of course pursued by the several outbreaks in these two cities, but Calcutta has never been so severely attacked as Bombay. With each year, however, there has been an increase in Calcutta In the 1889 outbreak there were 1336 seizures and 1223 deaths in addition to 835 suspicious cases. In the 1900 outbreak there were 7897 seizures and 7373 deaths. This year's outbreak has brought 8135 seizures, with 7410 deaths. The deaths from plague have almost entirely accounted for the excess in the general mortality, showing that the system adopted for discovering and reporting plague deaths must be fairly accurate This result has not been arrived at by calling every case plague which cannot be put down to any definite disease, as has been done in many places visited by the epidemic, but by detailed examination of the reports of the medical officers into the history of every death.

The famine returns for last week show an increase of 14,000, of which 12,700 were in the British districts of Bombay. The total under relief at the present time amounts to 520,000 persons.

A large part of India has recently been subjected to an invasion of locusts Swarms have been seen from Beluchistan on the west to Assam on the east. In some districts they have merely passed over without doing any damage; in others slight injuries to the crops have resulted; and in a few places considerable destruction has been experienced. The danger is not so much from the mature insect as from the young. The places where the swarms settle and lay their eggs are always the chief sufferers. The plan generally adopted is to plough the land and thus to bury the eggs, but where these have hatched and the young, wingless hoppers have commenced by their voracious feeding to clear every eatable plant, it is necessary to dig trenches, to drive the immature insects into them, and then to bury them, or to strew the affected land with straw soaked in petroleum and to set fire to it. It is anticipated that unless this is done on an extensive scale for the present visitation enormous destruction of crops will result. Some of the papers are already calling for Government help in the matter. In some districts numbers of dead locusts have been discovered, and they appear to have died from a worm (?) disease, as the thoraces of the infected insects are infested with maggots. These specimens have been sent to Calcutta for examination. Perhaps, after all, nature will provide a remedy.

June 29th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Electric Wire Fatality.

THE electric tramways in Manchester have claimed their first victim. The deceased, a man in the employ of the corporation, was assisting in the changing of an "anchor wire." He went up a ladder, which was not part of his duty, and touched a "live wire." His fellow workman heard a cry and looking round saw deceased "with fire coming out of his hands in the act of falling from the top of the post," which he had reached by climbing the ladder. He fell about 22 feet, alighting on his head. He was taken to the infirmary where he died soon afterwards. The point that was brought out at the inquest which was held on July 12th was that ignorance often, and carelessness far too often, bring about these accidents. It is the old story, familiarity with danger inducing disregard of it. As regards warnings, there was some uncertainty as to the man having had any warning of danger. The electrical engineer for the overhead electrical equipment said that the man had not been personally warned by him. He left it to the foreman. In this case the foreman left it to another man, who in his turn almost certainly failed to warn the deceased. The engineer said that he should "accept the coroner's recommendation to warn all the workmen specifically." The invisibility of the danger makes caution the more needful, so it is to be hoped that the coroner's recommendation will be carried out. Overhead-wire dangers were well illustrated in another way at Bolton on July 22nd. "The trolley-head of a car got fast in the span-wire and the force swung round the bracket-arm of a street-pole, with the result that over 100 yards of overhead equipment fell with a terrific crash and illuminated the street. There were some miraculous escapes from the live wires." The system which allows of such incidents as these is not perfect.

Meeting of the Dwellings Improvement Society.

On July 11th a meeting was held of the newly formed "Citizens' Committee for the Improvement of Unwholesome Dwellings and Surroundings of the Poor," Mr. T. C. Horsfall presiding. In spite of its cumbrous title the society may do good, for its objects are unexceptionable. But the multiplication of societies may go too far, and the strength of the forces opposed to the disease-producing conditions of our towns may be weakened by their being broken up into guerilla bands. The objects of this society are all embraced by the Manchester and Salford Sanitary Association, of [illegible] etted that [illegible] o strength [illegible] of land outside the city boundaries, "both for the provision of open spaces and of houses, is absolutely necessary for the welfare of the community." A town's meeting has recently been held under the chairmanship of the Lord Mayor and a resolution in favour of the purchase of the Park was passed, but the city council numbers among its members some who do not realise the value of large open spaces to the health of crowded towns, or the fact that Heaton Park is the only one now left near Manchester, so that the regrettable blunder by which Trafford Park was lost may be repeated on the north side of the city. Mr. F. Scott, the secretary of the Sanitary Association, in seconding the resolution said that at the town's meeting there was a marked line dividing the two sections for and against the purchase of the park. The latter consisted almost, if not quite, exclusively of the property owners and rent-chargers, while the former "included a very large number of working people whose views were voiced from the platform by the chairman of the Trades Council, and who were enthusiastically in favour of the purchase." It has been carefully calculated by architects and others that, without spoiling the park, its "fringe" could be used for building sites, and would bring in an income of £10,000 a year. Another speaker thought that the purchase was all the more essential "when [illegible] system which was [illegible] m of mere breeding [illegible] "Breeding cages" [illegible] n, but it cannot be said to overstate the case. By another resolution the committee seeks "the coöperation of the Sanitary Association, the Ladies' Public Health Society, the Manchester and Salford Housing Reform Council, and other similar organisations." It remains to be seen whether the council will be moved or not. One need seemed to press on the minds of those present—namely, that the members of the council should not be chosen for their political views, as is almost invariably the case at present, but for their intelligent interest in the physical and moral welfare of their fellow citizens. A clerical speaker said that they had solved this problem in Gorton, where they had elected five members on social grounds by taking them equally from the two political parties, a proceeding which suggests a sort of double Hibernicism. The chairman announced that Professor Chapman, who has recently been appointed to the chair of Political Economy at Owens College, had joined the committee. At the meeting of the Parks Committee on July 11th it was decided that in view of the expression of public opinion that has taken place the whole question of the purchase of the park should be considered at a special meeting.

Medical Golf.

The love of outdoor games still exists in and about Manchester among members of the medical profession, many of whom feel quite at home before the wickets or on the golf links. And when one considers the conditions of life for the residents here—for medical men have necessarily to live near their patients—it is satisfactory to know that a fair proportion gain health and refreshment from cricket and golf. Since May 1st a medical golf tournament has been in progress and has just been decided There were 78 entries and the opening rounds were played on the Trafford Park links of the Manchester Golf Club where the final was also played. Dr. J. Massey of Pendleton was the victor and won the challenge cup for the year, together with a replica to be held as a memento, his opponent in the last stage of the tournament being Dr. J. Howie Smith of Stockport, to whom he is doubtless extremely grateful, for without losers no one could win. Both gentlemen, therefore, are to be congratulated.

Another Tramway Danger.

The great natural beauty of the Manchester suburbs has been destroyed long since by the growth of the town, and it is only of late that our senators have become aware that love of the picturesque and beautiful may coexist with reason and good sense. The consequence is that there is only one approach to the town of which its inhabitants can be proud. Of the Wilmslow-road the *Manchester Guardian* says: "Few great manufacturing cities in England can boast of so fine a leafy avenue within easy distance of the centre of the town …… with its ancient elms and limes." Much the same is true of the Palatine-road, but both are said to be threatened by the corporation and the Withington District Council, who, it is stated, intend to cut off part of the gardens to widen the tram-lines. The dwellers on the road are naturally alarmed, but as the *Guardian* says, it is hard to believe that they will not take every precaution to save the trees, and "we may, therefore, fairly expect the corporation to see that the installation of the overhead system does not destroy the peculiar charm of the pleasantest approach to Manchester." And so say we all.

July 16th.

WALES AND WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

Proposed Sanatorium for Consumption near Bath for the Counties of Gloucester, Somerset, and Wilts.

WITHIN the past few days meetings have been held both at Gloucester and Cheltenham, under the auspices of the Gloucestershire, Somersetshire, and Wiltshire branch of the National Association for the Prevention of Consumption and other Forms of Tuberculosis, in furtherance of a scheme for the erection of a free open-air sanatorium for the poorer classes of those three counties The mayors of the respective towns presided. At the Gloucester meeting the chief speakers were Dr. R. Maguire (physician to the Brompton Hospital for Consumption) and Dr. L. A. Weatherly of Bath (chairman of the executive committee of the proposed sanatorium). In speaking of the prophylaxis of tuberculosis and describing the methods by which the disease could be prevented from spreading from one patient to another Dr. Maguire said that it was a great misfortune that some people should think it was a danger to have a hospital for the reception of tuberculous patients near them. During the last month the question had been raised in regard to the Brompton Hospital, which was the first of the kind established, and some people said that it was a danger to the community. The hospital was built in the fields originally, but a very rich neighbourhood of London had sprung up all around it. The number of cases of tuberculosis of the lungs which had arisen in the Brompton Hospital during the whole of the years in which it had been in existence had been very few, and that was because of the care which was taken. If care was taken there was really no great risk of contagion and it was only right that the public should be educated as to the kind of care that was wanted. Dr. Weatherly gave an account of what the committee of the three counties had done, and were hoping to do, with reference to the establishment of the sanatorium. A site near Bath had already been purchased for £2000 and the foundations of the building had been prepared. The total cost of the sanatorium would not be less than £20,000, and it would accommodate 60 patients in the winter and 100 in the summer. At Cheltenham the chief speakers were Professor J. Michell Clarke, of University College, Bristol, and Dr. Weatherly. At both meetings the following resolution was passed unanimously:—

> That this meeting, recognising the urgent need of the building of a sanatorium for the poorer classes of consumptives in the counties of Gloucestershire, Somerset, and Wilts, cordially supports the scheme, and resolves to do all in its power to help it forward by assisting to raise the necessary funds.

Munificent Bequests by a Clergyman.

The Rev. John Balfour Atkinson, rector of Larling, near Thetford, who held curacies in Somerset from 1873 to 1887, has bequeathed £3000 to Guy's Hospital, and to the Royal Infirmary, Edinburgh, £10,000 and the residue of his property. The net value of his personal estate is nearly £60,000.

Cardiff Infirmary.

The board of management of the Cardiff Infirmary have decided to appoint an additional honorary anæsthetist to attend at the infirmary three times a week. There are at present two honorary anæsthetists on the staff of the institution. A suggestion to appoint an assistant gynæcologist was not adopted by the board.

Swansea Hospital.

An anonymous donor has given £1250 towards the refurnishing of one of the empty wards of the Swansea Hospital. At the June meeting of the hospital committee Miss Dillwyn stated that she had had placed at her disposal by an anonymous benefactor the sum of £500 as the nucleus of a fund for the establishment and maintenance of a convalescent home in connexion with the hospital, but at the meeting of the committee held on July 12th she announced that this amount had been increased to £5000 and that she herself would contribute £100 to the fund provided nine other persons would each give an equal amount. The Swansea Trade and Labour Council are desirous of obtaining more direct representation on the board of management of the hospital for the workmen in the town who are said to contribute one-fourth of the income of the institution. A contributor of 25 guineas has hitherto been a life governor and this qualification has now been reduced to 10 guineas, but a proposal that any body of working men who contribute this sum annually shall be entitled to nominate a governor has not been entertained. A rule embodying this proposal has been added only during the present year to the rules of the Cardiff Infirmary. Although it may never be used to the injury of the institution it is full of dangerous possibilities, for practically any body of persons or members of a congregation, or club, or association by subscribing a guinea yearly are entitled to nominate one governor for the year during which the subscription is current. A certain number of groups of 21 persons, each subscribing 1*s.* yearly, might thus obtain absolute control of the institution.

Slaughter-houses at Bristol and Cardiff.

The Health Committee of the Bristol Corporation have under consideration the further provision of slaughter-houses for the city. In his last published annual report (1899) Dr. D. S. Davies stated that there were in Bristol 124 private slaughter-houses and two belonging to the Docks Committee, and he further stated that the position and structure of a large number of the former rendered them unsuitable for the purpose to which they were put. At Cardiff all slaughter-houses were abolished many years ago through the provisions of a local Act and two admirably arranged and well-constructed public abattoirs are the only places in the town where slaughtering is permitted. In the year 1900 there were slaughtered in these two abattoirs nearly 95,000 animals and during the same year about 16,000 pounds of unsound meat were destroyed. It is of interest to compare these figures with those for the year 1896, when 90,000 animals were slaughtered and about 4000 pounds of unsound meat were destroyed. The large increase in the quantity of meat destroyed is no doubt due to increased vigilance in inspection. This is now carried out by the superintendent of the slaughter-houses and his assistants, by an inspector who has had special experience as a butcher and as a meat-salesman, and by a veterinary surgeon whose whole time is given to the service of the corporation. This increased activity on the part of the health department has had the effect of increasing the number of slaughter-houses just outside the borough boundaries, and in his report for the year 1900 Dr. E. Walford discusses the desirability of a more stringent examination of carcasses brought into the borough from outside districts. He admits that at present no power exists for the establishment of such examination, but he suggests that it might be obtained by inserting a clause in a local Bill requiring that all meat slaughtered outside the town and brought into the borough for sale should be taken for examination to a meat station and if passed as sound should be stamped.

Diphtheria in Glamorganshire.

The continued prevalence of diphtheria in Glamorganshire is sufficiently serious to call for some comment. During the past four years the disease has been endemic and has been responsible for a very large number of deaths. In the past six months, in the seven largest towns of the county—namely, Cardiff, Swansea, Rhondda, Merthyr, Aberdare, Pontypridd and Mountain Ash—where there is an aggregate population of over half a million persons, there have been notified 1350 cases of diphtheria, equal to a case-rate of nearly 5 per 1000 per annum. The number in each town ied considerably, the case-rate in Swansea being 1 per Merthyr 2, in Cardiff 3, in Aberdare 4, in Mountain dda 9, and in Pontypridd 11 per 1000. (The e been omitted in these calculations.) The lerthyr has been hampered in his endeavours to stamp out the disease by the insistence of prominent members of the Health Committee that the epidemic is entirely due to the impure water which is said to be supplied to Dowlais, where a large proportion of the cases have occurred. The danger of allowing the inhabitants to take this erroneous view lies in the fact that though they may refrain from drinking the water they will still continue to visit and to hold religious meetings in infected houses and in many other ways they will spread the disease by personal contact.

Cardiff Cottage Homes.

It has been admitted by the Cardiff Board of Guardians for some time past that increased accommodation would have to be provided for the indoor paupers of the union. A suggestion to erect a new workhouse, which it was estimated would cost about £40,000, met with little support, and it has been alternatively decided to build grouped cottage homes for 72 children. Plans for this institution were adopted by the board on July 5th. The architect, Mr. E. Seward of Cardiff, has provided for an administration block, a detached cottage to accommodate 24 children, with a bedroom for the father and mother and a bedroom for a relief mother, and two detached and two semi-detached cottages with accommodation in each for 12 children and a mother. The total cost of the scheme exclusive of the site is estimated at £6000.

Bristol Municipal Lodging House.

The corporation of Bristol have decided to follow the example of Salford, Southampton, Manchester, and other towns and to erect a municipal lodging-house. There will be accommodation for 120 men and the cost, exclusive of furnishing, is estimated at £7100 or about £60 per bed, a sum which compares favourably with that which was expended at Salford, or at Southampton, or by Lord Rowton in his first venture at Vauxhall. At the Salford lodging-house there is accommodation for 285 men and at Southampton 186 can be accommodated.

July 16th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The School of Medicine of the Royal Colleges, Edinburgh.

AT a meeting of the governing board of the School of Medicine of the Royal Colleges, Edinburgh, the secretary, Mr. R. N. Ramsay, reported that the number of students attending the school during the winter session 1900-1901 was 1160, and during the summer session 1901 the number was 1119.

Appointment of an Aberdeen Lady Medical Graduate.

Miss Myra Mackenzie, M.B., the first lady medical graduate in the history of Aberdeen University, has been appointed house surgeon to the Sick Children's Hospital, Sheffield.

Small-pox at Peterhead.

Last week it was reported to Peterhead Town Council by the medical officer of health and the sanitary inspector that owing to the vigorous measures adopted in view of the proximity of the herring fishing there was no danger of small-pox spreading, the case that had been treated in hospital being convalescent, while the family would remain a week or two longer in hospital. It was stated that a very suitable house for the reception of "contacts" had been obtained and would be occupied so long as was necessary.

Glasgow University.

At a meeting of the University Court of Glasgow University on July 11th, it was announced that under the will of the late Mrs. M'Roberts of Todhill a sum of £10,000 had been bequeathed to the university for the purpose of founding and endowing a chair as the court may direct. On the recommendation of a special committee the court decided to give effect to the resolution of the general council of the university, and to take the steps requisite to institute the degrees of B.Sc. and D.Sc. in the department of public health, and authority was given for the preparation of a draft ordinance prescribing the regulations for the courses of study and for the examinations in connexion with these degrees. A proposal to fit up glass cases on the walls of the Randolph Hall for the reception and display of the illuminated addresses presented on the occasion of the ninth jubilee was adopted. There was no other business of general interest. The final examinations for degrees in medicine which have been in progress during the last three weeks have come to an end and the list of successful candidates has been issued. The graduation ceremony is expected to take place near the end of the month.

Small-pox Hospital Accommodation in Glasgow.

The recent epidemic, now happily a matter of history, has taught the authorities, among other lessons, the necessity for increasing their arrangements for the reception of small-pox patients. It was found that to send these patients to the hospital at Belvedere, where infectious diseases in general are received, had many disadvantages and a special committee was appointed to deal with the question. At a recent meeting of the town council the committee reported in favour of the erection of a new hospital and were authorised to select a site and to obtain plans. Dr. Carswell announced that several sites had been inspected and that the contemplated arrangements would be fully adequate to meet the highly improbable event of a renewed outbreak of the disease.

St. Andrews University.

The trustees of the late Miss Malcolm, sister of Sir James Malcolm, Bart., of Balbedie, have intimated that a legacy of £4000 has been left to the university for the purpose of establishing medical bursaries or scholarships.

New Hospital for Consumption at Perth.

The new hospital for the treatment of consumptive patients, erected at a cost of £10,000 by Sir Robert and Lady Pullar of Tayside on the western slopes of Kinnoull Hill, Perth, was formally handed over to the Society for the Relief of Incurable and Chronic Cases on July 15th. The ceremony took place in the presence of a large and distinguished company, and an inaugural address was delivered by Sir William Gairdner, K.C.B. The hospital is well sheltered from the north and east and stands in its own grounds, which extend to about six acres. Accommodation is provided for 20 patients. A determined endeavour is being made to secure an endowment for at least eight of the beds, so that the authorities may be able to receive a certain proportion of patients from the very poorest classes. This will need a sum of £10,000 and towards this nearly £5000 have already been received.

July 16th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Board of Superintendence of the Dublin Hospitals.

THE annual report of the Board of Superintendence of the Dublin hospitals has recently appeared. It states that during the year ending March 31st, 1901, no culpable irregularity on the part of nurses or attendants was brought before the notice of the board. They note with regret that the interest taken, as indicated by the attendances of the governing bodies at their various meetings, leaves much to be desired. The board are of opinion that the holding of "wakes" in tenement houses, condemned by all religious and medical authorities, might be to a great extent prevented if suitable mortuaries were established in the different parishes. The report states that the board are gratified to observe that the medical staff of each hospital (with the exception of one) is now represented on the governing board by some of its members. As regards statistics, the number of patients admitted during the year to the hospitals under the supervision of the board was 11,601, the total daily average number of beds occupied in the hospitals covered by this report being 946·05. The time spent in hospital by each patient under treatment (omitting the patients in the Royal Hospital for Incurables) averaged 24·16 days.

Tuberculosis in Ireland.

In a notice of the forthcoming Congress on Tuberculosis the *Irish Times* calls attention to some recent returns of the Registrar-General for Ireland dealing with the subject. They show that in 1899 79,699 deaths from all causes were registered in Ireland and of these no less than 12,812 were caused by tuberculosis. It appears thus that the deaths from tuberculosis are far more numerous than those caused by zymotic diseases, although the latter include scarlet fever, small-pox, measles, diphtheria, epidemic diarrhœa, typhus fever, typhoid fever, cholera, dysentery, whooping-cough, influenza, puerperal fever, simple continued fever, and ill-defined fever. The mortality caused by all these taken together was for the year 1899 8857, or only two-thirds of the number attributable to tuberculosis alone. In Dublin 1200 people die each year, while in Belfast there is an annual mortality of over 1000. Modern pathological research tends every year to add to the number of diseases traceable to tuberculous infection—e.g., the chronic abscess and the enlarged bursa. It seems probable that for this reason alone the returns of deaths from tuberculosis will largely increase.

The Conference of the British Pharmaceutical Societies.

The British Pharmaceutical Conference will be held in Dublin on July 29th when the proceedings will be opened by a reception by the President at the Museum of Science and Art. The President for this year is Mr. G. L. Druce, M.A., F.L.S., Mayor of Oxford. The visitors, of whom between 400 and 500 are expected, will be welcomed by the Lord Mayor of Dublin and will hold their scientific meetings in the lecture theatre of the Royal Dublin Society.

County Antrim Infirmary.

At a meeting of the Board of Management of the County Antrim Infirmary, held in the board-room of the hospital, Lisburn, on July 11th, a committee was formed to draw up a representation for the County Down County Council asking them—in reference to the admission of patients—to contribute towards the expenses of that county's patients. It was suggested that in order to increase the finances a fancy fair and bazaar should be held.

The Outbreak of Typhoid Fever in Belfast.

At the meeting of the Public Health Committee of Belfast on July 11th a report in reference to the outbreak of typhoid fever was presented by Dr. A. G. Robb, visiting physician to the fever hospital; by Dr. J. Fulton, medical officer of health of No. 10 Dispensary District; and by Dr. H. Whitaker, medical superintendent officer of health of Belfast. These medical men made a careful inquiry into the history and probable cause of the onset of typhoid fever in a list of 24 houses supplied to them, the number of cases of typhoid fever being 27. In their endeavour to arrive at the cause of onset they quoted the evidence under the following headings: 1. Date of first appearance of the disease. This varied widely from the end of March until the beginning of June. In the latter half of May in a considerable number the disease first appeared. 2. Sanitary state of houses. The large proportion of these houses are of modern construction, built on good ground. With three exceptions they are provided with back passages; with one exception they have water-closets. In no case was there a cistern, all drinking-water being drawn direct from the main. With three exceptions the yards were in good condition, well drained and trapped. In a few cases, however, they proved evidence of the greatest carelessness and disregard of sanitary habits on the part of the inmates. In some, where there were good water-closets in good working order, these closets were apparently little used, deposits of fæces being found all over the yards 3 Careful inquiry into the possibility of infection from food supplies failed to elicit any satisfactory evidence of infection in that way. 4. Milk-supply. In two houses condensed milk was used, in four there was no regular supply of milk, while the remaining 18 houses drew their milk from 13 different sources. Inquiry at these 13 places of supply failed to elicit any evidence of the possibility of infection by that means. 5. Water-supply. These houses are supplied with the Stoneyford water. The medical men appointed visited the gathering ground in the Stoneyford catchment area, and they report that they found abundant evidence of the direct contamination of the Stoneyford reservoir with alvine discharges, both brute and human, and that but little change had occurred therein during the last three years when two of the sanitary sub-officers reported that "the drainage of a number of farmhouses, stables, manure-heaps, &c., discharges either into the subsoil or into the adjoining streams or water-courses." They found that two cases of typhoid fever had occurred in this area in different houses on Feb. 5th and 28th last; one of the patients died and the other had been removed to hospital after a week's illness. They think that it is impossible that the reservoir could have escaped contamination from these cases of typhoid fever at that time. They give details of cases where from farms in the district the reservoir was contaminated. From the house from which the patient was removed with typhoid fever the drainage of the farmyard and manure heaps discharges into an open drain in front of the dwelling-house and thence directly into an adjoining stream which communicates with the reservoir. In their conclusions the medical men report that in the majority of these cases the onset occurred at the end of the long period of dry weather in the month of May and seems to have been connected therewith. Owing to the very unsanitary habits of some of the inmates of these houses and the consequent certainty that the soil of the yards must at times become polluted with the dejecta of typhoid fever patients, they believe that so long as patients are treated in this careless manner in their own homes secondary cases must frequently arise from this cause, and that sometimes the lapse of time between these cases may be many months and may be determined by long periods of dry weather. The evidence they observed of the pollution of the Stoneyford reservoir with sewage matter from the numerous farms still occupied in the catchment area, and the evidence of direct contamination with sewage from houses in which typhoid fever had recently occurred, leads the medical men to believe that the water-supply is mainly responsible for the excess of typhoid fever in the district. It is satisfactory to know that there is a considerable decrease in the number of cases notified during the past week.

Close of the Summer Session at Belfast.

The summer session came to a close last week, and at the Royal Victoria Hospital most of the senior medical men are going off duty for the next two months.

July 16th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Paris Municipal Council and the Discharge of Infectious Cases from Hospital.

M. MARSOULAN recently brought before the Municipal Council the case of the mother of a family one of whose children had been treated at the Trousseau Hospital for diphtheria. The mother, despite the cruelty which her action entailed (for the child was at the last gasp), could not allow her son to die in the hospital and took him home. The director of the hospital tried in vain to persuade the mother not to take the child with her, pointing out that he would spread infection in the dwelling to which she took him. But nothing could shake her determination to remove him. There is no law under which the director of a hospital can refuse to allow a patient who is the subject of infectious disease to go, or to be taken out, before recovery, and M. Marsoulan rightly urged that all attempts to prevent the spread of infectious disease, such as isolation wards and antiseptic measures, are not of the least use so long as they are all made to give way to a mother's wishes. M. Marsoulan asked the council to take such measures as would give powers to the directors of hospitals by the exercise of which they could render of some effect the efforts which are constantly being made in the cause of hygiene and public health. M. Marsoulan demanded urgency for the following motion. "That as soon as possible a law should be passed by which directors of hospitals or other establishments in which cases of infectious disease are treated should be empowered to prevent such patients leaving the hospital before recovery." This motion was unanimously carried.

Railway Hygiene.

The Minister of Public Works has just addressed a circular to the railway companies wherein he recommends that the following measures should be taken with regard to the carriages and waiting-rooms. All floor coverings other than those made of linoleum or indiarubber or other easily cleansed material should be done away with. Sweeping and dry cleaning should be forbidden and be replaced by sluicing with a hose or rubbing over with a cloth wrung out of some antiseptic fluid. Pending a supply of plain cushions (which should not be buttoned down or have any folds in them) covered in some impermeable stuff which can be frequently cleansed all cushions and padding should be covered with loose covers which should be from time to time disinfected in a stove. The circular further lays down that passengers who are obviously suffering from infectious diseases should be made to travel in a special carriage which on arrival at its destination should be disinfected. Everyone will approve of these rules in so far as they bear upon cleansing and especially in the suppression of buttoned-down cushions. But the last clause will be most difficult of application. Neither the public nor railway employés are capable of deciding whether or not a person is obviously suffering from an infectious disease.

Brewer's Yeast as a Test for the Intercommunication of Springs.

At the meeting of the Academy of Sciences held on June 17th M. Miquel pointed out that it was easy to ascertain whether a well or a water-course communicated with a spring, which it might be necessary to take up as a water-supply, by throwing in a little brewer's yeast which was afterwards sought for in the water which it was desired to take up. Some of this water was to be placed in a mattrass kept in a stove at a temperature of 25° C. To every 1000 grammes of water there were to be added one gramme of tartaric acid and 200 grammes of saccharose. If the water contained yeast an active alcoholic fermentation was set up in from 24 to 48 hours. Yeast preserved its vitality in water for a long time and had been known to exhibit fermentative powers after being two months in an aqueduct 100 kilometres in length. The amount of yeast used varied according to circumstances from 10 to 40 kilogrammes.

The Law as to Workmen's Compensation and Medical Aid.

When the law as to compensation for accidents to workers came into operation everyone said that it was very imperfect and would very shortly have to be revised. No one was satisfied, neither the workmen nor the masters, and as to the medical men on whose coöperation the whole law depended it was quite obvious that as usual they were expected to give advice as a matter of charity. Modifications with regard to the following clauses have just been brought before the Chamber of Deputies. 1. The right of choosing a medical man. 2. The rate of payment of expenses. 3 The treatment of the injured in hospitals. As regards the first proposal medical men have, thanks to the efforts of M. Dubuisson, obtained this boon. The Chamber has decided that the injured man can be attended by any medical man and be supplied with medicine by any apothecary whom he may choose. This is an important modification, although it is only the application of an old rule which existed by the law of 1898 but was not very evident. As regards payment, by the law of 1898 legislators did not dare to propose that treatment of injured workmen should be gratuitous, although the certificate as to the origin of the wound was ordered to be given gratuitously. They remembered, however, that by the law of July 15th, 1893, poor persons were to be attended at a special rate and that a very low one. Accordingly in 1898 they decided that workmen injured in the course of their employment should be attended at the same rate—namely, that of the Assistance médicale gratuite. As far as the really indigent were concerned medical men had no objection to charging a very small fee, but as regards workmen injured during their employment they stood upon quite a different footing. They were not indigent, but workmen on full pay. If they had received an injury apart from their work they would have called in a medical man and would have paid him according to their means. They were workers and the law said that their employers should pay; this was not out of charity, but as a principle of justice which made the employer responsible for an injury caused by some agent which was gaining profits for him. This being so, the employer is certainly not an indigent person, and all the less in that he is protected by being insured. Insurance companies are rich, and why, then, should medical men give gratuitous attendance to a workman whose employers pay a fee which they finally get out of the insurance company? Why should a medical man give gratuitous attendance simply, as finally happens, to benefit the shareholders of an insurance company? The Chamber of Deputies has, however, adopted the usual scale of medical pay which is in use by the Assistance Publique. M. Poulain demanded in company with the Socialists that any workman should have the right of being treated at his own home, even though seriously injured. The Chamber did not agree. Every hospital in Paris or the provinces was at the service of the insurance companies. The President of the Committee argued that he could not promise that a workman would be treated at his own home, but he could if he went to a hospital where he would be well cared for and where his recovery would be more rapid and more certain. This argument is false. Apart from very severe injuries there is no proof that a workman would not get well quite as quickly at home as in a hospital. Take, for example, fracture of the leg, a common enough accident. Why should a workman take up a hospital bed for 40 days rather than occupy his own bed for the same time? M. Poulain argued that in cases where it was necessary the medical man in attendance should be allowed to call in a consultant. But the Deputies would not listen; they put all the hospitals at the free disposal of the insurance companies so that a medical man practising in a factory town will see all his working-class surgical cases swept into hospital before his face

July 15th.

SWITZERLAND.

(FROM OUR OWN CORRESPONDENT.)

Treatment of Whooping-cough.

DR. THEODORE ZANGGER has issued a *résumé* of upwards of 100 cases treated principally by preparations of quinine, which in the later cases was combined with hydrotherapeutic measures. The cases referred to were children under six years of age, the youngest being two, five, and eight weeks respectively. There was no fatal case observed, though five cases came under treatment with single pneumonia, sometimes of a very severe type. The number of paroxysms of whooping-cough never exceeded 32 in 24 hours, and they decreased rapidly during the second week of treatment. The general state of health on discharge, generally after two, three, or four weeks of treatment, was often so good that a change of air seemed unnecessary. Tannate of quinine proved of little effect; the best results were obtained from hydrochlorate of quinine dissolved in water and administered in milk in doses of from one to three grains three times a day before meals, according to the age of the patient. Very good results were also obtained from the exhibition of euchinin in the form of a powder, which has the advantage of being almost tasteless and can more readily be administered to children. The dose varied from two to six grains two or three times a day before meals. Wet packs reaching from the armpits to the ankles had a very soothing effect, when properly applied and well covered with flannel, and were left on for two or three hours or for the whole night; in case of concomitant pneumonia they can be renewed several times in 24 hours.

Sanatorium for Consumptives.

Dr. Staub, director of the Zürich Cantonal Sanatorium for Consumptives at Wald, the altitude of which is 900 metres above sea level, states in the second annual report for 1900 that a total of 231 patients was admitted, mostly poor people, for whom the daily sum of 2 francs (1*s.* 7½*d.*) had to be paid either by the parish or by private benevolent institutions if they or their friends could not pay this small sum. The results were nearly as satisfactory as in the previous year; 183 of the patients, or 79 per cent., were dismissed "improved," and 59·3 per cent. were fully capable of resuming their usual occupations. Financially the sanatorium is progressing well owing to the support of the public, it is free from debt, and it closes its yearly account with a credit balance of over £300. The cost of a single patient per day is 3*s.*, so that a deficit of £1350 was covered by the yearly subscriptions and gifts

Zürich, July 15th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

The Plague.

THE bubonic plague still lingers on in Queensland where several fatal cases have occurred Its existence in Brisbane necessitated an alteration in the movements of the Duke and Duchess of Cornwall. The original intention was that they should go to Brisbane by sea, but Brisbane having been proclaimed an infected port the Royal yacht would have run risks of quarantine had she gone there, so the Royal party went overland by train. It is high time that the Australian system, or rather want of uniform system, in regard to quarantine should be reorganised. It was expected that it would be one of the first things to receive attention under the Federal Government, but so far nothing has been done and every day fresh muddles occur.

Health of Melbourne.

The annual report of the Health Office of the city of Melbourne for the year 1900 is a satisfactory document. The death-rate was only 12·97 per 1000, lower than in any previous year. The average mortality for the last five years was 14·23, as against 16·29 and 19·54 for the previous quinquennial periods. The mortality from epidemic disease was low, a total of 30 as against 73 in 1899 and 106 in 1898. There was also a large reduction in the mortality from diarrhœal diseases, and among infants tuberculosis caused the greatest number of deaths, and there was no decline noticeable in its prevalence or fatality. During the year improvements in dwellings had been largely effected, 222 houses were repaired, 36 pulled down, and 11 vacated under orders from the Health Committee.

Sydney Hospital.

The Board of Management of the Sydney Hospital have just completed a handsome building at Paddington to be used as a branch dispensary for the eastern suburbs. The following appointments have been made in connexion with this dispensary: assistant physician, Dr. G. M'Lean; assistant surgeon, Dr. C. E Corlette. Dr. Richard Arthur has been appointed assistant surgeon to the throat department at the main hospital

Sydney University.

At the last monthly meeting of the senate of the Sydney University it was reported that the following courses of optional lectures would be delivered in the Faculty of Medicine.—Diseases of the Skin, by Dr. F. A. Bennet; Diseases of the Ear, by Mr. G. T. Hankins; Demonstrations in Psychological Medicine and Neurology, by Dr. J. F. Flashman; Diseases of Children, by Dr. A. E. Mills; and the Ethics of Medical Practice, by Dr. P. Sydney Jones. It was also decided to establish a Professorship of Pathology upon the same footing as the recent professorships in the University, and that the necessary steps should be taken to invite applications.

Bendigo Hospital.

Dr. Walter Fowler, late of Echuca, has been appointed medical superintendent of the Bendigo Hospital, Victoria.

Treatment of Sewage.

The Sydney Water and Sewage Board propose to erect a septic tank on the Scott-Moncrieff system for the treatment of sewage at Rose Bay Park—a place of public resort—and also at Balmoral Beach, a place thronged with holiday-makers on Saturdays and Sundays. The proposal has called forth great indignation and protest on the part of the public. The board and its expert officers maintain that the system is quite inoffensive in its operations and has been practically tested at the Botany Bay sewage farm. Dr. Mackellar, M.L.C., and Dr. Norton Manning, late President of the Board of Health, have sent in a report to the local councils concerned, in which they state that the septic tanks now in operation at Botany are very unsatisfactory and cause offence, and while permissible at a sewage farm as an adjunct and at places removed from population should not be erected in places of public resort.

Hospital Saturday in Sydney.

The annual collections on behalf of the Sydney hospitals were held on May 4th and proved very satisfactory, the total amount collected being £4375, a considerable increase on previous years.

Death under Chloroform.

A case of death under chloroform occurred recently at a private hospital at Darlinghurst, Sydney, somewhat exceptional from the circumstances that the victim was an infant, only 10 months old, who suddenly collapsed and the medical evidence at the inquest failed to account for the collapse.

The Medical Practitioners Act in New South Wales.

A case of some importance with reference to prosecutions under the new Medical Act was recently decided by the Full Court of New South Wales A "Chinese doctor" was prosecuted at Queanbeyan under the Act for "using a title implying that he was a legally qualified medical practitioner—to wit, the title of physician." The man's sign read "Chinese physician and surgeon." The magistrates decided in favour of the Chinaman and the Crown appealed against their decision to the Full Court who by a majority, but not unanimously, supported the magistrates' decision on the ground that the original information was wrongly laid under the second instead of the first section of the Act and that the words "Chinese physician and surgeon" did not imply that the man was a legally qualified medical practitioner. Under the first section of the Act it was an offence to use the word "physician" at all, but that was not the charge in this case.

Honours for Australian Practitioners in South Africa.

Surgeon-Captain N. R. Howse of the New South Wales Medical Staff has been gazetted for the Victoria Cross. He formerly practised at Orange, New South Wales. Surgeon-Captain R. Roth, also of the New South Wales Medical Staff, has been created a Companion of the Distinguished Service Order. He was Surgeon-Captain Howse's senior at Vredefort with Ridley's brigade where the action occurred which gained both officers distinction. Surgeon-Captain Howse dashed out in a hail of bullets and brought in a young trumpeter who was wounded.

Death of Dr. Dagnall Clark.

The news of the sudden death of Dr. Charles Alfred Dagnall Clark came as a great shock to the public of Sydney and his many friends. Dr. Clark was at one time physician to the Sydney Hospital and at the time of his death was on the staff of the North Shore Cottage Hospital. He had practised most successfully at North Shore for about 20 years and was held in the greatest respect for his professional skill and great kindness of heart.

June 15th.

Obituary.

GEORGE HANBY DE'ATH, L.R.C.P. LOND., M.R.C.S. ENG.

THE death is announced of this well-known and esteemed practitioner at Buckingham on Sunday, July 7th, from heart failure due to overwork and an attack of gout. The son of the late Robert De'Ath who had practised at Buckingham for many years, he was educated at Westminster and in due time entered at Guy's Hospital where he had a distinguished career as a student. He qualified M.R.C.S. Eng. in 1884 and L.R.C.P. Lond. in 1885 and on his father's early and sudden death in 1886 succeeded to the practice which he carried on with much success, though he was extremely young for so important a post.

At the time of his decease Mr. De'Ath held the appointments of coroner to the Winslow Division of North Bucks, medical officer of health to the borough of Buckingham, medical officer and public vaccinator to the Buckingham Union, and surgeon to the Oddfellows and other societies. The duties attached to these several appointments, as well as a large private practice made severe demands upon his health and strength. He was not one to spare himself in any way, being extremely devoted and conscientious towards his patients and official duties. Hence his early breakdown. He had been confined to his room for a fortnight or so with synovitis in both knees, but no danger to his life was anticipated from this cause, though it was known to himself and others that he had an enfeebled and dilated heart. Indeed, his old friend Dr. J. F. Goodhart had within a few weeks warned him to be careful and to give up his bicycle, to which he was much attached. However, after an attack of syncope on the previous evening he succumbed early on the morning of July 7th in his fortieth year. By a strange coincidence the last inquest which he held (on June 22nd) was in a case of sudden death from heart disease in the cricket field at Winslow.

To those who knew him well Mr. De'Ath was endeared by his large-hearted tolerance of the opinions of others, an unselfish devotion to his family and friends, and a warm and affectionate nature. Highly cultured and well-read, he was a successful practitioner and readily gained the confidence and esteem of his patients. He took part, too, in public affairs with keenness and skill. A politician of somewhat advanced views, he made his influence felt in local matters. He was also an able and eloquent speaker and debater and an excellent amateur actor. Many of these acquirements he learnt when at Westminster, as he was a constant attendant at the debates in the House of Commons and formed many influential friendships amongst public men. Indeed, at that time he was generally known as the "Boy Politician." One of his latest appearances on the platform was to oppose—and very successfully—an anti-vivisectionist lecturer who visited Buckingham last spring and still more recently he joined in the welcome given by the town to the Bucks Yeomen on their return from South Africa. During the occupancy of Stowe by the late Comte de Paris, Mr. De'Ath was the trusted and confidential attendant of the family and household. He was, too, the welcome adviser of many of the best families in his neighbourhood.

A member of the British Medical Association, he filled the office of president of the South Midland Branch in 1896. Mr. De'Ath was the author of works upon cholera, infant feeding, and sanitation, and contributed an interesting paper on Medical Practice which was read before the Physical Society of Guy's Hospital. But his many occupations left him little time for literary work, though he was an extensive reader in all subjects connected with his profession.

A widow and two young sons are left to mourn their loss, besides a host of friends and neighbours to whom he had become almost a necessity. His last illness was soothed by the constant attendance and advice of his partner, Mr. Howard, and his old friend Mr. Herbert Menzies. The funeral took place on July 11th, at the parish church, Buckingham, and was attended by a large number of mourners, including the mayor and corporation of the borough and many old fellow students, patients, and friends. Every mark of respect to his memory was shown by the closing of shops and other tokens of mourning. Kind and affectionate notices of his life and work have appeared in the local papers, fitting memorials of the esteem in which he was held by his fellow townsmen and townswomen.

JOHN EDWIN SCOWCROFT, M.D. ST. AND., F.R.C.S. EDIN., F.F.P. & S. GLASG., J.P.,

MAYOR OF BOLTON.

JOHN EDWIN SCOWCROFT, who was a well-known practitioner in Bolton, died suddenly in the early morning of July 10th, at the age of 56 years. For some years Dr. Scowcroft had taken an active part in municipal matters, and at the time of his death was mayor of the town and an alderman of, and J.P. for, the county borough. He was a member of an old Bolton family and in 1864 became an undergraduate of Durham University. He studied medicine at the Manchester and Liverpool Schools of Medicine, and was prosecter of anatomy at the Royal School of Medicine, Manchester. In 1868 he became a Licentiate of the Royal College of Physicians of Edinburgh and the Faculty of Physicians and Surgeons of Glasgow; commencing practice in Bolton shortly afterwards he succeeded in establishing a large practice. He afterwards became F.F.P. & S. Glasgow, 1872; F.R.C.S. Edin., 1876; and M.D. St. And., 1886. He became honorary surgeon to the Bolton Infirmary and was Surgeon-Captain in the 2nd Volunteer Battalion Loyal North Lancashire Regiment. He continued to discharge the duties of his profession to the last, and being punctilious in his habits got through an enormous amount of work. He was popular as a public man and obtained a warm place in the hearts of the people of Bolton by his kindly consideration of all in the discharge of his municipal and magisterial duties. He had been ailing from time to time from some throat affection, but continued his active work, and on the night of July 9th he had been at his surgery as late as 9.30 P.M. Early in the next morning he was seized with apoplexy and died before Dr. R. Patrick or Dr. A. H. Taylor, his assistant, had time to arrive. He leaves a widow, a son, and a daughter. The son, who is a member of the profession, left a few weeks ago for South Africa. Dr. Scowcroft was interred on July 13th in the churchyard of St. Michael's, Great Lever. The funeral being of a public character there were present a large number of magistrates, members of the corporation, and heads of the different departments, as well as a number of gentlemen representing various societies and institutions.

DEPUTY INSPECTOR-GENERAL RICHARD DOMENICHETTI, M.D. EDIN.,

HONORARY PHYSICIAN TO THE KING.

DR. RICHARD DOMENICHETTI, whose death occurred at his residence, Collingham House, Woodhall Spa, Lincoln, on July 12th, was the eldest son of the late W. L. Domenichetti, of the 95th Regiment. He graduated in medicine at Edinburgh in 1845, serving afterwards in the 8th King's Regiment and 1st Gordon Highlanders (75th Foot) He was appointed to the personal staff of Sir Willoughby Cotton, G C B, and afterwards to the staff of the late Sir H Havelock *Dr Domenichetti* was present as senior medical officer in the actions preceding the capture of Cawnpore and the relief of Lucknow, and received the thanks of the President of the Council of India for his services before Lucknow in 1857, and was awarded the medal and clasp The late Colonel F C Maude in his work "Memories of the Mutiny," alluding to the fact that Havelock's untimely death deprived many officers of the recognition of their services writes as follows —"I am forced to limit my observations to the *personnel* of Havelock's column, and to select from among them the men I have personally known, whose services were the most brilliant, but yet who have received the *minimum* of recognition or reward Foremost among these I would enumerate Delafosse, Dodson, and Domenichetti, the last-named, though a non combatant, was our P M O, and in that capacity was present at every engagement until he was left behind in the Alum Bagh with the sick and wounded, in medical charge of its tiny garrison, under MacIntyre of the 78th Highlanders" Dr Domenichetti after retiring from the service, acted for 25 years as medical officer of health at Louth Lincolnshire In 1895 he was appointed honorary physician to Queen Victoria, and in 1897 was the recipient of the Queen's Jubilee medal

Dr Domenichetti had been in failing health for the last two years In June, 1890 he took up his residence at Woodhall Spa when he was found to be suffering from senile glycosuria His bodily weakness and gradual emaciation had made such progress that he kept to his bed for the last weeks of his illness and he died in a comatose condition at the ripe age of 78 years

Medical News.

UNIVERSITY OF GLASGOW—The following have passed the fourth (final) professional examination —

(a) *For M B, C M*—Duncan Davie William Henry Ferran Shushil [illegible]

(b [illegible] apman † James Bertie Currie David Beattie Hugh Grant Davie George Balfour Eadie, Forrest John Andrew Garden, Andrew Parlane Grainger, John Gregor Mabel Hardie, George Pillans Harlan Francis Joseph Henry, Janet Bisland Higgins † Douglas William Hunter † Matthew Hunter William John [illegible] lpatrick [illegible] James [illegible] M Lean [illegible]

* Attained distinction in surgery and clinical surgery; † attained distinction in practice of medicine and clinical medicine, ‡ attained distinction in midwifery

THE HOSPITAL FOR EPILEPSY AND PARALYSIS—The annual meeting of the governors and supporters of the Hospital for Epilepsy and Paralysis and other Diseases of the Nervous System was held on June 26th, at the hospital, when the Right Rev the Bishop of Stepney presided. The Chairman in moving the adoption of the report, said that he had heard with deep regret of the present necessity for closing the in patient department, and it seemed a hard case and a deplorable wrong that a hospital capable of doing so much good and having done so much in the past, should meet with such a crisis in its affairs Canon Barker said he felt that the committee were not only to be condoled with but also to be congratulated, seeing that firstly they had secured a site for a projected building and that secondly, after the purchase of the site, they had still in hand a sum of no less than £12,000 He considered that this hospital had done a splendid work, even in a building which was admittedly at best a makeshift and imperfectly adapted for its purpose, and it was now going to have a really beautiful home, where it would be housed in a way difficult to improve upon The report having been unanimously adopted general business was transacted and the meeting terminated with a vote of thanks to the chairman

PRESENTATIONS TO MEDICAL PRACTITIONERS—Mr G Hett M D Edin, M R C S Eng, L S A., was the recipient on July 5th of a silver watch from the members of the Westbourne Provident Medical Dispensary The watch bears the following inscription —"Presented to Dr Hett by *his patients and friends in the Westbourne Provident Medical Dispensary, in acknowledgment of his untiring devotion to this institution for twenty six years*"—Mr F Lynes, M D St And, M R.C S Eng, L S A, J P, on his retirement as surgeon of the Earl of Craven Lodge (M U) of Oddfellows after 37 years of service has received from the officers and brethren a marble clock bearing the inscription 'Earl of Craven Lodge M U Presented by the officers and brethren to Dr E Lynes as a small token of their appreciation of his ability, kindness, and attention during the 37 years he held the position of surgeon to the lodge'—Mr J H Carson L.R.C P, L R C S Edin L.F P S Glasg, of Crumlin Ireland, was presented on July 4th with a purse of sovereigns and a tastefully illuminated album containing the addresses and signatures of subscribers and photographs of places of interest in the district, the occasion being the eve of his departure to take up practice in England—Mr J J Hanly, L.R.C P, L R C S Edin, who is leaving Bath to take up a practice in Alderney, has received from the inhabitants in the neighbourhood of Chewton Mendip, Binegar, and Oakhill an illuminated address, which reads as follows —'To Dr J J Hanly M A, Lancet House, Oakhill Bath Dear Sir,—It is with deep regret we, the undersigned hear that you purpose to leave this neighbourhood During the time you have resided amongst us we have alw [illegible] to your duties [illegible] greatly missed, [illegible] Hanly, and family every success in your new sphere of labour, and trust health and prosperity may attend your footsteps We are, yours very sincerely —A gold bracelet was also presented to Mrs Hanly by the workers and the poor of ten parishes as a token that they had not forgotten the wife of a hard working doctor' Mr Hanly has obtained the Government grant for successful vaccination

SOCIETY FOR RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN—A quarterly court of the directors of this society was held on July 10th, at 8 30 P M The chair was taken by the President Mr Christopher Heath Seven new members were elected and the deaths of four members were reported and the election of a member was declared void. Two fresh applications for grants were read from widows, and grants at the rate of £50 a year were made It was resolved that a sum of £1284 should be *distributed* among the 52 widows, 14 orphans and six recipients from the Copeland Fund. The expenses of the quarter amounted to £45 13*s*

THE BRISTOL BOARD OF GUARDIANS AND THE TREATMENT OF PHTHISIS—The Bristol Board of Guardians have been recently discussing the treatment of their phthisical patients, and on June 15th a committee urged the desirability of obtaining a suitable house in the country for the better treatment of the cases of phthisis (at present 34 men and seven women) in their workhouse infirmary At the meeting held on July 11th a report was presented from the hospital committee recommending the provision of a home at Clevedon They suggested a building named "Hallam Hall," which could be fitted up to provide accommodation for 35 male and a similar number of female patients The estimated expenditure was £600 yearly The committee considered that by means of such a home the pressure of the workhouse infirmaries would be relieved, and from information received from the district medical officer an average of about six out-door poor cases could be sent weekly After some discussion the guardians referred the matter back to the committee to reconsider and to report upon as to a lease of the building being arranged for 14 years, including a provision entitling the guardians to purchase at a given price at any time during the term.

BRITISH DENTAL ASSOCIATION. — Mr. J. L. Robertson of Cheltenham being the President-elect, the Central Counties Branch of the British Dental Association held its annual meeting in Cheltenham on July 12th and 13th. At the business meeting the following officers were elected: President for 1902-3, Mr. J. Mountford, L.D.S. Eng. (Birmingham). Vice-Presidents: Mr. A. E. Donagan, M.A. Cantab., L.D.S. Edin. (Birmingham), and A. E. Vickery, L.D.S. Ireland (Coventry). Representative on the Council of the British Dental Association, Mr. H. R. F. Brooks (Banbury). Honorary treasurers: Mr. Malcolm Knott, L.D.S Glasg. (Birmingham), and Mr. G. F. Cale Matthews, L.D.S. Eng (Birmingham). The secretary's report showed that the membership had increased from 66 to 71 in the branch this year.—Mr. Vickery, the retiring president, gave a brief valedictory address at 6.30.—Mr. J. L. Robertson, who was cordially greeted on rising to make his first speech as President, said, in the course of his remarks, that, like their retiring President, he was strongly of opinion that more attention should be devoted to the mechanical department of dentistry. He thought that a good deal of the time that was devoted to surgical science might be more profitably employed in the workshop.—The President afterwards entertained the members and several local friends (including the Mayor of Cheltenham) to dinner at the Queen's Hotel.—On July 13th papers of a technical nature were discussed, and at noon Mr. Robertson invited the members to his house at Withington, where lunch and tea were provided, and the programme included a drive through Lord Eldon's estate to the Roman Villa.

EASTERN COUNTIES ASYLUM FOR IDIOTS. — The annual meeting of the friends and subscribers of the Eastern Counties Asylum for Idiots, which was held at Norwich under the presidency of the Duke of Norfolk, was the occasion of much well-deserved congratulation. In moving the adoption of the annual report the president of the meeting concluded his remarks by alluding to the charity as one of which the eastern counties ought to be proud—a charity in which implicit confidence could be placed and which it was a privilege to be allowed to help. Sir Frederic Bateman, the Mayor of Norwich, the Dean of Norwich, and the sheriff (Mr. Cozens Hardy) were no less complimentary in their comments upon the institution, and the very large number of persons present proved that the expressions of these speakers as to the way in which the charity was administered and managed were no mere exaggerated statements, but really represented a substantial feeling of confidence and determination for future support. Necessity for sanitary reform had involved the asylum in unusual expenses by which a deficit had been incurred. It was satisfactory to hear that this was already made good except for a comparatively small amount which the authorities of the institution appealed with confidence to the public to supply. One of the most satisfactory features of the asylum is the success with which different forms of employment have been adopted for bringing out and developing the least talent or ability that a patient may possess. Some of the work of the feeble-minded inmates of the Eastern Counties Asylum might well be acknowledged with pride even by artificers more fortunately endowed from birth with proper brain development.

THE APPOINTMENT OF POLICE SURGEON AT EXETER.—There has recently been some friction at Exeter between the town council and the police surgeon and the appointment has been advertised. At the meeting of the town council held on July 10th it was reported that there were only two applicants for the post. One of the members stated that he considered that it would be a great mistake if the council made the appointment under the circumstances; they had a gentleman who for many years had discharged the duties to the satisfaction of everyone and now it was proposed to select as his successor one of two gentlemen neither of whom was known to the citizens. Another speaker thought it a reflection on the council that only two candidates had applied and considered that the medical profession had boycotted the council. Eventually one of the two applicants was elected, several members refraining from voting.

A HEALTHY VILLAGE.—The village of Norton-Fitzwarren in Somerset has shown a remarkable freedom from death during the past 12 months, for not one death was registered from June 21st, 1900, to June 24th, 1901. The village has a population of over 600 and the lowest number of deaths that had ever previously occurred in one year was five.

THE HOSPITAL OF ST. JOHN AND ST. ELIZABETH, ST. JOHN'S WOOD.—The Lord Mayor, accompanied by the Lady Mayoress and the Sheriffs of the City of London, paid a visit in full civic state on July 15th to St. John's-wood and opened the new buildings in Grove-end-road of the Hospital of St. John and St. Elizabeth. The civic party were received by the Duke of Norfolk (President of the hospital), Lord Clifford of Chudleigh (chairman of the Board of Management), the Mayor of Marylebone (Mr. Boulnois), and the Mayoress. The hospital, which has been transferred from Great Ormond-street, Bloomsbury, will afford accommodation for 110 in-patients. Lord Clifford of Chudleigh, addressing the Lord Mayor, said that the hospital was founded in 1856 and its object was the reception of patients suffering from incurable or long-standing disease. To support the hospital with its present number of patients an income of about £2000 a year was required, and £1000 a year in addition would enable the hospital to be kept full. In his reply the Lord Mayor referred to the fact that the hospital was open to the afflicted of all shades of religious opinions and he heartily wished it success.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—The following is the prize list for the summer session, 1901:—Carmichael Scholarship, £15: W. R. Ormsby. Mayne Scholarship, £15: J. P. Byrne. Gold and Silver Medals in Operative Surgery: gold medal. C. W. Ewing; silver medal. A. Charles. Stoney Memorial Gold Medal in Anatomy: R. W. Bukitt. Practical Histology: A. N. Crawford, first prize (£3) and medal; J. S. Sheill, second prize (£1) and certificate. Practical Chemistry: E. J. Clarke, first prize (£3) and medal; J. M. Hayes, second prize (£1) and certificate. Public Health and Forensic Medicine: Miss J. C. Hargrave, first prize (£3) and medal; S. B. Hanbury, second prize (£1) and certificate. Materia Medica: J. S. Sheill, first prize (£3) and medal; J. McQuillan, second prize (£1) and certificate. Practical Pharmacy: Miss C. O'Meara, first prize (£3) and medal; J. M. Alcorn, second prize (£1) and certificate. Biology: R. Bury, first prize (£3) and medal; F. X. Costello, second prize (£1) and certificate. The schools of surgery will resume work after the summer recess on Tuesday, Oct. 1st.

AUGUST BANK HOLIDAY ON THE CONTINENT.—The Great Eastern Railway Company announce that for the convenience of holiday-makers on the continent cheap tickets will be issued to Brussels available for eight days, *viâ* Harwich and Antwerp. Passengers leaving London in the evening are timed to reach Brussels the following morning. Tickets at cheap fares will be issued by the Antwerp route to Berne from July 24th to 27th. For visiting The Hague, Amsterdam, and other parts of Holland, the Rhine, North and South Germany, and Bale for Switzerland, special facilities are offered *viâ* the Great Eastern Railway Company's Royal British Mail Harwich-Hook of Holland route, through carriages being run to Amsterdam, Berlin, Cologne, and Bale. There is a restaurant car on the North and South German express trains to and from the Hook of Holland. The General Steam Navigation Company's fast passenger steamers will leave Harwich for Hamburg on July 31st and August 3rd, returning August 4th and 7th.

VACCINATION NOTICES.—At the meeting of the Pwllheli Board of Guardians held on July 10th, the public vaccinator drew attention to the fact that the vaccination forms were in English and that this rendered them practically useless in the rural districts, and added that in somes places the forms had been mistaken for bills. After some discussion it was decided to request the Local Government Board to supply vaccination notices written in Welsh, and it was further determined to ask all the Welsh boards of guardians to adopt similar resolutions.

THE HEALTH OF CRICCIETH.—At the meeting of the Criccieth Urban District Council held on July 6th the medical officer of health reported that the death-rate for 1900 was 11·8 per 1000, the estimated population being 1700. The council decided to support the scheme of the Carnarvonshire Joint Sanitary Committee to appoint a bacteriologist for one year and so to add to the precautionary measures for the prevention of the spread of infectious diseases.

VACCINATION GRANT.—Mr. W. G. Evans, medical officer of the Second District, Frome Union, has been awarded the Government grant for successful vaccination for the eighth time.

FUNERAL OF SURGEON J. G. CORRY, R.N.—The funeral of Surgeon J. G. Corry, R.N., took place in the Plymouth Cemetery on July 10th with full naval honours. The band of the *Vivid* led the procession, followed by over 100 sailors from the naval barracks. The field carriage, on which was placed the coffin, was drawn by bluejackets. The father of the deceased, Mr. J. Corry of Donegal, was present, and officers from the barracks and ships at Plymouth and Devonport acted as pall-bearers.

THE BRISTOL LIFEBOAT SATURDAY FUND.—At a meeting held on July 10th it was decided that a special effort should be made for the Bristol Lifeboat Saturday Fund, it being pointed out that in the last three years Bristol had contributed £1161 to the funds of the Lifeboat Institution—a decrease of £934 as compared with the previous three years.

MEDICAL MAGISTRATES.—Mr. F. H. Tinker, L.R.C.P. and L.M. Edin., M.R.C.S. Eng., has been placed upon the Commission of the Peace for the County of Cheshire.—Mr. W. Moxon, M.D. Durh., M.R.C.S. Eng., L.R.C.P. Ed., has been placed on the Commission of the Peace for the County of Derby.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Registration of Plumbers.

In the House of Lords a Bill to establish a system of registration for plumbers has been introduced by Lord GLENESK. Obviously at this period of the session its chance of passing into law is slight.

Sale of Intoxicating Liquor to Children.

The Bill to prevent the sale of intoxicating liquor to children is now before the Grand Committee of the House of Commons on Law, where already it has been altered in several important particulars. The limit of age, for instance, has been reduced from 16 to 14 years, and the difficulty with regard to the delivery of liquor has been met by the insertion in the second clause of words exempting from the scope of the proposed legislation delivery at the residence or working place of the purchaser.

Condition of the Concentration Camps.

A committee of ladies is to be appointed by the War Office to go out to South Africa and to inquire into and to report upon the condition of the various concentration camps.

HOUSE OF COMMONS.

THURSDAY, JULY 11TH.

Influenza among Horses.

Mr. HERMON-HODGE asked the [illegible] whether he was aware that an epi[illegible] [illegible] of the horses imported into [illegible] tes of America, he could inform [illegible] at our ports to discover and, if [illegible] ifected animals.—Mr. HANBURY [illegible] the Foreign Office as to the [illegible] New York I have received the following telegram: "Mild and local epizoötic laryngeal influenza prevalent in New York and Brooklyn. Horses for export to United Kingdom which are chiefly drawn from western and middle States appear to be unaffected. All horses are examined before shipment by Government inspectors and as yet none are reported to have been rejected; they are kept in Government stockyards and have little chance of infection." The local authorities at most of the principal ports are [illegible] they arrive. At the Port of [illegible] the information obtained at [illegible] the part of our own officers. [illegible] lepend the question whether [illegible] to require further adminis[illegible]

[illegible]

Mr. WILLIAM REN[illegible] [illegible] would cause a strict inquiry into this case [illegible] plied. I am informed by the police that [illegible] The father applied for a burial order on [illegible] officer did not feel justified in giving the [illegible]

[illegible] of the regiment at Bloemfontein, and the number of deaths; how many of the men were left sick from enteric fever when the regiment left Bloemfontein; and how many died from enteric fever in the two months after the regiment had left.—Mr. BRODRICK replied: The regiment reached Bloemfontein in the week ending April 6th, 1900, and had 19 admissions to hospital for all causes during the march [illegible]

The Hospital Ship "Maine."

Mr. ARNOLD FORSTER announced that it is proposed by the Admiralty to send the hospital ship *Maine* to the Mediterranean at an early date.

FRIDAY, JULY 12TH.

Infectious Diseases Hospital for Wakefield.

Mr. PICKARD asked the President of the Local Government Board [illegible] to the fact that the Wakefield [illegible] Government Board for sanction [illegible] an infectious diseases hospital [illegible] that this site was outside the district of Stanley where there [illegible] at the hospital was proposed to [illegible] stricts of Stanley; and seeing that objection was taken to the erection of the hospital by the inhabitants of Stanley whether before sanctioning the loan he would cause [illegible] there was a suitable site for [illegible] or in places [illegible] where there [illegible] Mr. WALTER [illegible] one of the [illegible] an applica[illegible] the proposed [illegible] ort as to the [illegible] onsideration [illegible]

MONDAY, JULY 15TH.

Burial Scandal at Greenwich.

[illegible] y notice by the [illegible] committee re[illegible] sponsible and the [illegible] urrence of such [illegible] been made to [illegible] to desired that [illegible] he license was [illegible]

TUESDAY, JULY 16TH.

Dental Provision for the Troops.

[illegible] the Secretary of State for War whether [illegible] teeth; whether he could state [illegible] committee which was to report whether the Government, in [illegible] question in time of peace as [illegible] their serious attention?—Mr [illegible]

Death Certification in Scotland.

[illegible] he was aware [illegible] in the registra[illegible] rsons signing a certificate that they were present at the death, when, as a matter of fact, they had been elsewhere, and whether he would be prepared to take such steps as would secure that the law was complied with, and [illegible] ate under [illegible] led; I am [illegible] death, it [illegible] each case [illegible] Mr WASON [illegible] with the information in his possession, inquiry would be made. The LORD ADVOCATE replied that he would pass on the information to the registrar-general, who no doubt would make inquiry.

The Position of Dr W. Scott Tebb at Penge.

When the House was [illegible] the vote for the salaries and expenses of [illegible] in NORTON called attention to the [illegible] Board to sanction the appointment of Dr [illegible] officer of health of Penge, because of his views with regard to vaccination. He claimed that the local authority was quite alive to its responsibilities and that it ought not to be overruled in this way.—Sir MICHAEL FOSTER said that Dr Tebb was one of his pupils and he had a high opinion of his character and ability, but he had read his book on vaccination and he thought that the refusal of the Board to sanction the appointment was perfectly justified He could not conceive how anyone holding the views of Dr. Tebb could be a proper instrument for carrying on the combat against small-pox in this country where vaccination was the legalised method.—Sir Walter Foster said that, in his opinion, the President of the Local Government Board was right when he felt that it would be a very dangerous experiment to appoint as a medical officer of health one who had published opinions strongly criticising the efficiency of vaccination.—Mr. Walter Long said that so long as he was responsible for the Local Government Board no power on earth would induce him to sanction the appointment as a medical officer of health of a man who held the views of Dr. Tebb with regard to vaccination.—Mr. Corrie Grant protested against the action of the r[illegible] pinion Dr. Tebb was being punished for [illegible] views with regard to vaccination, though as a medical officer of health he would have nothing to do with vaccination.—Mr. Walter Long said that a medical officer of health would have a great deal to do with vaccination in the event of his district being invaded by an epidemic of small-pox.—Mr. Corrie Grant said that it was evident that we were passing from the tyranny of the priests to that of the doctors, and he thought that the latter was the greater evil. The local authority was prepared to entrust Dr. Tebb with this work and there was no suggestion that he was unfit for it, and as a protest he would move the reduction of the vote by £100.—Mr. Shipman also protested against the action of the Local Government Board.—On a division being taken the motion to reduce the vote was rejected by a large majority.

THE NEW FACTORY AND WORKSHOP LEGISLATION.

PROCEEDINGS IN THE GRAND COMMITTEE.

The Grand Committee of the House of Commons on Trade is steadily working its way through the clauses of the Bill of the Government to amend the Factory and Workshop Acts. At the meeting of the committee on Thursday, July 11th, several points of special interest to medical men were discussed. They arose chiefly in connexion with Clause 25 which provides for the issue of certificates of fitness by certifying surgeons to children and young persons. Mr. Tennant proposed to insert in this clause the following words—viz.: "For the purpose of determining whether he shall grant such certificates and whether he shall impose such conditions, a certifying surgeon may at any reasonable time enter, inspect, and examine any factory or workshop within his district and any part thereof, and may observe any process which is carried on in the factory or workshop, and any person who delays or obstructs a certifying surgeon in the exercise of this power shall be liable to a fine not exceeding £5." The hon. Member expressed the opinion that in a matter of this kind the certifying surgeon should have the same power as the Home Office inspector, and that any person who delayed or obstructed the former should be liable to a penalty.—Mr. Ritchie, the Minister in charge of the Bill, thought that the proposal of the hon. Member went too far, but said he would be prepared to insert in the clause these words: "A certifying surgeon shall have the same powers as an inspector for the purpose of examining any process in which a child or young person presented to him for the granting of a certificate is proposed to be employed."—Mr. Tomlinson insisted that a certifying surgeon, however well equipped he might be for the work of his profession, could not reasonably be expected to have the knowledge necessary to enable him to decide whether or not a particular process of manufacture was suitable for the employment of a child or young person.—Mr. Tennant asked the Home Secretary whether he would not make provision for a penalty.—Mr. Ritchie replied that he did not think such provision was necessary because the certifying surgeon could always withhold his certificate.—Mr. Tennant withdrew his amendment and the Committee accepted the words offered by Mr. Ritchie.—Mr. Tennant then proposed to insert in the clause these words—namely, "A certifying surgeon shall not examine any person for the purpose of a certificate of fitness for employment unless adequate means of privacy are provided for the examination."—Mr. Ritchie thought that it would be a mistake to lay down a regulation of this minute character and Mr. Tennant did not press his amendment.—Mr. Tennant next moved an amendment requiring certificates of fitness for workshops as well as for factories. He said that many representations had been made to him by certifying surgeons and others to the effect that the health of children and young persons was undermined by employment of an unsuitable nature in workshops. In experience it was found that a child or young person might be refused a certificate for employment in a factory and then went to a workshop and obtained employment there.—Mr. Ritchie said that the position of the law at present was that no certificate of fitness was required by law in the case of a workshop, but there was a power on the part of the Secretary of State to order that in any class of workshop where he considered it requisite a certificate should be required. The reason for the distinction between a factory and a workshop was perfectly clear. A factory, as a rule, was a place where machinery of various kinds, some of it dangerous, was in use. In a workshop this condition did not arise, and many workshops were extremely small. On the whole he did not think it necessary to extend the existing law.—Mr. Tennant said that he was disappointed with this answer. If a girl got employment in a clothing factory her machine was worked by power; if she went into a dressmaker's workshop she had to turn the machine with her foot, and everybody knew that the very worst class of sweating went on in dressmakers' shops. He did not see, therefore, why a certificate of fitness should be required in the one case and not in the other.—On a division the proposal of Mr. Tennant was rejected by 28 to 25 votes.—The Home Secretary agreed to accept an amendment in the name of Mr. Tennant repealing the paragraph in the principal Act which provides that the occupier of the factory may deduct the certifying surgeon's fee or part of it from the wages of the person for whom the certificate is granted.—Sir James Rankin asked the Home Secretary whether under this clause the certifying surgeon would be entitled to examine a secret process of manufacture.—Mr. Ritchie replied that he would only have power to inspect the process in which it was proposed to employ the child or young person and that consequently the matter would rest entirely in the hands of the employer.

At a later stage in the proceedings Clause 28, dealing with bakehouses, was discussed. This clause proposes that after Jan. 1st, 1904, an underground bakehouse shall not be used unless certified by the district council to be suitable for that purpose, and that an underground bakehouse shall mean a bakehouse any room of which is so situate that the surface of the floor is more than three feet below the surface of the footway of the adjoining street or of the ground adjoining or nearest to the room.—Mr. Renshaw said that some people had come to the conclusion that under this clause all bakehouses three feet below the surface of the roadway would be disallowed.—Mr. Ritchie explained that this was not the case. Such bakehouses would not be prohibited if a certificate were got from the local authority. Of course, the clause only referred to old bakehouses; new ones were provided for by the existing law. There was a great scandal in connexion with these old underground bakehouses and he thought that they should not be allowed to go on for all time. While he said this he was prepared to extend the allowance of time to Jan. 1st, 1906, instead of Jan. 1st, 1904, as proposed in the clause.—Mr. John Burns urged the Home Secretary not to make this concession and quoted articles in The Lancet and other journals as to the present deplorable state of things. He thought that their owners had had sufficient notice of the intention and desire of the legislature to put a stop to these unhealthy and unsuitable bakehouses.—Sir Henry Fowler and other members of the Committee spoke in support of Mr. Burns and Mr. Ritchie announced that he would stand by the date in the clause. An amendment to change the definition of an underground bakehouse to a place the ceiling of which was less than six feet above the surface of the roadway was rejected by the Committee by a large majority.

The Grand Committee met again on Monday, July 15th, and made substantial progress with the Bill. There was some further discussion on the underground bakehouse clause.—Mr. Parkes moved to insert in the clause a provision that no certificate shall be refused by a district council where the underground bakehouse complies with the existing Acts of Parliament regulating underground bakehouses.—Mr. Ritchie, in opposing this amendment, said that the existing Acts were not enough, for it was notorious that baking was carried on in premises which were wholly unsuitable.—Captain Jessel thought that a slur had been cast upon the local authorities in London, many of whom had been very energetic in enforcing the law and securing a better state of things in bakehouses.—Sir John Stirling-Maxwell suggested that if an appeal from the decision of the district council were given the case would be sufficiently met.—Mr. Ritchie said that he was prepared to give an appeal to a court of summary jurisdiction.—The amendment was thereupon withdrawn and words were inserted in the clause providing for an appeal in the case of a refusal of a certificate to a court of summary jurisdiction. The clauses dealing with humidity and temperature were passed by the Committee practically without alteration. Clause 31 provides that in any factory or workshop where lead, arsenic, or other dangerous substance is used a person shall not be allowed to take a meal or to remain during the times allowed for meals in any room in which any such substance is used and suitable provision shall be made for enabling the persons employed in such rooms to take their meals elsewhere in the factory or workshop.—Mr. Seton-Karr thought that this clause imposed unnecessary restriction and expense upon employers and moved to alter the clause so as to read "where preparations of lead are manipulated." He also suggested to the Home Secretary that it should be made a punishable offence for an employé to eat anything in a place where preparations of lead were manipulated.—Mr. Ritchie explained that the wording of the clause had been taken from the Act of 1895, and to alter it would only introduce confusion in interpretation. The intention of the clause was that these matters must not be present in any factory in anything like a dangerous condition and if they were then the meals must be taken outside. Of course if the words were interpreted in their literal sense it would be impossible for a person to take a meal in a room where a window was being inserted in a leaden frame. No court would so interpret the law. He did not wish to see the clause altered, but preferable words to those proposed by the hon. Member would be "used so as to be a source of danger to health."—Mr. Tennant urged the Home Secretary not to accept either form of words.—Mr. Seton-Karr withdrew his amendment and moved to insert the words mentioned by the Home Secretary. After a long debate the Committee rejected the words by a large majority. The clause consequently remained unaltered.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to The Lancet *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.*

Andrews, W. H., L.R.C.P. & S.Edin., L.F.P.S.Glasg., has been appointed Medical Officer for the Fourth District Kingsbridge (Devon) Union, vice H. Osborne Grenfell, resigned.

Cargill, L. Vernon, F.R.C.S.Eng., L.R.C.P.Lond., L.S.A., has been appointed Surgeon to the Royal Eye Hospital, Southwark.

Dunlea, M. P., M.D. R.U.I., has been appointed Certifying Surgeon for the Riverstown District in the County of Cork.

Fagan, P. J., L.R.C.P. Irel., has been appointed Lecturer on Elementary Physics in the Catholic University Medical School, Dublin.

Groves, W. G., M.R.C.S. Eng., L.S.A., has been re-appointed Medical Officer of Health of Woodburn Urban Sanitary District.

Hamilton, W. M., M.D. R.U.I., has been appointed Medical Officer of Health of Eccles Municipal Borough.

Harris, J. H., M.R.C.S Eng., L.S.A., has been re-appointed Medical Officer of Dartmouth (Devon) Urban Sanitary District.

Hayes, W. B., M.D. R.U.I., has been appointed Certifying Surgeon for the Union of Tralee, in the county of Kerry.

Hayman, F. D., M.R.C.S. Eng., has been appointed Medical Officer of Health of Ararat, Victoria.

Hogg, J. A., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Medical Officer of Health of Shardlow Rural Sanitary District.

Kelly, C., M.D. Lond., has been re-appointed Medical Officer of Health of West S[illegible] District.

Mason, J. J., L.R.C[illegible] has been appointed Medical Officer of [illegible] n Sanitary District.

MADDEVER, J. C., M.D. Glasg., has been appointed Certifying Surgeon for [illegible]

MCANA[illegible] app[illegible] Milton Union.

MCC[illegible] [illegible] inted Medical [illegible]

MO[illegible] [illegible] inted Medical [illegible]

ME[illegible] [illegible] in., M.R.C.S., [illegible] al for Diseases [illegible]

MI[illegible] [illegible] ical Officer of Health of Leicester County Borough [illegible]

[illegible] (Great Scotland-yard), vice Thomas Bo[illegible] F.R.C.S., deceased.

O'B[illegible]

PRC[illegible]

PRI[illegible]

ROU[illegible] London.

STEELL, JOHN, M.B. Melb., L.R.C.P., L.R.C.S. Edin., has been appointed Medical Superintendent of Ballarat Lunatic Asylum, vice R. W. Leethbridge, transferred.

[illegible] Zealand.

VAILLACK, A. S., M.B., C.M. Syd., has been appointed Medical Officer and Vaccinator at Bowral.

WATKINS, J. W., M.B., B.S. Dubl., has been appointed Certifying Surgeon for the Bolsover District of the county of Derby.

Vacancies.

[illegible]r further information regarding each vacancy reference should be made to the advertisement (see Index).

yr COUNTY HOSPITAL.—House Surgeon. Salary £70 per annum, with residence, board, and washing

irmingham GENERAL DISPENSARY.—Resident Surgeon. Salary £150 per annum (with allowance of £30 per annum for cab hire), and furnished rooms, fire, lights, and attendance.

orough OF BLACKPOOL.—Medical Officer of Health. Salary £400 per annum, rising to £500.

radford HOSPITAL AND WORKHOUSE.—Second Resident Assistant Medical Officer. Salary £100, with rations, apartments, and washing.

arlisle DISPENSARY.—Resident Surgeon, unmarried. Salary £150 per annum, with apartments.

heltenham GENERAL HOSPITAL.—Junior House Surgeon. Salary £70 per annum, with board, lodging, and washing.

raigleith POORHOUSE AND HOSPITAL, Edinburgh.—Resident Medical Officer. Salary at rate of £100 per annum, with board and apartments.

umberland AND WESTMORLAND ASYLUM, Garlands, Carlisle.—Senior Assistant Medical Officer, unmarried. Salary £150 a year, rising to £180, with board, lodging, &c.

avid LEWIS NORTHERN HOSPITAL, Liverpool.—Assistant House Surgeon. Salary £70 per annum, with residence and maintenance.

[illegible]—House Surgeon. Salary £100, [illegible]

[illegible] near Exeter.—Third Assistant [illegible] rising to £150, with board, lodging, &c.

evonshire HOSPITAL, Buxton, Derbyshire.—Assistant House Surgeon. Salary £50 per annum, with furnished apartments, board, and washing.

umfries AND GALLOWAY ROYAL INFIRMARY.—House Surgeon. Salary £50 per annum, with board and washing. Also Assistant House Surgeon. Salary £25 per annum, with board and washing.

ast SUFFOLK AND IPSWICH HOSPITAL.—Second House Surgeon, unmarried. Salary £80 per annum, with board, lodging, and washing.

isherton ASYLUM.—Assistant Medical Officer. Salary £150 per annum, with board, lodging, and washing.

uest HOSPITAL, Dudley.—Assistant House Surgeon for six months. Salary £40 per annum, with residence, board, and washing.

alifax UNION HOSPITA[illegible] Officer. Salary £140 per annum [illegible] ing.

or[illegible]

osi[illegible]

ul[illegible] with board and lodging.

ulme DISPENSARY, Manchester.—Honorary Physician.

ent AND CANTERBURY HOSPITAL.—Assistant House Surgeon, unmarried. Salary £60 a year, with board and lodging.

eicester INFIRMARY.—Clinical Clerk and Dresser. Honorarium £10 10s. for six months, with apartments, board, and washing.

iverpool DISPENSARIES.—Assistant Surgeon, unmarried. Salary £100 per annum, with board and apartments.

ondon HOSPITAL, Whitechapel, E.—Assistant Director of the Pathological Institute. Salary £200 per annum.

anchester CLINICAL HOSPITAL FOR WOMEN AND CHILDREN, Park-place, Cheetham-hill road.—Honorary Physician.

MONSALL FEVER HOSPITAL, Manchester.—Third Medical Assistant. Salary £100 per annum, with board and lodging.

NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL, Hartshill, Stoke-upon-Trent.—Assistant House Surgeon for six months. Board, apartments, and washing, and at least £10 at the end of six months.

NORTH WALES COUNTIES LUNATIC ASYLUM, Denbigh.—Second Assistant Medical Officer. £120 per annum, increasing to £160, with board, residence, and washing.

NORTH-WEST LONDON HOSPITAL, Kentish Town-road.—Assistant Physician.

N[illegible]

P[illegible] Officer. Salary [illegible]

[illegible] port.—Assistant House Surgeon for [illegible] £50 per annum, with board, lodging, [illegible]

[illegible]—House Surgeon, unmarried. Salary [illegible] r, with board (excluding stimulants) and apartments.

ROYAL HOSPITAL FOR CHILDREN AND WOMEN, Waterloo Bridge road, S.E.—Assistant S[illegible]

ROY[illegible] road, E.C.—[illegible] per annum, [illegible]

ROY[illegible] Surgeons, a[illegible] th board and residence.

ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House Surgeon for six months. Salary at rate of £50 per annum, with rooms, board, and washing. Also Locum Tenens for Junior House Surgeon.

RURAL DISTRICT COUNCIL OF AUCKLAND.—Medical Officer of Health. Salary £350 per annum.

ROYAL UNITED HOSPITAL, Bath.—House Surgeon. Salary £100, with [illegible]

ST. [illegible]

ST. [illegible] with board, lodging, and laundry.

SALOP INFIRMARY.—Assistant House Surgeon. Salary at the rate of £40 per annum, with board and washing.

UNIVERSITY OF SYDNEY, New South Wales.—Professor of Pathology. Salary £900 per annum. Pension £400 per annum after twenty years' service. £100 allowed for passage.

WEST HAM HOSPITAL, Stratford, E.—Junior House Surgeon. Salary £75 per annum, with board, residence, &c.

W[illegible] annum, with board, lodging, and washing.

W[illegible] Salary [illegible]

W[illegible] and [illegible]

Y[illegible] £110 [illegible]

The Chief Inspector of Factories gives notice of vacancies for Certifying Surgeons under the Factory Acts at Oundle, at Pontypridd, and at Bolton.

Births, Marriages, and Deaths.

BIRTHS.

[illegible] ansden Hall, Hunts, the wife of [illegible]

[illegible] hby, Rickmansworth, the wife of [illegible] b., of a daughter.

MARRIAGES.

BOX—BEDFORD.—On July 13th, at the parish church, Ealing, by the Rev. R. Dixon Box, brother of the bridegroom, assisted by the Rev. Dr. Oliver, vicar [illegible] Longhurst Box, M.D. [illegible] Joseph Box, of Avenue [illegible] daughter of Robert Bed[illegible]

LEWIS—KIMBER.—On July [illegible] Charles Mortimer Lewi[illegible] May Kimber, younger d[illegible] worth.

DEATHS.

[illegible]

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

GOVERNMENT DEPARTMENTS AND MEDICAL CERTIFICATES.

To the Editors of THE LANCET.

SIRS,—I should be obliged for your advice on the following. I was attending a postman, X, as a private patient and I had no connexion, official or otherwise, with the Post Office After the man had been ill a few days the postmaster here said that the Post Office required a medical certificate of the man's state, and asked me to furnish one. I sent him the required certificate. A month or two later he asked me if the man would be able to resume his work, and I informed him that he would be permanently disabled. He then said that the Post Office required a medical certificate to that effect so that they might appoint a permanent postman instead of a substitute, and asked me to give him one. I sent him the required certificate. At no time was any reference made to the patient—i e., that he should supply the certificate—nor was the patient consulted about the certificates, though I subsequently mentioned to him that I had so certified. On July 1st I sent the postmaster here a bill for 10s. 6d. for the two certificates and asked him to forward it to the proper quarter. He to day returned my bill with a curt note that "I am instructed to inform you that X has no claim on the Post Office Department." I made the bill out to the Postmaster General. Is my bill a fair one? and is the amount due by, and recoverable from, the Postmaster-General? I do not claim the amount from the patient X. An answer in your columns will oblige.

I am, Sirs, yours faithfully,

July 11th, 1901. H. P. A.

⁂ We cannot undertake to give legal advice nor could a lawyer do so without fuller details as to the precise circumstances attending each of the two requests for a certificate. All such cases if they are brought into courts of law depend upon the several facts proved with regard to them and no two cases are alike. Speaking from H. P. A.'s letter we do not see that he has much to complain of on general grounds as to the first certificate, at any rate. An employé desiring to be excused from work can hardly expect his employer to pay for the medical certificate which obtains him leave to be absent. It is, however, important in all cases where doubt may arise that the medical practitioner should ascertain definitely beforehand who will be liable to repay him for his services. The making of the necessary inquiry or the stating of the conditions upon which he will act cannot be more disagreeable than having to enter into a discussion, and possibly litigation, afterwards —ED L.

THE PRINTER AGAIN.

OUR esteemed contemporary, the *Journal of the American Medical Association*, in its issue of July 6th, 1901, has on its contents page under the heading "Addresses," the following startling title, "Poverty and Pregnancy. their Cause, Prevention, and Cure." That poor people do sometimes attempt by various measures, some of which are unpleasant, some of which are injudicious, and some of which are illegal, to escape the responsibilities while enjoying the privileges of matrimony is well known But it is so contrary to the medical view of what is right publicly to advocate the prevention of pregnancy as a cure of poverty that we turned to the article with apprehension. Yet we might have guessed to whose jocosity we had fallen a victim. It was the merry printer. Within the pages of the journal the article receives its proper heading—viz , "Poverty and Degeneracy: their Cause, Prevention and Cure."

DUTCH WOMEN AND CHILDREN FUND, VICTORIA LEAGUE.

To the Editors of THE LANCET.

SIRS,—At the invitation of the Victoria League a committee has been formed of a number of well known ladies and gentlemen of both political parties who have joined together to give their help for the relief of the sick women and children in the Boer concentration camps. The committee has been appointed with the full approval of the Secretary of State for War.

The aims of the committee are purely philanthropic, absolutely non-political. There is at present undoubtedly much sickness in the Boer concentration camps, particularly amongst the women and children. The British officers in charge of the camps and their civilian assistants, under difficult conditions, are doing their utmost for the people under their care, but the numbers with which they have to deal are large and some suffering is unavoidable. If by well directed private effort extra comforts and clothing could be distributed to those women and children who are most in want much of this suffering might be prevented. It is thoroughly appreciated by the Government that there is in the concentration camps considerable scope for the exercise of properly regulated private charity, and ladies are now being appointed by the War Office who will visit the camps and will give their help in the distribution of gifts from private sources. A considerable sum has already been subscribed, but much more is needed. The committee of the "Dutch Women and Children Fund" is therefore obliged to call on the generosity of the British people, and it confidently appeals to men and women of all opinions to give their help liberally to this work of pacification, of simple charity and humanity. Pecuniary help will be most useful and the most appreciated. All cheques should be sent to Miss Talbot, Honorary Treasurer, Dutch Wom[illegible] League, Dacre House, Victoria street, S [illegible] "Dutch Women and Children Fund," [illegible] minster Bar [illegible] clothing or [illegible] merchants [illegible] clothing, [illegible] received. A memorandum of directions, as a guide to those who wish to make gifts in kind, is being circulated. All packages intended for "The Dutch Women and Children Fund" should be sent, carriage paid, to Messrs. Barnes and Co, Limited, Battle Bridge-lane, Tooley street, S.E, who have kindly consented to act as agents and shippers to the committee. All communications and inquiries should be addressed to the Honorary Secretary.

I am, Sirs, yours faithfully,
G. BONHAM CARTER, Honorary Secretary.

Dutch Women and Children Fund, Victoria League,
Dacre House, Victoria-street, S.W., July 13th, 1901.

⁂ Pressure on our space compels us to omit the names of the members of the committee.—ED. L.

THE WEIR-MITCHELL TREATMENT.

To the Editors of THE LANCET.

SIRS,—I shall feel much obliged to any of your readers for information respecting either a private home or an institution where a little girl, aged eight years, can be received for treatment mainly upon the lines of the Weir Mitchell plan? The parents are in a position to pay a fair remuneration but not very high charges.

I am, Sirs, yours faithfully,

July 15th, 1901. SPES.

NOTE ON LARGE FŒTUS.

To the Editors of THE LANCET.

SIRS,—On the 4th of this month I delivered Mrs. —— of a male child weighing 16 pounds. It was of the length and size of a child six or seven months old. Owing to the difficulty in extracting the shoulders it was stillborn.—I am, Sirs, yours faithfully,

J. MCCONNELL, M B R.U.I., M.R C S. Eng

Battersea rise, S W., July 9th, 1901.

"THE FREAKS OF MEMORY."

To the Editors of THE LANCET.

SIRS,—In reply to your correspondent A Pariss in THE LANCET of July 13th, p. 116, I think he will find similar cases to substantiate the very interesting one he quotes recorded in the late Professor Sir T. Grainger Stewart's book on Nervous Diseases.

I am, Sirs, yours faithfully,
JOHN ROBERT WILLIAMS, M B. Edin.

Penmaenmawr, July 14th, 1901.

A NEW ADHESIVE TAPE PLASTER.

WE have received from the St. Helens Cable Co. a sample of a new rubber tape which is prepared by coating one side of a sheet of previously vulcanized rubber with a facing of pure Para rubber. The pure rubber remains very adhesive, and the tape if wrapped round the finger or over any bandage or dressing forms a perfectly water-tight covering. It is sold at 5s 6d. per lb.

GERMAN HEALTH RESORTS.

To the Editors of THE LANCET.

SIRS,—Can any of your readers oblige me by informing me of the best route either to Nordrach or Nauheim, or both places, with the cost of journey for two medical men? I wish to combine the pleasure of a holiday with the profit of a personal visit to the sanatoria for consumption and heart disease. I am, Sirs, yours faithfully,

Kent, July 16th, 1901. VIATOR.

R. K.—If our correspondent inquires of his usual medical attendant he will obtain the information which he desires.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL RE[illegible]

(*Taken daily at 8 30 a m. by Steward's Ins*[illegible] *on Elem*[illegible] *ublin.* [illegible])

THE LANCET Office, [illegible]

Date.							Wet Bulb	Dry Bulb	
July 12	30·05	SSW	...	113	85	60	67	74	Fine
" 13	30·07	E.N.E	...	103	72	61	61	65	Cloudy
" 14	30·09	N.E	...	103	70	56	59	62	Overcast
" 15	30·00	N.E.	...	123	81	60	60	65	Cloudy
" 16	30·16	S.	...	129	85	61	61	69	Fine
" 17	30·26	S.	...	129	88	60	62	70	Fine
" 18	30·20	E.	...	124	86	68	64	75	Hazy

Medical Diary for the ensuing Week.

OPERATIONS

METROPOLITAN HOSPITALS.

MONDAY (22nd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2 30 P.M.), Middlesex [illegible] Chelsea (2 P.M.), Samaritan [illegible] 2 P.M.), Soho-square (2 P.M.), R[illegible] Orthopædic (4 P.M.), Gt. Norther[illegible]ion (2.30 P.M.), London Throat (2 P.M.).

TUESDAY (23rd).—London (2 P.M.), St. Bartholomew's (1 30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's [illegible]

WE[illegible]

(9.30 A.M.).

THU[illegible]

Throat, Golden-square (9 30 A.M.)

SATURDAY (27th).—Royal Free (9 A.M. and 2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), University College (9.15 A.M.), Charing-cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), London Throat (2 P.M.), Throat, Golden-square (9 30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

FRIDAY (26th).—SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN (11, Chandos street, Cavendish square, W.)—5 30 P.M. Annual General Meeting Annual Report of Council. Election of Council and Officers for 1901-1902.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (22nd).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. Hutchinson: Consultation. (Skin.)

TUESDAY (23rd).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. S. Taylor: Consultation. (Medical.)

WEDNESDAY (24th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies street, W.C.).—4 P.M. Mr. P. W. De Santi: Consultation. (Surgical.)

LONDON HOSPITAL MEDICAL COLLEGE (Anatomical Theatre of the College).—4 P.M. Mr. Jonathan Hutchinson: *Syphilis in relation to Tumours and New Growths*

THURSDAY (25th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. Hutchinson: Consultation. (Surgical.)

THE HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M. Dr. Poynton: Demonstration of Selected Cases.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND, WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND, IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS not used.

BRITISH MEDICAL ASSOCIATION MEETING AT CHELTENHAM.

DURING the forthcoming meeting of the British Medical Association at Cheltenham the representatives of THE LANCET can be consulted at the Queen's Hotel with regard to our reports of papers and proceedings.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol I of 1901, which was completed with the issue of June 29th, and the Title-page to the Volume, were given in THE LANCET of July 6th.

VOLUMES AND CASES

VOLUMES for the first half of the year 1901 are now ready. Bound in cloth, gilt lettered, price 18*s*, carriage extra.

Cases for binding the half-year's numbers are now ready. Cloth, gilt lettered, price 2*s*, by post 2*s*. 3*d*.

To be obtained on application to the Manager, accompanied by remittance.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid and *not* to THE LANCET Offices

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

The rates of subscriptions, post free, either from THE LANCET Offices or from Agents, are:—

FOR THE UNITED KINGDOM.			
One Year	£1	12	6
Six Months...	0	16	3
Three Months	0	8	2

Subscriptions (which may commence at any time) are payable in advance Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C.

SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE. It has come to the knowledge of the Manager that in some cases higher rates are being charged, on the plea that the heavy weight of THE LANCET necessitates additional postage above the ordinary rate allowed for in the terms of subscriptions. Any demand for increased rates on this or any other ground should be resisted. The Proprietors of THE LANCET have for many years paid, and continue to pay, the whole of the heavy cost of postage on overweight foreign issues; and agents are authorised to collect, and do so collect, from the Proprietors the cost of such extra postage.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied Address—THE MANAGER, THE LANCET OFFICES, 423, STRAND, LONDON, ENGLAND

During the week marked copies of the following newspapers have been received:—*Yorkshire Post, Mining Journal, Public Health, Liverpool Daily Post, Leeds Mercury, Reading Mercury, Windsor and Eton Express, South African News, Hertfordshire Mercury, Surrey Advertiser, Bristol Mercury, Shepton Mallet Journal, &c*

Communications, Letters, &c., have been received from—

A.—Dr. T. M. Allison, Newcastle-on-Tyne; A. B., Brockenhurst; Professor Clifford Allbutt, Cambridge; Monsieur J. Astier, Asnières; Messrs. Allen and Hanburys, Lond.; Apollinaris Co., Lond.

B.—Mr. T. H. Brocklehurst, Stourbridge; Messrs. J. and H. Bell, Nottingham; Dr. G. F. Baker, Lond.; Mr. W. H. Baker, Lond.; Berrow's Worcester Journal Co., Worcester; Mr. J. Burns, Lond.; Bradford and West Riding Medico-Ethical Union, Secretary of; Burnley, Town Clerk of; Messrs. Burroughs, Wellcome and Co., Lond.; Dr. J. Brownlee, Glasgow; Lieutenant-Colonel David Bruce-Maitland, Cape Town; Surgeon A. O. Bobardt, R.N., Lond.; Birmingham University, Secretary of; Dr. W. L. Blandford, Newcastle-on-Tyne; Dr. D. Blair, Lancaster; Dr. D. M. Browne, Rye; Messrs. Boulton and Paul, Norwich; C. Birchall, Ltd., Liverpool.

C.—Dr. A. V. Clarke, Leicester; Chester General Infirmary, Secretary of; Cumberland and Westmoreland Counties Lunatic Asylum, Clerk of; Mr. G. L. Cheatle, Lond.; Cornwall County Council, Clerk to; Mr. H. W. Cox, Lond.; Mrs. Chapman, Lond.; Dr. Leigh Canney, Lond.; Messrs. J. and A. Churchill, Lond.; Mr. C. Coppock, Blackpool; Mr. E. Collins, Sawbridgeworth; Cheltenham General Hospital, Secretary of; Corporation of Manchester, Medical Officer of; Mr. H. W. Cox, Lond.

D.—Dr. C. Dykes, Manipur, Assam; Dumfries and Galloway Royal Infirmary, Treasurer of; Mr. R. H. Domenichetti, Woodhall Spa; Dental Hospital, Lond., Dean of; Dr. Th. Domela, Murren; Mr. A. C. Davies, Gowerton Dr. Lee Dickinson, Lond.; Dr. C. Dukes, Rugby; Messrs. W. Dawson and Sons, Lond.

E.—Mr. O. Ekholm, Ronneshytte, Sweden; E. L. T; Messrs. Eason and Son, Dublin; Eastbourne, Town Clerk of; East Suffolk Hospital, Ipswich, Secretary of.

F.—Mr. J. Fitzpatrick, Norwich; Messrs. Feeney and Co., Birmingham; Messrs. F. J. S. Forsaith and Son, Lond.; Mr. W. G. FitzGerald, Lond.; Mr. F. R. Firmin, Lond.

G.—Great Eastern Railway Co., Continental Traffic Manager of; Glasgow University, Registrar of; Guest Hospital, Dudley, Secretary of.

H.—Mr. J. J. Hanly, Alderney; Dr. J. F. Hodgson, Oldham; Mr. P. Howe, Hull; H. P. A.; Horton Infirmary, Banbury, Assistant Secretary of; Messrs. Head and Co., Lond.; Mr. J. Heywood, Manchester; Halifax Union, Clerk of; Mr. J. H. Handlon, Kearney, U.S.A.; Mr. W. F. Haslam, Birmingham; Mr. Reginald Harrison, Lond.

I.—Messrs. Ingram and Royle, Lond.

J.—Dr. A. H. James, Aberystwyth; J. T. S.; J. C. U.

K.—Mr. C. E. Keatley, Lond.

L.—Captain C. Lane, I.M.S., Calcutta.

M.—Mr. J. D. Marshall, Lond.; Miss E. G. Macdonald, Poona City; Manchester Clinical Hospital, Secretary of; Dr. S. K. [illegible] tary of.

N.—National Canine Defence League, Secretary of; Mr. H. Needes, Lond.; North Wales Counties Lunatic Asylum, Denbigh, Secretary of.

O.—Oldham Infirmary, Secretary of.

P.—Dr. J. F. Porter, Helmsley; Mr. Y. J. Pentland, Edinburgh; Dr. J. Porter Parkinson, Lond.; Dr. L. Phillips, Lond.; Dr. G. Parker, Bristol; Porima; Mr. W. C. Parkes, Lond.; Messrs. Peacock and Hadley, Lond.

R.—Dr G. Rennie, Sydney, N.S.W.; Mr. G. W. Ruff, Lond.; R. K.; Royal South Hants Hospital, Southampton, Secretary of.

S.—Dr. E. S. Sladen, Cambridge; Smith's Advertising Agency; Mr. Prideaux Selby, Teynham; Dr. F. W. Smith, Harrogate; St. Mungo's College, Glasgow, Secretary of; Mr. J. Sheeham, Lond.; Mr. J. Startin, Lond.; Mrs. Skinner, Winchelsea; St. Bartholomew's Hospital, Rochester, Clerk of; Messrs. Simpkin, Marshall, and Co., Lond.; Dr. C. S. Storrs, Reading; Messrs. S. Smith and Son, Lond.; Messrs. G. Street and Co., Lond.; Scholastic, Clerical, &c., Association, Lond.; Dr. H. A. Scholberg; Lond.; Mr. N. Smart, Folkestone.

T.—Dr. G. Thornton, Pretoria; Mr. Pugin Thornton, Canterbury; Mr. C. S. Thistlethwaite, Ashton-on-Mersey; T. J. C.; *Temperance Critic*, Lond., Editor of.

W.—Dr. [illegible] pool; M[illegible] Co., [illegible] Dispen[illegible] Riding [illegible] tary Committee of; Messrs. W. Wood and Co., New York; West Ham Hospital, Stratford, Secretary of; Messrs. Willing, Lond.; Mrs. Williams, Leicester; Messrs. Wallach, Lond.

Y.—Yorkshire College, Leeds, Registrar of.

Letters, each with enclosure, are also acknowledged from—

A.—Dr. G. N. Adams, Bridgend; Alpha, Kew Gardens; A. W. H.; Mr. D. E. Auklesaria, Ahmedabad, India; Mr. J. Andrews, Eastbourne; Agricultural College, Aspatria; Mr. J. D. Athey, Bishop Auckland.

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An Address

ON

THE COMBATING OF TUBERCULOSIS IN THE LIGHT OF THE EXPERIENCE THAT HAS BEEN GAINED IN THE SUCCESSFUL COMBATING OF OTHER INFECTIOUS DISEASES.

Delivered at the Second General Meeting of the British Congress on Tuberculosis on July 23rd,

BY GEH.-MED.-RATH PROFESSOR DR. ROBERT KOCH,

DIRECTOR OF THE INSTITUTION FOR INFECTIOUS DISEASES, BERLIN, AND MEMBER OF THE IMPERIAL SANITARY BOARD.

THE task with which this Congress will have to busy itself is one of the most difficult, but it is also one in which labour is most sure of its reward. I need not point again to the innumerable victims tuberculosis annually claims in all countries, nor to the boundless misery it brings on the families it attacks. You all know that there is no disease which inflicts such deep wounds on mankind as this. All the greater, however, would be the general joy and satisfaction if the efforts that are being made to rid mankind of this enemy, which consumes its inmost marrow, were crowned with success. There are many, indeed, who doubt the possibility of successfully combating this disease, which has existed for thousands of years and has spread all over the world. This is by no means my opinion. This is a conflict into which we may enter with a surely-founded prospect of success, and I will tell you the reasons on which I base this conviction. Only a few decades ago the real nature of tuberculosis was unknown to us; it was regarded as a consequence, as the expression, so to speak, of social misery, and as this supposed cause could not be got rid of by simple means people relied on the probable gradual improvement of social conditions and did nothing. All this is altered now. We know that social misery does indeed go far to foster tuberculosis, but the real cause of the disease is a parasite—that is, a visible and palpable enemy which we can pursue and annihilate just as we can pursue and annihilate other parasitic enemies of mankind.

Strictly speaking, the fact that tuberculosis is a preventable disease ought to have become clear as soon as the tubercle bacillus was discovered and the properties of this parasite and the manner of its transmission became known. I may add that I, for my part, was aware of the full significance of this discovery from the first, and so will everybody have been who had convinced himself of the causal relation between tuberculosis and the tubercle bacillus. But the strength of a small number of medical men was inadequate to the conflict with a disease so deeply rooted in our habits and customs. Such a conflict requires the coöperation of many, if possible of all, medical men, shoulder to shoulder with the State and the whole population, and now the moment when such coöperation is possible seems to have come. I suppose there is hardly any medical man now who denies the parasitic nature of tuberculosis, and among the non-medical public, too, the knowledge of the nature of the disease has been widely propagated. Another favourable circumstance is that success has recently been achieved in the combating of several parasitic diseases and that we have learned from these examples how the conflict with pestilences is to be carried on. The most important lesson we have learned from the said experience is that it is a great blunder to treat pestilences according to a general scheme. This was done in former times. No matter whether the pestilence in question was cholera, plague, or leprosy, isolation, quarantine, useless disinfection were always resorted to. But now we know that every disease must be treated according to its own special individuality and that the measures to be taken against it must be most accurately adapted to its special nature, to its etiology. We are entitled to hope for success in combating tuberculosis only if we keep this lesson constantly in view. As so extremely much depends just on this point I shall take the liberty to illustrate it by several examples.

The pestilence which is at this moment in the foreground of interest, the bubonic plague, may be instructive to us in several respects. People used to act upon the conviction that a plague patient was in the highest degree a centre of infection, and that the disease was transmitted only by plague patients and their belongings. Even the most recent international agreements are based on this conviction. Although, as compared with formerly, we now have the great advantage that we can, with the aid of the microscope and of experiments on animals, recognise every case of plague with absolute certainty, and although the prescribed inspection of ships, quarantine, the isolation of patients, the disinfection of infected dwellings and ships, are carried out with the utmost care, the plague has, nevertheless, been transmitted everywhere, and has in not a few places assumed grave dimensions. Why this has happened we know very well, owing to the experience quite recently gained as to the manner in which the plague is transmitted. It has been discovered that only those plague patients who suffer from plague-pneumonia—a condition which is fortunately infrequent—are centres of infection, and that the real transmitters of the plague are the rats. There is no longer any doubt that in by far the majority of the cases in which the plague has been transmitted by ocean traffic the transmission took place by means of plague among the ship rats. It has also been found that wherever the rats were intentionally or unintentionally exterminated the plague rapidly disappeared; whereas at other places where too little attention had been paid to the rat plague the pestilence continued. This connexion between the human plague and the rat plague was totally unknown before, so that no blame attaches to those who devised the measures now in force against the plague if the said measures have proved unavailing. It is high time, however, that this enlarged knowledge of the etiology of the plague should be utilised in international as well as in other traffic. As the human plague is so dependent on the rat plague it is intelligible that protective inoculation and the application of antitoxic serum have had so little effect. A certain number of human beings may have been saved from the disease by that, but the general spread of the pestilence has not been hindered in the least.

With cholera the case is essentially different; it may under certain circumstances be transmitted directly from human beings to other human beings, but its main and most dangerous propagator is water, and therefore in the combating of cholera water is the first thing to be considered. In Germany, where this principle has been acted on, we have succeeded for four years in regularly exterminating the pestilence (which was introduced again and again from the infected neighbouring countries) without any obstruction of traffic.

Hydrophobia, too, is not void of instruction for us. Against this disease the so-called protective inoculation proper has proved eminently effective as a means of preventing the outbreak of the disease in persons already infected, but of course such a measure can do nothing to prevent infection itself. The only real way of combating this pestilence is by compulsory muzzling. In this matter also we have had the most satisfactory experience in Germany, but have at the same time seen that the total extermination of the pestilence can be achieved only by international measures, because hydrophobia, which can be very easily and rapidly suppressed, is always introduced again year after year from the neighbouring countries.

Permit me to mention only one other disease, because it is etiologically very closely akin to tuberculosis, and we can learn not a little for the furtherance of our aims from its successful combating. I mean leprosy. It is caused by a parasite which greatly resembles the tubercle bacillus. Just like tuberculosis, it does not break out till long after infection and its course is almost slower. It is transmitted only from person to person, but only when they come into close contact, as in small dwellings and bedrooms. In this disease, accordingly, immediate transmission plays the main part; transmission by animals, water, or the like is out of the question. The combative measures, accordingly, must be directed against this close intercourse between the sick and the healthy. The only way to prevent this intercourse is to isolate the patients. This was most rigorously done in the Middle Ages by means of numerous leper-houses, and the consequence was that leprosy, which had spread to an alarming extent, was completely stamped out in Central

Europe. The same method has been adopted quite recently in Norway, where the segregation of lepers has been ordered by a special law. But it is extremely interesting to see how this law is carried out. It has been found that it is not at all necessary to execute it strictly, for the segregation of only the worst cases, and even of only a part of these, sufficed to produce a diminution of leprosy. Only so many infectious cases had to be sent to the leper-houses that the number of fresh cases kept regularly diminishing from year to year. Consequently the stamping-out of the disease has lasted much longer than it would have lasted if every leper had been inexorably consigned to a leper-house, as in the Middle Ages, but in this way, too, the same purpose is gained, slowly indeed, but without any harshness.

These examples may suffice to show what I am driving at, which is to point out that in combating pestilences we must strike the root of the evil and must not squander force in subordinate ineffective measures. Now the question is whether what has hitherto been done and what is about to be done against tuberculosis really strikes the root of tuberculosis so that it must sooner or later die. In order to answer this question it is necessary first and foremost to inquire how infection takes place in tuberculosis. Of course, I presuppose that we understand by tuberculosis only those morbid conditions which are caused by the tubercle bacillus In by far the majority of cases of tuberculosis the disease has its seat in the lungs, and has also begun there. From this fact it is justly concluded that the germs of the disease—i.e., the tubercle bacilli—must have got into the lungs by inhalation. As to the question where the inhaled tubercle bacilli have come from, there is also no doubt. On the contrary, we know with certainty that they get into the air with the sputum of consumptive patients. This sputum, especially in advanced stages of the disease, almost always contains tubercle bacilli, sometimes in incredible quantities By coughing and even speaking it is flung into the air in little drops—i.e., in a moist condition—and can at once infect persons who happen to be near the coughers. But then it may also be pulverised when dry, in the linen or on the floor for instance, and get into the air in the form of dust. In this manner a complete circle, a so-called *circulus vitiosus*, has been formed for the process of infection from the diseased lung, which produces phlegm and pus containing tubercle bacilli, to the formation of moist and dry particles (which in virtue of their smallness can keep floating a good while in the air), and finally to new infection if particles penetrate with the air into a healthy lung and originate the disease anew. But the tubercle bacilli may get to other organs of the body in the same way and thus originate other forms of tuberculosis. This, however, is a considerably rarer case. The sputum of consumptive people, then, is to be regarded as the main source of the infection of tuberculosis. On this point, I suppose, all are agreed. The question now arises whether there are not other sources, too, copious enough to demand consideration in the combating of tuberculosis.

Great importance used to be attached to the hereditary transmission of tuberculosis Now, however, it has been demonstrated by thorough investigation that though hereditary tuberculosis is not absolutely non-existent it is nevertheless extremely rare, and we are at liberty in considering our practical measures to leave this form of origination entirely out of account. But another possibility of tuberculous infection exists, as is generally assumed, in the transmission of the germs of the disease from tuberculous animals to man. This manner of infection is generally regarded nowadays as proved and as so frequent that it is even looked upon by not a few as the most important, and the most rigorous measures are demanded against it. In this Congress also the discussion of the danger with which the tuberculosis of animals threatens man will play an important part. Now, as my investigations have led me to form an opinion deviating from that which is generally accepted, I beg your permission, in consideration of the great importance of this question, to discuss it a little more thoroughly.

Genuine tuberculosis has hitherto been observed in almost all domestic animals, and most frequently in poultry and cattle. The tuberculosis of poultry, however, differs so much from human tuberculosis that we may leave it out of account as a possible source of infection for man. So, strictly speaking, the only kind of tuberculosis remaining to be considered is the tuberculosis of cattle which, if really transferable to man, would indeed have frequent opportunities of infecting human beings through the drinking of the milk and the eating of the flesh of diseased animals. Even in my first circumstantial publication on the etiology of tuberculosis I expressed myself regarding the identity of human tuberculosis and bovine tuberculosis with reserve. Proved facts which would have enabled me sharply to distinguish these two forms of the disease were not then at my disposal, but sure proofs of their absolute identity were equally undiscoverable, and I therefore had to leave this question undecided. In order to decide it I have repeatedly resumed the investigations relating to it, but so long as I experimented on small animals, such as rabbits and guinea pigs, I failed to arrive at any satisfactory result, though indications which rendered the difference of the two forms of tuberculosis probable were not wanting. Not till the complaisance of the Ministry of Agriculture enabled me to experiment on cattle, the only animals really suitable for these investigations, did I arrive at absolutely conclusive results. Of the experiments which I have carried out during the last two years along with Professor Schütz of the Veterinary College in Berlin I will tell you briefly some of the most important.

A number of young cattle which had stood the tuberculin test, and might therefore be regarded as free from tuberculosis, were infected in various ways with tubercle bacilli taken from cases of human tuberculosis; some of them got the tuberculous sputum of consumptive patients direct In some cases the tubercle bacillus or the sputum was injected under the skin, in others into the peritoneal cavity, in other into the jugular vein. Six animals were fed with tuberculous sputum almost daily for seven or eight months; four repeatedly inhaled great quantities of bacilli, which were distributed in water and scattered with it in the form of spray. None of these cattle (there were 19 of them) showed any symptoms of disease and they gained considerably in weight. From six to eight months after the beginning of the experiments they were killed. In their internal organs not a trace of tuberculosis was found. Only at the places where the injections had been made small suppurative foci had formed, in which few tubercle bacilli could be found. This is exactly what is found when dead tubercle bacilli are injected under the skin of animals liable to contagion. So the animals we experimented on were affected by the living bacilli of human tuberculosis exactly as they would have been by dead ones; they were absolutely insusceptible to them. The result was utterly different, however, when the same experiment was made on cattle free from tuberculosis with tubercle bacilli that came from the lungs of an animal suffering from bovine tuberculosis. After an incubation-period of about a week the severest tuberculous disorders of the internal organs broke out in all the infected animals. It was all one whether the infecting matter had been injected only under the skin or into the peritoneal cavity or the vascular system. High fever set in and the animals became weak and lean; some of them died after from one and a half to two months; others were killed in a miserably sick condition after three months. After death extensive tuberculous infiltrations were found at the place where the injections had been made and in the neighbouring lymphatic glands, and also far-advanced alterations of the internal organs, especially of the lungs and the spleen. In the cases in which the injection had been made into the peritoneal cavity the tuberculous growths which are so characteristic of bovine tuberculosis were found on the omentum and peritoneum. In short, the cattle proved just as susceptible to infection by the bacillus of bovine tuberculosis as they had proved insusceptible to infection by the bacillus of human tuberculosis. I wish only to add that preparations of the organs of the cattle which were artificially infected with bovine tuberculosis in these experiments are exhibited in the museum of pathology and bacteriology.

An almost equally striking distinction between human and bovine tuberculosis was brought to light by a feeding experiment with swine. Six young swine were fed daily for three months with the tuberculous sputum of consumptive patients. Six other swine received bacilli of bovine tuberculosis with their food daily for the same period. The animals that were fed with sputum remained healthy and grew lustily, whereas those that were fed with the bacilli of bovine tuberculosis soon became sickly, were stunted in their growth, and half of them died. After three and a half months the surviving swine were all killed and examined. Among the animals that had been fed with sputum no trace of tuberculosis was found, except here and there little nodules in the lymphatic glands of the neck and in one case a few grey nodules in the lungs The animals, on the other hand, which had eaten bacilli of bovine tuberculosis had without exception (just as in the cattle experiment) severe tuberculous diseases, especially tuberculous infiltration of the greatly enlarged lymphatic glands of the neck and of the mesenteric glands, and also extensive tuberculosis of the lungs and the spleen

The difference between human and bovine tuberculosis appeared not less strikingly in a similar experiment with asses sheep and goats, into whose vascular systems the two kinds of tubercle bacilli were injected

Our experiments I must add are not the only ones that have led to this result If one studies the older literature of the subject, and collates the reports of the numerous experiments that were made in former times by Chauveau, Günther and Harms, Bollinger and others who fed calves swine and goats with tuberculous material one finds that the animals that were fed with the milk and pieces of the lungs of tuberculous cattle always fell ill of tuberculosis, whereas those that were fed with human material did not. Comparative investigations regarding human and bovine tuberculosis have been made very recently in North America by Smith, Dinwiddie, Frothingham and Repp, and their result agreed with that of ours The unambiguous and absolutely conclusive result of our experiments is due to the fact that we chose methods of infection which excluded all sources of error, and carefully avoided everything connected with the stalling feeding, and tending of the animals that might have a disturbing effect on the experiments Considering all these facts, I feel justified in maintaining that human tuberculosis differs from bovine and cannot be transmitted to cattle It seems to me very desirable however, that these experiments should be repeated elsewhere in order that all doubt as to the correctness of my assertion may be removed I wish only to add that, owing to the great importance of this matter, our Government has resolved to appointment a commission to make further inquiries on the subject

But, now, how is it with the susceptibility of man to bovine tuberculosis? This question is far more important to us than that of the susceptibility of cattle to human tuberculosis highly important as that is too It is impossible to give this question a direct answer, because, of course the of it with human beings is out of however, we can try to approach the milk and butter consumed in great cities very often contain large quantities of the bacilli of bovine tuberculosis in a living condition, as the numerous infection experiments with such dairy products on animals have proved. Most of the inhabitants of such cities daily consume such living and perfectly virulent bacilli of bovine tuberculosis, and unintentionally carry out the experiment which we are not at liberty to make If the bacilli of bovine tuberculosis were able to infect human beings, many cases of tuberculosis caused by the consumption of alimenta containing tubercle bacilli could not but occur among the inhabitants of great cities especially the children. And most medical men believe that this is actually the case In reality, however, it is not so That a case of tuberculosis has been caused by alimenta can be assumed with certainty only when the intestine suffers first—i.e., when a so-called primary tuberculosis of the intestines is found. But such cases are extremely rare Among many cases of tuberculosis examined after death I myself remember having seen primary tuberculosis of the intestine only twice Among the great post-mortem material of the Charité Hospital in Berlin 10 cases of primary tuberculosis of the intestine occurred in five years Among 933 cases of tuberculosis in children at the Emperor Frederick's Hospital for Children Baginsky never found tuberculosis of the intestine without simultaneous disease of the lungs and the bronchial glands. Among 3104 post-mortem examinations of tuberculous children Biedert observed only 16 cases of primary tuberculosis of the intestine. I could cite from the literature of the subject many more statistics of the same kind, all indubitably showing that primary tuberculosis of the intestine, especially among children, is a comparatively rare disease, and of the few cases that have been enumerated it is by no means certain that they were due to infection by bovine tuberculosis It is just as likely that they were caused by the widely propagated bacilli of human tuberculosis, which may have got into the digestive canal in some way or other—for instance by swallowing saliva of the mouth Hitherto nobody could decide with certainty in such a case whether the tuberculosis of the intestine was of human or of animal origin Now we can diagnose the two All that is necessary is to cultivate in pure culture the tubercle bacilli found in the tuberculous material and to ascertain whether they belong to bovine tuberculosis by inoculating cattle with them For this purpose I recommend subcutaneous injection which yields quite specially characteristic and convincing results For half a year past I have occupied myself with such investigations, but owing to the rareness of the disease in question the number of the cases which I have been able to investigate is but small What has hitherto resulted from this investigation does not speak for the assumption that bovine tuberculosis occurs in man

Though the important question whether man is susceptible to bovine tuberculosis at all is not yet absolutely decided, and will not admit of absolute decision to-day or to morrow, one is nevertheless already at liberty to say that, if such a susceptibility really exists, the infection of human beings is but a very rare occurrence I should estimate the extent of infection by the milk and flesh of tuberculous cattle and the butter made of their milk as hardly greater than that of hereditary transmission, and I therefore do not deem it advisable to take any measures against it So the only main source of the infection of tuberculosis is the sputum of consumptive patients and the measures for the combating of tuberculosis must aim at the prevention of the dangers arising from its diffusion Well, what is to be done in this direction? Several ways are open One's first thought might be to consign all persons suffering from tuberculosis of the lungs whose sputum contains tubercle bacilli to suitable establishments This however, is not only absolutely impracticable but also unnecessary For a consumptive who coughs out tubercle bacilli is not necessarily a source of infection on that account so long as he takes care that his sputum is properly removed and rendered innocuous. This is certainly true of very many patients, especially in the first stages, and also of those who belong to the well to do classes and are able to procure the necessary nursing But how is it with people of very small means? Every medical man who has often entered the dwellings of the poor, and I can speak on this point from my own experience, knows how sad is the lot of consumptives and their families there The whole family have to live in one or two small ill ventilated rooms The patient is left without the nursing he needs because the able-bodied members of the family must go to their work. How can the necessary cleanliness be secured under such circumstances? How is such a helpless patient to remove his sputum so that it may do no harm? But let us go a step further and picture the condition of a poor consumptive patient's dwelling at night. The whole family sleep crowded together in one small room However cautious he may be the sufferer scatters the morbid matter secreted by his diseased lungs every time he coughs and his relatives close beside him must inhale this poison. Thus whole families are infected. They die out and awaken in the minds of those who do not know the infectiousness of tuberculosis the opinion that it is hereditary, whereas its transmission in the cases in question was due solely to the simplest processes of infection which do not strike people so much because the consequences do not appear at once but generally only after the lapse of years. Often under such circumstances the infection is not restricted to a single family but spreads in densely inhabited tenement houses to the neighbours, and then as the admirable investigations of Biggs have shown in the case of the densely peopled parts of New York, regular nests or foci of disease are formed. But if one investigates these matters more thoroughly one finds that it is not poverty *per se* that favours tuberculosis, but the bad domestic conditions under which the poor everywhere but especially in great cities, have to live For, as the German statistics show, tuberculosis is less frequent even among the poor, when the population is not densely packed together and may attain very great dimensions among a well to-do population when the domestic conditions especially as regards the bedrooms, are bad as is the case, for instance among the inhabitants of the North Sea coast. So it is the e poor that we have to regard as tuberculosis, it is out of them ps up anew, and it is to the that we must first and foremost direct our attention if we wish to attack the evil at its root and to wage war against it with effective weapons This being so it is very gratifying to see how efforts are being made in almost all countries to improve the domestic conditions of the poor. I am also convinced that these efforts, which must be promoted in every way, will lead to a considerable diminution of tuberculosis. But a long time must elapse ere essential changes can be effected in this direction, and much may be done meanwhile in order to reach the goal much more rapidly.

If we are not able at present to get rid of the danger which small and overcrowded dwellings involve, all we can do is to remove the patients from them and, in their own interests and that of the people about them, to lodge them better, and this can be done only in suitable hospitals. But the thought of attaining this end by compulsion of any kind is very far from me; what I want is that they may be enabled to obtain the nursing they need better than they can obtain it now. At present a consumptive in an advanced stage of the disease is regarded as incurable and as an unsuitable inmate for a hospital. The consequence is that he is reluctantly admitted and dismissed as soon as possible. The patient, too, when the treatment seems to him to produce no improvement and the expenses, owing to the long duration of his illness, weigh heavily upon him, is himself animated by the wish to leave the hospital soon. That would be altogether altered if we had special hospitals for consumptives, and if the patients were taken care of there for nothing, or at least at a very moderate rate. To such hospitals they would willingly go; they could be better treated and fed there than is now the case. I know very well that the execution of the project will have great difficulties to contend with, owing to the considerable outlay it entails. But very much would be gained if, at least in the existing hospitals, which have to admit a great number of consumptives at any rate, special wards were established for them in which pecuniary facilities would be offered them. If only a considerable fraction of the whole number of consumptives were suitably lodged in this way a diminution of infection, and consequently of the sum-total of tuberculosis, could not fail to be the result. Permit me to remind you in this connexion of what I said about leprosy. In the combating of that disease also great progress has already been made by lodging only a fair number of the patients in hospitals. The only country that possesses a considerable number of special hospitals for tuberculous patients is England, and there can be no doubt that the diminution of tuberculosis in England, which is much greater than in any other country, is greatly due to this circumstance. I should point to the founding of special hospitals for consumptives and the better utilisation of the already existing hospitals for the lodging of consumptives as the most important measure in the combating of tuberculosis, and its execution opens a wide field of activity to the State, to municipalities, and to private benevolence. There are many people who possess great wealth and would willingly give of their superfluity for the benefit of their poor and heavily afflicted fellow-creatures, but do not know how to do this in a judicious manner. Here is an opportunity for them to render a real and lasting service by founding consumption hospitals or purchasing the right to have a certain number of consumptive patients maintained in special wards of other hospitals free of expense.

As, however, unfortunately, the aid of the State, the municipalities, and rich benefactors will probably not be forthcoming for a long time yet, we must for the present resort to other measures that may pave the way for the main measure just referred to and serve as a supplement and temporary substitute for it. Among such measures I regard obligatory notification as specially valuable. In the combating of all infectious diseases it has proved indispensable as a means of obtaining certain knowledge as to their state, especially their dissemination, their increase, and their decrease. In the conflict with tuberculosis also we cannot dispense with obligatory notification; we need it not only in order to inform ourselves as to the dissemination of this disease, but mainly in order to learn where help and instruction can be given, and especially where the disinfection which is so urgently necessary when consumptives die or change their residences has to be effected. Fortunately it is not at all necessary to notify all cases of tuberculosis, nor even all cases of consumption, but only those that, owing to the domestic conditions, are sources of danger to the people about them. Such limited notification has already been introduced in various places—in Norway, for instance, by a special law, in Saxony by a Ministerial decree, in New York, and in several American towns which have followed its example. In New York, where notification was optional at first and was afterwards made obligatory, it has proved eminently useful. It has thus been proved that the evils which it used to be feared the introduction of notification for tuberculosis would bring about need not occur and it is devoutly to be wished that the examples I have named may very soon excite emulation everywhere.

There is another measure connected with notification—viz., disinfection, which, as already mentioned, must be effected when consumptives die or change their residence in order that those who next occupy the infected dwelling may be protected against infection. Moreover, not only the dwellings but also the infected beds and clothes of consumptives ought to be disinfected. A further measure, already recognised on all hands as effective, is the instructing of all classes of the people as to the infectiousness of tuberculosis and the best way of protecting oneself. The fact that tuberculosis has considerably diminished in almost all civilised states of late is attributable solely to the circumstance that knowledge of the contagious character of tuberculosis has been more and more widely disseminated and that caution in intercourse with consumptives has increased more and more in consequence. If better knowledge of the nature of tuberculosis has alone sufficed to prevent a large number of cases this must serve us as a significant admonition to make the greatest possible use of this means and to do more and more to bring it about that everybody may know the dangers that threaten them in intercourse with consumptives. It is only to be desired that the instructions may be made shorter and more precise than they generally are, and that special emphasis may be laid on the avoidance of the worst danger of infection, which is the use of bedrooms and small ill-ventilated workrooms simultaneously with consumptives. Of course the instructions must include directions as to what consumptives have to do when they cough and how they are to treat their sputum. Another measure, which has come into the foreground of late, and which at this moment plays to a certain extent a paramount part in all efforts for the combating of tuberculosis, works in quite another direction. I mean the founding of sanatoria for consumptives.

That tuberculosis is curable in its early stages must be regarded as an undisputed fact. The idea of curing as many tuberculous patients as possible in order to reduce the number of those that reach the infectious stage of consumption and thus to reduce the number of fresh cases w therefore a very natural one. The only question is wheth the number of persons cured in this way will be gr enough to exercise an appreciable influence on the ret gression of tuberculosis. I will try to answer this questi in the light of the figures at my disposal. Accordi to the business report of the German Central Ca mittee for the Establishment of Sanatoria for the Cu of Consumptives, about 5500 beds will be at the dispos of these institutions by the end of 1901, and then, if assume that the average stay of each patient will be thr months, it will be possible to treat at least 20,000 patien every year. From the reports hitherto issued as to the resu that have been acheived in the establishments we learn furth that about 20 per cent. of the patients who have tubercle baci in their sputum lose them by the treatment there. This is t only sure test of success, especially as regards prophylax If we make this the basis of our estimates, we find that 4,0 consumptives will leave these establishments annually cured. But, according to the statistics ascertained by t German Imperial Office of Health, there are 226,000 perso in Germany over fifteen years of age who are so far gone consumption that hospital treatment is necessary for the Compared with this great number of consumptives the succe of the establishments in question seems so small that material influence on the retrogression of tuberculosis general is not yet to be expected of them. But pray do n imagine that I wish by this calculation of mine to oppo the movement for the establishment of such sanatoria in a way. I only wish to warn against the over-estimating their importance which has recently been observable various quarters, based apparently on the opinion that t war against tuberculosis can be waged by means of sanator alone and that other measures are of subordinate value. reality the contrary is the case. What is to be achieved the general prophylaxis resulting from recognition of t danger of infection and the consequent greater caution intercourse with consumptives is shown by a calculation Cornet's regarding the decrease of mortality from tuberculos in Prussia in the years 1889 to 1897. Before 1889 t average was 31·4 per 10,000, whereas in the period named it sank to 21·8, which means that in that short space of time the number of deaths from tuberculosis was 184,000 less than was to be expected from the average of the preceding years. In New York, under the influence of the general sanitary measures directed in a simply exemplary manner by Biggs, the mortality from tuberculosis has diminished by more than 35 per cent. since 1886. And it must be remembered that both in Prussia and in New York the progress indicated by these figures is due to the first beginnings of these measures. Considerably greater success is to be expected of their further development. Biggs hopes to have got so far in five years that in the city of New York alone the annual number of deaths from tuberculosis will be 3000 less than formerly.

Now, I do indeed believe that it will be possible to render the sanatoria considerably more efficient. If strict care be taken that only patients be admitted for whom the treatment of those establishments is well adapted and if the duration of the treatment be prolonged it will certainly be possible to cure 50 per cent. and perhaps still more. But even then, and even if the number of the sanatoria be greatly increased, the total effect will always remain but moderate. The sanatoria will never render the other measures I have mentioned superfluous. If their number becomes great, however, and if they perform their functions properly, they may materially aid the strictly sanitary measures in the conflict with tuberculosis.

If now, in conclusion, we glance back once more to what has been done hitherto for the combating of tuberculosis, and forward to what has still to be done, we are at liberty to declare with a certain satisfaction that very promising [illegible] ade. Among these I reckon [illegible] ngland, the legal regulations [illegible] and Saxony, the organisa- [illegible] ork (the study and imitation [illegible] ecommend to all municipal [illegible] oria, and the instruction of the people. All that is necessary is to go on developing these beginnings, to test and, if possible, to increase their influence on the diminution of tuberculosis, and wherever anything useful has yet been done to do likewise. If we allow ourselves to be continually guided in this enterprise by the spirit of genuine preventive medical science, if we utilise the experience gained in conflict with other pestilences, and aim, with clear recognition of the purpose and resolute avoidance of wrong roads, at striking the evil at its root, then the battle against tuberculosis, which has been so energetically begun, cannot fail to have a victorious issue.

An Address

ON

THE PREVENTION OF TUBERCULOSIS IN THE DIFFERENT CIVILISED NATIONALITIES.

Delivered at the Third General Meeting of the British Congress on Tuberculosis on July 24th,

By PROFESSOR P. BROUARDEL,

DEAN OF THE FACULTY OF MEDICINE OF PARIS, MEMBER OF THE INSTITUTE

MR. PRESIDENT, LADIES, AND GENTLEMEN,—Mortality from tuberculosis varies according to the country. In some cases it is accountable for a sixth, a fifth, and sometimes a fourth of the total mortality. Havoc such as this makes it compulsory that all nations and governments should strictly inquire into and adopt measures to arrest the propagation of a disease which in these days is the greatest enemy of the human race. The wonder is that the voice of alarm has been so long in making itself heard and that for centuries our ancestors [illegible] assively on the disasters going on [illegible] several reasons for this apparent [illegible] gle was considered useless, the [illegible] not known how it spread. Exaggerating the import of some observations it was agreed that [illegible]s was hereditary. They were lulled to sleep by this formula which served as a pillow for idleness and exempted them from investigating the origin of the mischief. Popular observations were looked upon as old wives' tales—e.g., those of Morgagni, who in the seventeenth century stated that in Italy it was customary to burn the bedding of persons who had died from phthisis, and who declared that he was frightened to make a post-mortem examination on cases of phthisis.

But when, on Dec. 5th, 1865, Villemin showed experiments at the Academy of Medicine which proved the real presence of the contagion, when our illustrious colleague Professor Robert Koch had discovered and demonstrated to the medical world the agent of this contagion, everyone felt that a new way was opened to humanity and every nation wished to profit for the public good by the recent scientific discoveries. Before the men of science whom I have just mentioned had actually made known their discoveries, you English people had already begun the struggle. Convinced by observation that tuberculosis thrived in dark and damp dwellings, in 1836—nearly 70 years ago—you passed a law providing for the construction of healthy houses. And since that date your zeal has not abated. You have, with admirable perseverance, passed more than 10 Acts of Parliament, you have rendered salubrious the dwellings of the poor, the workshop, the town, and the whole kingdom. This effort has been described by the name of the Queen who presided over its direction—the Victorian Era. No greater homage could be paid to Her Gracious Majesty, and in the name of all my countrymen I unite with my English colleagues in adopting this characteristic name for the crusade that was undertaken and for the success obtained. You have diminished mortality in England from tuberculosis by 40 per cent. Yours is the honour. It will be ours to follow in your steps. I was asked by the committee to make the subject of my address the measures adopted by different nations for the prevention of consumption. This I agreed to do, but I must at the same time make a confession. I depended too much on my wish to please my excellent colleagues whose request seemed so feasible; but, unfortunately, precise information is difficult to collect, and the time at my disposal for its verification was very short, so that there will, I fear, be lacunæ, probably even errors. I shall be pleased in either case to have my attention drawn to them and I entreat my colleagues to do so; if they comply, thanks to them and to you the wish expressed by the committee will be carried out and every nation may, by hearing what its neighbours have done, gain instruction and be inspired by motives of emulation beneficial to all.

Gentlemen, the grounds for the prevention of tuberculosis are identical in every country. On this question the entire medical profession of the world is united. Tuberculosis is avoidable and curable. The methods used to bring this about are the same in all countries, but according to the impetus given to the movement by the men of science in the different nations and according to [illegible] have taken the fir[illegible] moment on legisla[illegible] into force that [illegible] turbs inveterate habits, and that has to be carried out in the bosom of the domestic hearth, when it is called for by public opinion—when all are convinced of its benefits and everyone recognises the danger of his vicious habits and is ready personally to reform them and to require his neighbour to do the same. This is the state of things in England. This system seems to me the only efficacious one and the first thing which is indispensable is to educate public opinion. How is this *anti-tuberculous education* of public opinion to be carried out? You founded in England in 1899, under the presidency of His Royal Highness the Prince of Wales, a National Association for the Prevention of Consumption and other Forms of Tuberculosis. Its object is to carry out prevention by educating the masses. You drew up short, practical pamphlets. As a model I may quote "The Crusade against Consumption" (48 pages, price 6*d.*), "Milk and Tuberculosis," "Fresh Air and Ventilation," "How to prevent Consumption," &c., and distributed them freely. At the head of this association I find names that I recognise with respect—those of the gentlemen who inaugurated this Congress. Germany founded societies for the construction of sanatoria and then societies for the propagation of the idea, to popularise sanitary ideas. These societies are small and scattered in different localities, forming provincial groups. They, too, publish popular pamphlets.

In Belgium there is a national league against tuberculosis, with its seat in Brussels. Each province has an independent branch. In Norway the Storthing voted 40,000 crowns for the purpose of printing and distributing a popular work on tuberculosis by Dr. Klaus Haussen, and 2000 crowns to form a travelling fund for doctors wishing to gain information about the management of sanatoria. In France the Society for the Prevention of Tuberculosis by Popular Education, under the direction of Dr. Peyrot, has collected together those who can teach with authority. I refer to such men as Lavisse, Matignon, Victorien Sardou, Landouzy, &c. Many of us have addressed meetings explaining rules of prophylaxis in the provinces, where, on every hand, anti-tuberculous movements are springing up. I made use of my position as president of the Polytechnic Association to institute popular education in Paris. This year 88 lectures on tuberculosis have been given to 12,000 pupils of this association. Thus gradually in all countries the public are beginning to realise that personal care and cleanliness are necessary to obviate contagion, and are also realising that other idea, to my mind equally important, that a consumptive patient is only dangerous if the necessary precautions are not taken around him, and if he himself does not take them to protect his relatives, friends, and fellow-workmen from contagion.

Tuberculophobia must not be produced, the patient must not be made a pariah. Long before our time a consumptive person has lived for many months without contaminating wife and children. The danger is in the sputum, which contains thousands of contagious germs. To expectorate on the ground is a disgusting and dangerous habit. Once this habit has quite disappeared tuberculosis will decrease rapidly. What rôle, as a matter of fact, does this sputum play in the subsequent propagation of the disease? It varies in different cases. Collected and shut up in a private, or common but *antiseptic, spittoon, destroyed by incineration or some other* measure, it is dangerous to no one. Thrown into dry and well-lighted surroundings, exposed to the rays of the sun, it will soon lose its dangerous properties. But if it remains in damp and dark surroundings, it will maintain its activity for a long time. Thus it is that tuberculosis claims more victims from gloomy, ill-ventilated, dark dwellings. All nations have recognised this, but England has the double merit of recognising the primary importance of this problem and of having solved it successfully in a manner peculiarly her own. Recognising that insalubrious dwellings are one of the most potent agents in the propagation of tuberculosis, the legislations of the different countries have kept this cause of insalubrity well in view, and have made laws ordering the destruction of unhealthy dwellings. You, since 1836, have directed your legislation towards the construction of healthy abodes and this action on the part of the Government has led to the intervention of benefactors whose memory should be kept green in the minds of those interested in public health.

In Germany private initiative has not been so successful. Belgium has been one of the most enthusiastic nations in taking up the movement in favour of healthy dwellings. In Denmark building societies have flourished best of all. In 1600 Christian IV. set the example by erecting houses with gardens for the employés of his house. But if tuberculous germs fall in an ill-lighted, damp house they maintain their activity for a long time, whether the house is in town or country. In these surroundings population is often very dense. It is no uncommon thing to see one room in Paris occupied by five, six, eight, and sometimes 12 persons. They are continually coming in contact with one another, chances of contagion are increased by this fact alone, and in addition to the limited space has to be added the dirtiness of the occupants, or, as I should say, the impossibility of keeping sufficiently clean. Thus small tuberculous foci are created which invade the whole house; the workmen and employés carry the germs of disease into their workshops and offices and soon make a large tuberculous focus of the town. But I do not wish to mislead. A town is not *in toto* unhealthy. In the same town, quarters adjoining one another may have a mortality from tuberculosis which varies inversely; mortality from tuberculosis in districts in Paris varies from 10 to 100 per 10,000 *inhabitants*. However, in every quarter there are hotbeds of tuberculosis. These are what we have to find and to demolish. Above all else, new dwellings equally unhealthy must not be constructed, for they are a danger to a city and country. In most of the towns in all countries building plans of new houses have to be submitted for approval to the *local sanitary authorities*. It is a necessary precaution which cannot be too strictly enforced.

The evils of an unhealthy dwelling are not confined to the risk of contagion just referred to. The want of air and light acts on the nutrition of the inmates, children pine away, the strongest men cannot withstand it, every human being living in these places is the destined prey (infectious diseases; and if we only consider phthisis the become predisposing causes of consumption, transformin the strongest man and putting him on a par with th condition of those born of tuberculous parents. In th latter heredity is not direct, one is not born tuberculous but predisposed to tuberculosis. The English, German Italian, French, and other laws that I referred to moment ago are therefore warranted, and should be enacte perseveringly, especially at a moment when there is tendency in all countries to concentrate in the towns th greater part of the populations. By looking after th salubrity of the towns the health of the whole land i protected. Unhealthy dwellings cause other disasters. Dar and crowded as they are cleanliness is difficult, if not im possible, to preserve; they are not pleasant to pass the time in, and the workman stays in his home as little as possible; he eats there and sleeps there, but the rest of his time is spent in the public-house. J. Simon was right in saying: "The wretched lodging is the purveyor of the public-house," and we can add to it that the public-house is the purveyor of tuberculosis. In fact, alcoholism is the most potent factor in propagating tuberculosis. The strongest man who once taken to drink is powerless against it. Time is short for me now to draw comparisons between the laws force in different countries—those which are proposed, priv efforts, associated efforts, and temperance societies. B can say that a universal cry of despair arises from the wh universe at the sight of the disasters caused by alcoholi Any measures, State or individual, tending to limit ravages of alcoholism will be our most precious auxiliarie the crusade against tuberculosis, but the question is too la a one to deal with here. Still, I should like to draw attent to a mistake made too easily in the different countries Ministers who have the charge of the financial departmen the State. They like to calculate the sum which the State g from the duty on alcohol, but they should deduct from it cost to the community of the family of the ruined drunka his degenerate, infirm, scrofulous and epileptic childr who must have shelter. *This invasion of alcoholism* ough be regarded by every one as a public danger, and t principle, the truth of which is incontestible, should inculcated into the masses—that the future of the world be in the hands of the temperate. The dangers surroundi a man in an unhealthy home are the same when for his wo his duties, his pleasure, through illness, or under constrai a man lives all or part of the day in a centre where ot people are assembled, where unhealthy conditions and ov crowding exist. If he is well, his companions dangerous to him; if he is ill, he is dangerous to the This peril *from common life* inseparable from advance civilisation is continually growing: it is the penalty a accounts for the threatening increase in tuberculo Brought face to face with those predisposed by their fami history, by the unhealthiness of their dwellings, it has be recognised as a duty in some countries to make an attem to restore these tottering frames and to render them capab of baffling with the dangers that threaten them. It w adjudged with reason that childhood and youth would the easiest period of life to influence. Thanks to t help of some towns and of private initiative in Ita and France and in other countries, sanatoria by t seaside have been established for weakly and scrofulo children. There are 14 in France which accommodat more than 2000 children a year, and with exceller results. May I be allowed to recall the fact that we ow this success chiefly to the unfailing activity and propagand undertaken by our revered master, Dr. Bergeron. Inspire by the same idea, some countries have started holida colonies and temporary visits to places by the sea or in th mountains. Everything done in this direction will help rescue *from contagion those who, thanks to the* generosity private individuals, can profit by these health-restoring visi In 1893, with the same object in view, Madame Hervie started at Sedan working gardens for children, young peop and their parents. These gardens occupy more than 20 square metres around the town, and accommodate 3 families composed of 1251 persons. The society supplies tools, seeds, and manure to each family. In 1894 the Jesuit Father Volpette started the working gardens at St. Etienne. They cover about 42 acres and accommodate 410 families, composed of 2460 persons. There are working gardens at Bercy and some are now being made at Fontainebleau and at Villeurbane, near Lyons.

Before touching on the question of the cure of tuberculosis I should like to say a few words about measures adopted to prevent tuberculous contagion by food. Since Chauveau showed that it was possible for tuberculous germs in food to produce tubercles in the intestinal tract attention has been turned to precautions for preventing the consumption of meats and milk from tuberculous animals. As far as meat is concerned, surveillance of the slaughter-houses in large towns achieves this. In Belgium this measure is also made to apply to the country, but I do not know of any other kingdom where private slaughter-houses are inspected, and in them it is that phthisical cows, measly pigs, and diseased animals of any kind are slaughtered, and are able to escape inspection. This injurious food is consumed either as fresh meat, or in the form of pâtés or sausages from which the tuberculous viscera have not been removed. Another danger is the hawking of meat in pieces. It is rife especially in the large towns. Butchers receive daily quarters of meat despatched by provincial butchers. This meat escapes inspection. With no wish to exaggerate the danger of the propagation of tuberculosis by meat it cannot be overlooked It is easy by means of legislation to protect the population from this method of contamination. Belgium has set us the example.

That the milk of cows with tuberculous inflammation of the udder is used is very clear. Your great hygienist, the late Sir Richard Thorne, while pointing out that in England the mortality in general of adults from phthisis had diminished since 1850 from 45 per 100, regretted to see that from the same date infantile mortality from tuberculosis increased by 27 per 100. According to him this increase is entirely due to tuberculosis in the abdomen caused by ingestion of contaminated milk in infants under a year old; for in England cowhouses are not inspected. In France, to all appearances, the law allows this surveillance. It is entrusted to mayors, but to put the law into execution the mayors must know the cows suffering from tuberculous mammitis, and they can only know this if the owner reports it. Now the dairies only report their cows when their milk is dry, when, in fact, they are no longer dangerous to the consumers. It is well to add that in large concerns the milk from different sources is mixed, and one cow only need be the victim of tuberculous mammitis in order to contaminate all the milk with which its milk is mixed. To prevent this method of propagation measures of strict inspection should be adopted, such as have been in use for several years in Denmark, Sweden, and Norway to the great advantage of public health. Until such necessary measures are actually adopted there remains the simple mode of avoiding risk from milk [illegible] be widely made known in spite [illegible] e which wrongly holds that boiled milk is less nutritious and indigestible.

If a man is the victim of tuberculosis everything possible should be done to cure him, for *he can be cured*. There is no doubt of this. From my personal experience at the Morgue in Paris, where I frequently make post-mortem examinations on accidental deaths, I can state that in half the cases, if the person on whom the examination is made has lived in Paris for about 10 years, I find healed tuberculous lesions, either in the form of cretaceous transformation or fibrous cicatrisation. I may add that it is quite certain that those on whom necropsies are held in almshouses, hospitals, and the Morgue, have certainly taken none of the precautions we consider necessary. In spite of often deplorably dirty habits the system has been strong enough to resist the ravages of the disease. These anatomical results have also another meaning. These lesions, in the majority of cases, are not phthisis in an early stage manifested by small disseminated foci; they are cicatrices of large foci, sometimes of wide, completely cicatrised cavities Phthisis, therefore, is curable, even in its most advanced stages. This is maintained not only by anatomo-pathologists, but by all medical men who have made a special study of the disease. Grancher sums the matter up thus: "Tuberculosis is the most easily cured of chronic diseases."

As a tuberculous patient can be cured everything possible must be done to bring this about by careful organisation. The medical man being himself firmly convinced that his patient can be cured will [illegible] his way [illegible] that he c[illegible] losis he [illegible] the natu[illegible] appearances until the time came when the case was hopeless. Now that tuberculosis can be cured he can behave in just the opposite way. If it is true that in every stage tuberculosis can be c[illegible] made to [illegible] stage wh[illegible] power of resistance in the patient's system. The patient and his family should be told that he has a serious disease, but that it is curable. This change of demeanour in the medical man will only be possible when he is able to tell the patient the best scientific methods of treatment for him to use.

What are the best methods? How are they carried out in the different countries? In this address I am dealing only with the disease as it affects working men and employés. I am leaving out of the question well-to-do patients, though these may gain some idea from it of the rules to be observed. The remedies to be recommended vary according to the stage to which the disease has got, and also if the patient is single, married, or the father of a family. Three distinct periods may be defined. In the earliest the patient coughs and has a cold. What does he generally do? Either he takes no notice of it or he asks the chemist for a mixture for his cough. Days, weeks, and months go by, and if the weather is inclement he gets worse; if it is mild he has periods of being better, followed by more serious attacks. Then fever and wasting set in and he has to give up his work. He thinks illness has just begun. We know that he is entering the second stage, when even skilled treatment is probably useless. The first stage of the disease, therefore, interests us most, when intervention is of use. In what way can we be of use to a patient in the first stage?

In Germany there are polyclinics for tuberculosis in the large towns, where a medical man provided with the things necessary attends to the patients who come to consult him, either throughout their illness or till the patient can be admitted into a sanatorium A committee, composed of benevolent men and women in large numbers, looks after the patient at home, tells his wife what to do, sees that his home is kept clean, and looks after necessary prophylactic measures. As far as possible the misery consequent on the bread-winner being out of work is relieved from a bank, kept up like the sanatoria banks, to assist such cases M. Calmette conceived the same idea, but he went farther and advised that, instead of waiting for the workman to come for advice, they should go and meet him by inviting him to come to a dispensary run on the same lines as the German polyclinics. This is his own description of his project that he gave in 1899:—"Instead of waiting till the patient with tuberculosis comes to consult a doctor and is driven to give up his work I think that it would be better to establish the principle of going to him and offering him help before he finds out even that he is dangerously ill. I should like to be able to hunt out tuberculosis as soon as ever it has begun and to be able then and there to give the sufferer advice and the care necessary, while generally keeping him in his own family circle." M. Calmette has carried out his proposal; he opened an anti-tuberculous dispensary at Lille called Emile Roux, and it has been eminently successful Dr. Bonnet has founded a similar institution in Paris, in the Montmartre quarter, and others are about to be established, one at Vaugirard, with municipal aid. Experience shows that workmen do not shun these dispensaries; some come because they have a cough, others because they know themselves to be attacked. As far as I can see the best way to ferret out disease would be to have one or more agent-workmen, foremen-workmen, if it were possible. They are the ones to notice when their comrades cough; they could advise them to go to the dispensary. Alive to the dangers of a badly kept workshop or yard they superintend its being kept clean and in order; they actually carry out anti-tuberculous education. Those who visit the dispensary receive the necessary attention from the medical men and are told the danger of dissemination by sputum, alcoholism, &c. They are looked after; they get meat gravy—one or two meals, as far as funds will allow. Their families are helped and their home is kept an eye on from the hygienic point of view; as far as possible the misery by which the poor man is threatened is kept away from him. Among these patients some are found who must be sent to a sanatorium. If the patient is an unmarried man, and if he can be sent to a sanatorium, his chances of recovery are very great, but for a married man to go means that his wife and family must be provided for during his absence and his mind relieved of all anxiety on their account.

It is not my business to deal with the question of building and management of a sanatorium. We need only remember that they should be private, aseptic, disciplined, and worked on Dettweiler's principle—physical and moral rest, stuffing, and open-air treatment. In Germany this system has been carried out most enthusiastically through the assistance of private benevolence and municipal, industrial, and parochial aid; the State has generously supported the effort, recognising its value. In Germany there are 83 public sanatoria open or ready to open. They accommodate 12,000 patients a year. They have been built by local insurance, by sickness banks, by the manufacturers who have combined to found sanatoria for their workpeople, and by parishes which have united for the purpose. There are most of the latter. In some parts a tax of from a penny a head has been exacted. The State has founded several sanatoria for its servants; the forests department, railway department, and the State of Hamburg. The Commission of the Budget of the Reichstag decided to build State sanatoria under the control of the Ministry of the Interior. The treatment lasts at least 90 days, and experience has shown that it was good for the patients to spend another month in the year following recovery at the sanatorium. Under these circumstances how long do the patients keep better? Of those who leave the sanatorium in what is considered a satisfactory condition it has been shown that 46 per cent. in 1896, 47 per cent. in 1897, 58 per cent. in 1898; 60 per cent. in 1899 were able to work. The cost per head per patient for the three months' stay amounts to eight francs per diem, including the cost of assistance given to the patient's family, which is a third of the amount. Germany's example has been followed. England, Scotland, Australia, and Canada have erected some few sanatoria. In Austria Schrötter had the Sanatorium d'Alland built, with 300 beds. Chevalier von Kusy turned into small sanatoria some huts of the Ducke type. In the United States they set apart portions of hospitals to make consumptive wards of them. They made about 30 such small sanatoria. The Association of Alabama built one for prisoners, the Naval Department one for sailors. New York has actually six sanatoria. By the munificence of the Czar the Établissement Halila, in Russia, was built in 1897; and, since 1898, that of Tactzi, with two pavilions accommodating 20 beds for men and 20 beds for women. At Salta Princess Bariatinski has founded an establishment for schoolboys. The King of Sweden gave the sum collected at his jubilee (2,300,000 crowns) to build three sanatoria, Parliament voted 800,000 crowns for the same object, and the State gave the ground required for these three sanatoria. Denmark has already two sanatoria, and there is a scheme before Parliament for the erection of public sanatoria. Italy and the Netherlands and Norway have followed suit. In France several sanatoria have been opened: Hauteville, near Lyons; Agincourt, for Paris. Since 1876 we built the Home of Villepinte, and then that of Ormesson, for young tuberculous patients; and we may mention, in addition, the agricultural colonies of Cannet, the Jean Dollfus Home at Cannes, the Sanatorium of Gironde, that of Cimiez (near Nice), Argelez, and finally those which have recently been opened or will be—Lille, Nancy, Orléans, Versailles, Amiens, Le Havre, Marseilles, and (in Paris) the Bligny and Rouen sanatoria, &c. All nations have obeyed the same generous impulses, and the time will come when, instead of the poor tuberculous patient being given up to his sad lot, he will find if he is only in the first stage of the disease that by means of dispensaries and sanatoria there is always hope and often realisation of his recovery.

If the patient is beyond the first two stages when he asks for admission to the hospital, it must not be overlooked that he may still be cured, provided he can be made to see things as they are. He must be isolated in order that he may not be discouraged by the spectacle of his comrades' sufferings. Rules of isolation have been drawn up by Grancher and Thoinot for the patient and for his nurses; you have them in use in your own consumption hospitals. At Brompton in 20 years 15,000 consumptives have been cared for. No medical man or officer or nurse has been infected. This statement is supported by Dr. Williams, physician of the hospital, by Möeller, and by Masbrenier.

Gentlemen, when I was asked by the committee to tell you in my address, which I am sorry I could not make shorter, what steps had been taken by the different nations to carry out the crusade against consumption, I was also asked to consider the question from the international point of view. I do not think that it is possible to deal with consumption in this respect as plague, cholera, and yellow fever have been dealt with in order to prevent their being brought into a country. I do not know how any practitioner can state positively that a traveller at the frontier or the port is not consumptive. But it would be possible to take international steps in another way. Railway carriages might be disinfected as well as steamboats and hotels, and the traveller no longer exposed to germs of contagion. That would be of truly international import. The Minister or Public Works in France has recently sent a circular to railway companies calling their attention to the precautions necessary to obviate or to diminish risk from tuberculous contagion. In several countries, particularly in the United States, hotel-keepers who receive a consumptive client have to notify it to the municipal authorities, and compulsory disinfection of the room has to be gone through. The Minister of the Interior in Germany has brought in even more stringent measures. Every practitioner who attends a case of pulmonary or laryngeal tuberculosis is bound to report it in writing to the police as soon as he has made his diagnosis. After death from tuberculosis the room in which the patient has died has to be disinfected as have his belongings. Hotel proprietors, "furnished house" keepers, asylums, and other public institutions are compelled to notify at once every case of tuberculous disease which arises in their establishments. Notification, disinfection, salubrity of hotels, carriages, and steamboats are questions of an international character which might be advantageously dealt with by representatives of the different nations. The lesson to be drawn from the efforts that have been made by all nations to carry out a crusade against tuberculosis is that in conversation, in the public prints, and especially in prepared pamphlets, we should make it universally known that tuberculous contamination can be avoided, and that in addition the disease can be cured. Once convince our fellow citizens on these two points, and private initiative will be left behind; anti-tuberculous efforts, numerous now, will multiply and coördinate; parishes, provinces, and the State will not be able to stand aloof from a common effort, and we may reasonably prophesy that, united in one brave attempt, the whole civilised world will succeed in exterminating the cruellest scourge that has ever fallen on us, our children, and our friends, and which threatens the future of our countries.

Gentlemen, 10 years ago at the Congress of Hygiene in London, I spoke as follows:—"When at the beginning of a century one can inscribe the name of Jenner, and at its end that of Pasteur, the human race may rejoice; more has been done for it against misery, disease, and death than in any one of the centuries which have preceded it." All honour to the nineteenth century, but the century just begun, in its first year, sees the greatest effort that has ever been made in favour of public medicine. May no obstacle stand in our way, and may those who succeed us at the end of the twentieth century be able to bear witness that our conviction has not been fruitless and the results have answered the expectations of the nations that you, gentlemen of the Organising Committee, have brought together, with the highest and noblest motive that has ever animated the human race.

ROYAL ALBERT HOSPITAL, DEVONPORT.—The cost of carrying out the improvements in the Royal Albert Hospital, Devonport, has been heavier than was anticipated. Sir John Jackson has therefore given a donation of £500 to the building fund and the committee hope that further contributions will be received.

THE FALMOUTH DRAINAGE.—At the meeting of the Falmouth Corporation held on July 11th the General Purposes Committee recommended that a scheme of drainage, estimated to cost about £17,200, should be submitted to the Local Government Board for their approval, and application should be made to carry out the work. After a considerable discussion the mayor gave his casting vote in favour of the recommendation to adopt the scheme.

THE ADMINISTRATION OF THE MANCHESTER MILK CLAUSES, 1899.[1]

BY JAMES NIVEN, M.A., M.B., B.C. CANTAB.,
MEDICAL OFFICER OF HEALTH OF MANCHESTER.

THE evidence showing that tuberculous milk has been the cause of tuberculous disease demonstrated in the bodies of children who have died from tuberculosis or from other diseases is, from a variety of causes, rather scanty. Some evidence has, it is true, been collected to show that there is a disproportionately large amount of primary abdominal tuberculosis in young cattle, but no demonstration has been given that this is due to milk. Exact post-mortem examination records show that there is an almost complete absence of tuberculous lesions in new-born infants, while the proportion of children suffering from tuberculous lesions, abdominal and other, steadily increases with advancing months and years. Such records also show that primary abdominal tuberculosis is much more frequent in infants than in adults. It is open to infer that the food of young children and of young cattle is more liable to produce tuberculosis than the food of adults and of full-grown cattle. This is, however, only a probable conclusion. The conclusion is rendered much stronger by the evidence of feeding experiments, such as those made by Chauveau and Jöhne and repeated with milk from tuberculous udders for the Royal Commission on Tuberculosis (1895) by Dr. Sims Woodhead and Dr. Sidney Martin, which showed that the milk from tuberculous udders was virulently infective when fed to calves, kittens, pigs, and guinea-pigs. The Royal Commission were so much impressed by the evidence which they obtained on this subject that they recommended, *inter alia*, that for the purpose of excluding from their districts the milk of cows affected with tuberculosis of the udder or exhibiting clinical symptoms of the disease, local authorities should be given powers somewhat similar to those of sections 24–27 of the Glasgow Police (Amendment) Act, with power to slaughter such cows subject to compensation under the conditions named in the report.

In 1896, 1897, and 1898 a series of examinations of the cows within the city of Manchester and of suspected farms outside the city were made under the direction of the medical officer of health by the veterinary surgeon of the corporation, Mr. King, at first with a view to furnish evidence for the Royal Commission and subsequently to determine the lines which administrative action should take. In this preliminary work we are under a great obligation to Mr. Holburn, the present chief veterinary surgeon of the Markets Department, as well as for subsequent assistance. Professor Delépine undertook a careful investigation of the milks obtained from suspected udders and of the conditions to be observed in concluding that a particular milk was infectious. Professor Delépine had previously improved the inoculation test by showing that much increased accuracy and precision were obtained by inoculating guinea-pigs in the posterior limbs and obtained also other valuable results from his experimental investigations. Out of 10 samples of milk taken from indurated udders he found by microscopic examination and the inoculation test that only five were tuberculous From this and other observations it was concluded that veterinary observations alone do not suffice to determine whether an udder is tuberculous, and our subsequent experience amply confirms this conclusion. In 1897 and 1898 20 samples taken at railway stations were found to be tuberculous by Professor Delépine, 16 of the corresponding farms were visited by Mr. King, and on 14 out of 16 he found cows having indurated udders. It was not then considered necessary to conclude the evidence by examining the milk from these udders, though this ought to have been done. Ample evidence, however, had been secured to show that valuable results could be secured by taking advantage of the recommendation of the Commission already quoted.

The Sanitary Committee of the city determined, in September, 1898, to apply for similar powers to those enjoyed by Glasgow. As originally drafted, the Manchester milk clauses sought unlimited power of inspection of the cows on all farms supplying milk to Manchester, and provided for the exclusion, temporary or permanent, of milk from all cows with udders affected with any disease, as well as of the milk from all cows affected with advanced tuberculosis. Other corporations followed the example, but the opposition at first was concentrated on Manchester, and the clauses were materially curtailed before they reached Parliament. It was found impossible from the beginning to insert a clause providing for the slaughter of cows suffering from tuberculosis of the udder, or from advanced tuberculosis, though the necessity for this clause was clearly recognised. It was further found necessary at a town's meeting to remove advanced tuberculosis as a condition rendering the milk of a cow unfit for human food. Hence the powers asked for by Manchester were not so large as those asked by some other corporations. The corporations applying for powers were advised by the Local Government Board that they would be much more likely to get powers from Parliament if they could agree on a common set of clauses, and Mr. Fitzgerald was requested to prepare a draft of clauses, which he did, with the aid of the Local Government Board. The opportunity was thus presented of inserting a clause relating to the slaughter of cows, but the absence of previous authorisation was fatal to the proposal. The common clauses were considered by the Local Government Board, the Board of Agriculture, and the Associated Chambers of Agriculture, and in their final form presented both additions to, and diminutions of, the powers asked for by the various corporations. The clauses enacted in effect:—1. That a cow known to be suffering from tuberculosis of the udder must be isolated, and by isolation was meant isolation on the same farm. 2. Powers were given to inspect the cows, and to take samples of milk from particular teats, also to take samples of mixed milk produced, or sold, or intended for sale within the city. These powers, however, can only be exercised outside the city on the production of an order of a justice having jurisdiction in the place in which the farm is situated. 3. If the medical officer of health is of opinion that tuberculosis is caused, or is likely to be caused, to persons residing in his district from consumption of the milk supplied from any dairy, the dairyman may be summoned to appear before the corporation to show cause why an order should not be made prohibiting him from supplying milk within the city. 4. A dairyman supplying milk within the city who has in his dairy any cow affected with, or suspected of, or exhibiting signs of, tuberculosis of the udder, shall forthwith give written notice of the fact to the medical officer of health of the district which he supplies, stating his name and address and the situation of the premises where the cow is. Unfortunately, the penalty attaching to an offence under this section must not exceed 40*s*.

The manner in which the administration was planned out before these clauses were obtained, and in which it has still been found most convenient to administer them, is as follows. Inside the city the cows are systematically examined and if any suspicious condition of the udder is discovered by its veterinary surgeon a sample of milk is drawn into a sterilised bottle sterilised in Professor Delépine's laboratory (full particulars being recorded), and is sent forthwith to him on its return to the office of the veterinary surgeon. If the milk is found to be tuberculous the cowkeeper is requested to have the cow slaughtered under veterinary inspection and does so.

It will be seen that this usually entails waiting a month till the result of the inoculation test is obtained. But in all cases with suspicious characters the cowkeeper is informed of the views of the veterinary surgeon. In the case of farms outside the city samples of mixed milk are taken from cans as they arrive at the railway stations or from milk-carts and are submitted to Professor Delépine for examination. Should he declare a sample to be tuberculous an order is obtained from a justice having jurisdiction in the place where the farm is situate empowering the medical officer of health or his deputy, accompanied by the veterinary surgeon of the corporation, to visit the farm, inspect the cows, and take samples of milk from suspected udders. These samples are then sent to Professor Delépine for examination and it is upon this examination that the diagnosis of tuberculosis of the udder is decided. The farmer is then required to isolate the affected cow, but is advised by the medical officer of health in writing to have her forthwith slaughtered in the presence of the veterinary surgeon of the corporation. How far this has been successful, how far unsuccessful, will be seen by the details shown in the statement of the veterinary surgeon.[2] In all cases the cow has been disposed of, but the manner in which this has been effected clearly indicates the necessity for a clause requiring that the affected cow shall be slaughtered under supervision.

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[1] A paper communicated to the British Congress on Tuberculosis. Section I., State and Municipal.

It will be noted that the detection of the tuberculous milk in the first instance, and the final diagnosis of the tuberculous udder, rest with the bacteriologist, and it might be supposed that the part of the veterinary surgeon is a somewhat subordinate one. This is by no means the case. The whole of the administration of these clauses, as carried out in Manchester, rests upon the assumption that, given a mixed milk proved to be tuberculous, there must be amongst the cows producing it one or more affected with tuberculosis of the udder. Exception might be taken to this assumption on these grounds: (1) that the milk may be contaminated by a consumptive person or otherwise in transit; (2) that it might be contaminated by tuberculous dust or dirt in the cowshed; and (3) that the milk might be infected by the presence in the cow of a generalised tuberculosis without the udder being affected. It is also conceivable as the result of fouling of the udder with infected excreta, without lesion of the udder.

With regard to (1) it is an almost inconceivable occurrence with a covered can, and all cans are covered and should be locked; (2) is a possibility in a highly infected cowshed, especially after it has been recently swept or if the affected cow is suffering from tuberculous disease of the intestines, but under ordinary conditions could hardly yield a sufficient number of bacilli to infect the milk to the extent determined by Professor Delépine; (3) may occur as a pathological rarity, but even then infection of the udder would have started. On the other hand, it does not follow that an udder which has been invaded by tuberculosis to an extent sufficient to yield an infected mixed milk shall present any lesions to clinical examination. Of this we were well aware before the milk clauses came into operation. In one such instance where I persuaded the cowkeeper to have his cows tested with tuberculin the udder of one cow gave a very marked local reaction, showing the presence of disease, though no morbid condition was found on clinical examination On this fact, and on the well-known effect of tuberculin on local lesions, especially those of tuberculosis, was based our proposed use of the tuberculin test to determine, in advanced cases of tuberculosis, the condition of udders yielding no local signs. A reaction being obtained, it still remains necessary to examine the milk from the tuberculous udder to see whether it is tuberculous. The objection, then, urged against inferring from a tuberculous mixed milk the fact of one or more tuberculous udders being concerned in its production is scientifically of little value, and from the point of view of administration of none at all.

The fact that a mixed milk is tuberculous only serves to guide us in going to a particular farm, and if any flaw existed in our assumption this would mean only that the veterinary surgeon would not in all cases find tuberculous udders corresponding to the tuberculous mixed milk. Moreover, it has been quite clear, both to our veterinary surgeon and myself, that the power of detecting suspicious conditions in the udder is one which admits of considerable extension by practice, even in skilled hands, and it is in this difficult task that the important rôle of the veterinary surgeon lies. I am quite satisfied, from the udders which have been brought by Mr. Lloyd from slaughtered cows, that definite lesions are often so diffuse as to be most difficult of detection. Hence, when he states that he has seen three instances in which lesions, previously undetectable in udders yielding tuberculous milk, made their appearance during the continuance of his observations, I am prepared to accept the conclusion that the udder may be in a pathological condition, not to be discovered merely by manipulation, but quite adequate to produce in the milk large numbers of bacilli. As a result of following up 47 tuberculous milks he has found udders which were proved by subsequent examination of the milk to be tuberculous in 31 instances. In 15 instances a tuberculous udder has not been found. In one instance the result is not yet determined. In some cases the affected cows would appear to have been removed between the taking of the mixed sample and the subsequent visit of the veterinary surgeon to the farm. This might well happen, and by no means accidentally, but as a result of the milk being under examination. It is therefore highly satisfactory to find that in so high a proportion of cases the tuberculous udders have been traced. Such a result sufficiently proves our position that, given the mixed milk to be tuberculous, it is safe for all practical purposes to infer a tuberculous udder producing it. At the same time such a source of error and of misconduct need not exist. It would suffice to check it if all restriction on the inspection of outside farms were removed and if an additional veterinary surgeon were appointed to carry on such direct inspection. In case no tuberculous udder is found it suffices to subject the mixed milk to two or three further tests to determine whether this is due to an obscure udder condition or to some other cause If it is due to obscurity of the diseased state of the udder the mixed milk will continue to be tuberculous. In some cases the condition of the atmosphere of the cowshed and the udders of the cows should be tested in regard of their power to infect the milk under existing and under possible conditions. This I propose to have done.

The "order" section of the milk clauses has not been used in Manchester, except in one instance where a cowshed was grossly overcrowded and incurably dirty. Yet this section gives very extensive powers, and possibly it is owing to the fact that it may be used that no one has attempted to use milk from a condemned cow. It is quite a conceivable policy to rely on the order section alone, and not to send a veterinary surgeon to the farm, throwing on the farmer the onus of determining how his milk has become infected and of showing that he had taken effectual steps to stop the production of tuberculous milk. Were such a policy adopted the farmer would be obliged to call in a veterinary surgeon at his own expense who would give him a certificate that he had taken the steps required by the clauses The corporation would then satisfy themselves that the mixed milk from such dairy no longer contained tubercle bacilli and would doubtless refrain from making the order. The disadvantage of such a course would be that the sanitary authority would know nothing of the conditions under which milk was being produced, and it would also be a great hardship on the farmer to take this course. In the case of a dairy receiving and mixing milks from a number of farms this is the only course which could be adopted. It is quite evident that the order section would be most valuable in the case of persistent infection in a mixed milk when from one or another cause the source of the infection could not be ascertained. But we have had no such cases.

The clause requiring notification of suspicious conditions of the udder by farmers has been practically inoperative, directly. These conditions are not notified and the penalty is inadequate. But indirectly it has been of some service. When an udder has been shown to be tuberculous and a ready compliance is made with the request of the medical officer of health for the slaughter of the diseased cow in the presence of the veterinary surgeon no further action has been taken. But if the cow is removed, so that it cannot be satisfactorily traced, and if the udder has been such that notification ought to have been given, a prosecution ensues. In this roundabout manner some control is exercised over the disposal of the cows. But the penalty is inadequate, and a cow affected with tuberculosis of the udder should be forthwith slaughtered, under proper inspection, with a heavy penalty attached in case of evasion. I have indicated how these clauses have been carried out and how they might have been more severely administered, and the question presents itself whether their administration has been attended with a marked diminution in tuberculosis of the udder. If one might judge from the ferment which these clauses have excited one would expect that a considerable and steady diminution would have occurred The diminution has been considerable, but it has by no means been constant Of the mixed milks from 401 farms taken under the milk clauses 47 have proved tuberculous, or 11·7 per cent. Of 108 samples taken at railway stations before the milk clauses came into operation 20, or 18·5 per cent., were tuberculous. There has thus been an improvement in the milk samples taken at railway stations to the extent of 7 per cent., but the proportion of tuberculous udders has fluctuated. It may be that farmers supplying Manchester with milk will in future take additional precautions, and that a further improvement is only delayed. It was never anticipated that by these clauses tubercle bacilli would be altogether excluded from the milk-supply. The foundation of tuberculous udders remains behind in the tuberculous cows and in the dark, badly ventilated, and crowded cowsheds.

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[2] Dr Niven's paper was followed by a statement from Mr. J. S. Lloyd, M.R.C.V.S., late Veterinary Surgeon to the Sanitary Committee of the City of Manchester, which we shall publish later.

What was hoped, however, was that a substantial proportion of infection would be intercepted and that the irritation generated by the discovery of tuberculous infection would turn the attention of farmers to the necessity of protecting themselves, either by systematic veterinary inspection and greater cleanliness, or by getting the tuberculin test used towards the total eradication of tuberculosis.

It may be that we are in too much haste to gather our fruit, but I must admit that I begin to doubt whether the operation of the milk clauses is adequate to the entire result expected. On the other hand, one cannot but feel some degree of sympathy with farmers in hesitating to go in for entire eradication of tuberculosis, until at all events the necessary conditions are clearly understood by them. It is not sufficient to extirpate tuberculosis from a herd; as determined by the most careful application of the tuberculin test; as much care is requisite in the complete disinfection of the cowsheds, so that the herd should always be purified in summer in the first instance. It is also requisite that the cows should have adequate housing and that the cowsheds should be at all times kept thoroughly clean. It is difficult to provide a feeding passage and fulfil the latter condition with less than 700 cubic feet of space in a cowshed with one row of cows, unless the cows are stalled two and two, when 600 cubic feet may be just made to suffice, but double stalls are a bad arrangement.

Cows must be adequately fed. We have evidence that inadequate feeding greatly aids the spread of tuberculosis. Inadequate feeding is otherwise unprofitable and is often due to want of knowledge. It is well worth considering whether a herd newly purified from tuberculosis should not be turned into a grazing field not recently used. Wonderful as are the results of the tuberculin test it is not infallible even when applied legitimately; and supposing one or two tuberculous cows are introduced into a herd housed in dark, crowded, badly-ventilated, and dirty cowsheds, the disease will spread or else the whole of our conceptions regarding the propagation of tuberculosis are erroneous. If, however, the cows and cowsheds are kept rigidly clean an odd tuberculous cow should not matter much. But this condition cannot be fulfilled with many of our existing cowsheds, and if it could it is difficult to convey to a farm-labourer a sense of its supreme importance. Nevertheless, until we are ready to adopt the measures requisite for the complete eradication of tuberculosis from dairy cattle I agree with Professor Delépine that we shall not cease to have a certain proportion of tuberculous milks. Meantime we are content to wait for a year or two until we see how far the milk clauses will assist us. I would, however, urge these points: (1) that cows shown to suffer from tuberculosis of the udder should be required by law to be forthwith slaughtered in the presence of the veterinary surgeon employed under the milk clauses; (2) that all restrictions on the inspection of herds supplying the district with milk should be removed; and (3) that a heavy penalty should be attached to failure to notify suspicious conditions of the udder.

STERILISATION AND PASTEURISATION v. TUBERCLE-FREE HERDS, &c.[1]

BY E. W. HOPE, M.D. EDIN.,

MEDICAL OFFICER OF HEALTH OF THE CITY AND PORT OF LIVERPOOL.

ONE of the dangers of the tuberculous infection of human beings arises from the consumption of raw milk taken from cows which are themselves suffering from tuberculosis—notably tuberculosis of the udder. The object of the discussion which I have been asked to open is to determine which of three methods suggested furnishes the most practicable and the best safeguard against this danger, always bearing in mind that if we decide to rely upon one and are in a position to apply it with certain effect we shall not necessarily exclude the others, unless we can be assured that in doing so we are not, whilst effecting security from one danger, discarding safeguards against others even more serious. It is obvious that numerous points are involved in the subject, some of which are difficult to dissociate from questions other than those which concern tuberculosis only. For example, measures taken with the sole object of checking an even more destructive form of disease—viz., diarrhœa—have proved *incidentally a safeguard against tuberculosis*; while, on the other hand, measures directed against tuberculosis have afforded a valuable protection from other forms of disease. We must look at the subject from the wide view of general sanitation, remembering for the moment that there are other evils to be conquered as well as tuberculosis, and also bearing in mind that communities, like individuals, in their efforts to free themselves from mischief may be doing harm to those of their neighbours who are less able to take care of themselves. In the remarks that I am about to make, and for the purposes of this paper, I shall take it for granted that the phrase, "properly cooled between the time of milking and the time of reaching the consumers," implies also cleanliness and all other sanitary requirements except those specifically directed against tuberculosis; and, furthermore, my observations will be restricted to those aspects of the subject which most concern the large centres of population.

The terms "sterilisation" and "pasteurisation," so far as the subject under consideration is concerned, have practically the same significance—viz., raising the temperature of the milk to a degree which is capable of destroying the tubercle bacillus; exposure to a temperature of from 170° to 180° F. for about from 20 minutes to half an hour is sufficient to destroy most pathogenic organisms. However, sterilisation and pasteurisation of milk possess one conspicuous advantage—viz., that the application of the safeguard is within the reach of every reasonably prudent and careful household, consequently for ease of application it is beyond any comparison with the other preventive measure to be considered. The objections to it do not appear to be important, but there are the facts to be reckoned with that in the lower quarters of every great town there are thousands of families neither prudent nor careful, and also that the population of this country as a rule prefer to take their milk raw. This preference results, no doubt, partly from thoughtlessness and partly from habit. Young children are trained to take it raw, and the belief is widespread that if the milk is raised in temperature to, say, 200° F., or even still nearer the boiling point, it is altered in flavour and constitution and is of less nutritive and digestive value than when it is given raw; the raw milk, in fact, is regarded as more nearly approaching the natural milk of the mother.

There is no clinical evidence whatever to show that sterilised or even boiled milk is less nutritious and valuable than raw milk. On the other hand, raw cows' milk, in addition tc [illegible] brings many others. The process of [illegible] dirty milker, from dirty udde[illegible]m this it may be passed through a dirty strainer into a dirty railway-can. It is discharged from the railway-can into smaller vessels in which it is hawked about the dusty streets, passing through some half-dozen other pots and pans before it reaches the nursery or the table of the consumer, involving a host of possible sources of contamination, not excepting the contamination of tubercle bacillus; in fact, it may be safely said there is no article of food in common use so constantly exposed to contamination or so suceptible of contamination as raw milk. The milk, on the other hand, as nature intended it to be given, is never once exposed to air, passing directly and at the time of its manufacture in the gland to the stomach of the young animal, and, apart from the possibility of disease in the gland, is bacteriologically clean and pure.

Sterilisation, valuable as it is as a final safeguard against tuberculosis, is, after all, only an expedient, and must not be put into so much prominence that the importance of the other safeguard is lost sight of, although we cannot take it for granted in considering the merits of different methods that essential accessories common to them all will be observed. The one merit of sterilisation is that it is an expedient easy of application and presenting few administrative difficulties. Beyond any question the ultimate advantage lies in obtaining the milk from herds free from tuberculosis. It is, in fact, comparable with the advantage of obtaining drinking water from a pure source instead of taking it from a contaminated one and relying upon purification afterwards. The first aim must be to ensure that the source of the milk is pure—in oth[illegible] are free from tuberculosis; or if thi[illegible] the law and public opinion, is[illegible] at least be free from any tuberculous disease of the udder or any tumour or condition of the udder simulating tuberculous disease, or, having regard to difficulties in diagnosis, we may with advantage go even a step further and demand that the udder in all cows from which milk is taken for human food shall be in a perfectly normal condition.

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[1] A paper communicated to the British Congress on Tuberculosis. Section I., State and Municipal.

The main causes of tuberculosis in cows are notorious: close confinement in ill-ventilated, badly-lighted, ill-constructed and dirty cowsheds—defects all as easy to remedy as is removal from the cowshed of the obviously tuberculous animal before it can cause infection of the rest. In the city of Liverpool about 26,000 gallons of milk are consumed every day; one-half of it comes from cows (about 6000 in number) kept within the city, the other half comes from cows kept in the country and is sent in by rail. Within recent years that part of the milk-supply which comes from cows kept within the city has been practically free from tuberculosis. This has been brought about by the sanitation of the cowsheds, adequacy of air, light, and cleanliness, by systematic and frequent inspection of the cows by qualified inspectors with veterinary help, and by frequent bacteriological analysis of the samples of milk; these are the measures which have effected this end. I do not say that out of the 6000 cows in the city there is not a single one affected with tubercle, but merely that there are few with such form of tuberculous disease as would be likely to contaminate the milk-supply.

These methods and this system of inspection were not initiated without difficulty and opposition. There is no opposition now; every person acquiesces in advantages which have been gained. But there is another aspect to the question. Only one-half of the quantity of milk consumed in Liverpool is supplied from the city, the remaining half comes from the country districts. But surely, it may be said, if the cows kept in the cowsheds within a great and populous city are healthy, those coming from the sunny meadows of the country, with their fertile pastures and ample land, are free also. Unfortunately, experience does not bear this out; the milk sent in from the country is more frequently tuberculous. Thus, out of 422 town samples examined during 1899 and 1900 five were tuberculous, being less than 1 per cent.; but out of 490 country samples taken during the same period 20 were tuberculous, being a trifle over 4 per cent. How can we protect ourselves against this? A special Act of Parliament applying to a few great towns, including Liverpool, gives special powers to exclude from the city, under a penalty, the milk coming from the country cowsheds in which tuberculous cows are kept under dirty and insanitary conditions. But if it is difficult to deal with and to supervise the supply within our own city, it is evidently both costly and difficult to maintain a staff to send under the special Act of Parliament to the insanitary and tuberclo-ridden cowsheds of the country cowman, but having overcome these difficulties the broad national question comes in, for although we succeed in protecting ourselves what happens with regard to the diseased cows and the diseased milk? The dealer refrains from sending diseased milk to the protected city, but what is there to prevent him from sending his milk for sale and consumption to a district where no special Act of Parliament exists to enable the community to protect itself or from selling his diseased cows to a dairyman in another locality? This is not the way to secure a supply of milk from herds free from tuberculosis, but there can be little doubt that the action of the great cities will not only protect themselves but will to a certain extent protect the country districts also and will strengthen the hands of rural sanitary authorities. No doubt the great cities are financially better able to protect themselves; they have their larger and more costly staff, they have their bacteriological laboratories, their veterinary and medical officers, but at best they are but valuable allies to the rural sanitary authorities, and these, after all, must take their own action, since the protection the cities afford them is an indirect vicarious one and, as in cases which I have alluded to, there is nothing to prevent the cow- [illegible] diseased produce to rural districts after [illegible] from sending it to the great cities. Furthermore, the undoubted decline in the proportion of tuberculous milk sent in from the country may really mean that a larger proportion is consumed elsewhere. The subject is quite important enough for a Government department—e.g., the Local Government Board—to take in hand and appoint a special staff to supervise the milk-supply and all appertaining to it throughout the country.

I have no hesitation whatever in saying that it is quite possible to ensure that the milk-supply shall come from cows free from tuberculosis. Difficulties from ignorance, obstruction, and active opposition may be taken for granted, but these must be overcome, and the cowkeeper will learn in time that his own interests are identical with those of his customers, and by keeping healthy cows in a sanitary condition he will be a gainer in every way. It is only right to say that during last year samples of milk taken at the railway stations on arrival from the country do not appear to be more frequently tuberculous than the samples taken from the town. This may indicate one of two things: either a general improvement in the country cowsheds under the stimulus of city action, or, as in more cases than one which have come under my notice, dairymen who have been detected in sending in tuberculous milk have refrained altogether from sending milk to Liverpool and now send their milk elsewhere. These are points not to be lost sight of.

NATURAL IMMUNITY FROM TUBERC LOSIS IN NATAL, SOUTH AFRICA.[1]

BY JAMES F. ALLEN, M.D. R.U.I.,
DELEGATE FROM PIETERMARITZBURG, NATAL, SOUTH AFRICA.

SITUATION, TOPOGRAPHY, AND CLIMATE OF NATAL.

IN considering the means whereby the disease known "tuberculosis" may be repressed climatology must alwa take an important place, it being a matter of comm notoriety that in certain parts of the world, under certa conditions of climate, topography, and social relations, th disease is a scourge which almost threatens the existen of the human race; and again in other regions, and und different circumstances, it seems to have lost its power injuriously affecting man, though in some degree it may b known to exist locally. How the human race can exist i any country where this disease is known also to be, and b practically free from its affects, is a question so interesting important, and instructive that every effort should b made to explain such immunity. For what is a natura mode of defence in one country may be artificiall produced in another, or at least so nearly approache as to give great protection; and by the knowledge thus obtained those predisposing causes and circumstances which favour its propagation can be lessened or removed. The evidence, therefore, of anyone who has practised the medical profession, and who has lived for many years in a land so favoured, with reference to this disease, that nature has made it practically innocuous there, and who has at the same time had considerable clinical experience not only in general practice but in the charge of a public hospital should be of some service in this inquiry. I have lived in Pietermaritzburg, the capital of Natal, for 26 years, and during the whole of that time I have been in charge of its public hospital, known as Grey's Hospital. I have also been the greater part of that time medical officer to the corporation of Pietermaritzburg and have thus been brought into intimate relations with all sections of its inhabitants and have had its local conditions, socially and physically, constantly under consideration with reference to public health.

Pietermaritzburg is situated in the middle of the colony, about 40 miles from the sea in a direct line, at an altitude of 2200 feet. It is built at the foot of the southern spur inclosing the Zwaart Kop valley and is therefore in a very dry and sheltered situation. Its population numbers 30,000 of whom about half are coloured and consist of natives (that is, Zulu Kaffirs), Indians, and people of mixed races, the other half being Europeans. This city has nominated me its delegate to this Congress. Having thus presented my credentials I will proceed to describe the climate and topography of Natal and attempt to show how local conditions have modified the severity of tuberculosis in that colony.

Natal is part of south-eastern Africa, somewhat diamond-shaped, having a coast line of about 200 miles north of St. John's river and an area of about 20,851 square miles. It has a mixed population, being made up of 60,000 Europeans, 1,000,000 Zulus, and 50,000 Indians. Three such races, wholly dissimilar in habits, origin, and religion, present a diversified field for observation with reference to the prevalence of any disease and cannot but be instructive with regard to tuberculosis, from which deductions possibly can be made as to what locally tends to check the disease and what common boon these totally different races enjoy [illegible] appears to give each an immunity from its attack.

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[1] A paper communicated to the British Congress on Tuberculosis: Section II., Medical, including Climatology and Sanatoria.

Natal is the last portion of healthy South Africa [illegible] the Drakensberg range. The healthiness of the eastern coast of Africa, from Cape Town to where Natal ends, depends upon the situation of the Drakensberg mountains. This range begins at Table Mountain behind Cape Town and as a guardian to human health ends at St. Lucia Bay in Zululand. After it passes St. Lucia Bay the range extends far north into the continent of Africa, but from St. Lucia northwards it ceases to be a factor in the preservation of health as far as human beings are concerned; indeed, it becomes a potent means of rendering the country almost uninhabitable to Europeans, thus forming a vast region where wild and savage beasts may be preserved, to await their own epoch for disappearance. Be that as it may, the Drakensberg range from Cape Town to St. Lucia Bay secures a good climate to that portion of the African continent and defends it from malaria. But north of St. Lucia Bay it causes such a condition of soil-saturation as to form a developing ground for the parasite of malaria, of such vast extent as to render hopeless all human means of making it healthy. That the same mountain range should be the guardian of health in one region and in another be the cause of the country being almost uninhabitable needs some explanation; and as it will help to throw more light on the physical features and condition of the healthy district which I am considering some further reference must be made to it. The Drakensberg range from Table Mountain at Cape Town runs north-east, following the coast line to St Lucia Bay for a distance of nearly 1000 miles, the last 200 of which form Natal. At St. Lucia Bay the mountains tend to the west, leaving the coast and gradually drawing inland, having an ever-increasing plain between the foot of the mountains and the sea. The result of this configuration is roughly to divide the eastern littoral of Africa into healthy, non-malarial, and unhealthy, malarial districts, St. Lucia Bay being the dividing point.

During the spring and summer, on the eastern coast of Africa, from Port Elizabeth northwards, the south-west wind blows on to the land, laden with moisture from the ocean; and it is from this source that Natal receives its plentiful supply of rain from October to May, which cools and fertilises the country, keeps it healthy, and renders it a suitable place for European settlement. On the other hand, it is also this rain-laden wind which, north of St. Lucia Bay, makes Africa, by the operation of the mountains, practically uninhabitable from malaria. The foot of the Drakensberg, from Table Mountain at Cape Town to the lagoon known as St. Lucia Bay, is practically conterminous with the sea. On this account moisture condensing into rain and falling on the range runs directly into the sea, there being no flat land intervening to receive it. Natal being part of the side of that range, its rainfall descends on the eastern watershed of the Drakensberg and runs directly into the Indian Ocean, leaving the earth and air dry and cool. But from St. Lucia Bay, north-east of Natal, on account of the westward tend of the mountains, the rain which falls on the Drakensberg, increasing from occasional thunderstorms in Natal to a torrential downpour as the mountains pass north and approach nearer to the equator, does not flow directly into the sea, but is in a great part absorbed by the ever-increasing plain which, as the mountain foot recedes westward, interposes between the range and the sea. From this vast plain arises the malaria which makes Eastern Africa uninhabitable for Europeans. The non-saturation of the soil of Natal is not only demonstrated by these physical features but also by the fact that it is completely free from malaria, which it certainly would not be if it was in the least water-logged. It is necessary thus fully to explain the origin of the malaria north-east of Natal to make it clear that the soil of that colony is dry and its surface and sub-soil well drained. Anyone watching a rainstorm forming in Natal would be surprised to notice that the clouds seem to come from the interior, where nothing but the waterless continent of Africa exists, the apparent marvel being that rain seldom or never seems to come from the direction of the sea. Great masses of cloud can be seen forming on the Drakensberg or rapidly condensing and passing down the spurs of that range to the ocean, the moisture from which the rain is formed having passed eastward with the south-west wind until stopped and condensed by the mountain range in the interior, often with the grand electric disturbance so well known as the Natal thunderstorms.

The Drakensberg range runs north-east through Natal, [illegible] spurs south-east, practically, if [illegible] their origin in the [illegible] easterly directly to [illegible] greater part of their [illegible] producing wind of th[illegible] gusts of hot dry wind from the north-east. The latter, being evidently obstructed currents, blow directly on the earth, thus having the power of raising the dust, and are the cause of the dust-storms of Natal which are the most trying feature in the climate; but, fortunately, they are not of frequent occurrence, being most prevalent in August, September, and occasionally later in the summer, but occur on the whole not oftener than a dozen times in the year. Apart from the power they have of raising the dust, which away from the main roads and towns is very limited, they are not unhealthy. The atmospheric obstruction is of short duration, the hot wind seldom lasting more than a day, and often only a few hours, and is always followed by the cool rain-carrying south-west current which, being parallel with the earth's surface, does not raise the dust, and being [illegible] denses into rain, refreshing a[illegible] will be seen that the prevalent [illegible] valleys [illegible] north side of the valley, on which beat directly the wind and rain from the south-west and which is protected from the dry, hot, north-east winds. On the other hand, the south side of the valley, with its north-east aspect, is dry and sheltered from the rain-storms and is open to the hot wind. The result on the vegetation of these valleys is remarkable; the bush almost invariably occupies the south-west aspect of the upper ridges of the northern slopes and the grass is rank and sour, all directly the result of exposure to the south-west rains and being protected from the hot north-east winds; the ground retains moisture throughout the year in a sufficient degree to enable both grass and bush not only to grow but to resist the effects of the grass fires. So marked is this arrangement of the vegetation that the bush stops in a sharp and straight line along the tops of the hills as if it had been so planted by the hand of man and the grass becomes shorter and sweeter, the exposure to rain being less, and the drying greater. Deep in the valleys on the south side, well open to the north-east so as to escape the heat of summer, and high enough from water to avoid the cold in winter, which is always associated with water, is the best situation for a residence. Such is the situation in which Pietermaritzburg is built, and the choice of the site shows the knowledge of the country possessed by its Dutch founders. This rough landscape and weather guide apply more particularly to the highland and midland districts of Natal. Those seeking health there, suffering from, or threatened with, pulmonary tuberculosis, and who may wish to combine farming with that pursuit, must never forget that shelter is the great desideratum for man and beast in South Africa.

Natal, being practically the side of a mountain, possesses three fairly distinct climates and has as a result a very wide range of products. The climate of the coast is that of a warm and semi-tropical district; humid during the spring and summer, from September to May, on account of its proximity to the sea and the prevalence of the sea-breeze during that season [illegible] throughout the year [illegible] autumn and winter, [illegible] bright, dry, and free from frost. In this district tropical fruits grow well—oranges and other citrus fruits, mangoes, pineapples, bananas, guavas, and such productions as sugar, tea, coffee, maize (known locally as "mealies"), millet (or "Kaffir corn"), and tobacco. It is not a good cattle country, but cattle can be bred there; sheep do not thrive; poultry do well; and, for South Africa, it is thickly populated by natives and Indians. But it is not a region in which Europeans flourish. In the midlands the climate at an altitude of from 2000 to 3000 feet is very healthy and suitable for European settlement. The rainfall is about 30 inches per annum and the mean temperature is considerably lower than the coast. The atmosphere is much drier and there is a distinct fall in the temperature at night, which is refreshing and invigorating and induces sound sleep, the absence of which is perhaps the most debilitating characteristic of the coast, and during the winter frost at night is of common occurrence. The ground from even a step further and demand that the udder in all cows from which milk is taken for human food shall be in a perfectly normal condition.

The main causes of tuberculosis in cows are notorious: close confinement in ill-ventilated, badly-lighted, ill-constructed and dirty cowsheds—defects all as easy to remedy as is removal from the cowshed of the obviously [illegible] animal before it can cause infection of the rest. [illegible] of Liverpool about 26,000 gallons of milk are consumed every day; one-half of it comes from cows (about 6000 in number) kept within the city, the other half comes from cows kept in the country and is sent in by rail. Within recent years that part of the milk-supply which comes from cows kept within the city has been practically free from tuberculosis. This has been brought about by the sanitation of the cowsheds, adequacy of air, light, and cleanliness, by systematic and frequent inspection of the cows by qualified inspectors with veterinary help, and by frequent bacteriological analysis of the samples of milk; these are the measures which have effected this end. I do not say that out of the 6000 cows in the city there is not a single one affected with tubercle, but merely that there are few with such form of tuberculous disease as would be likely to contaminate the milk-supply.

These methods and this system of inspection were not initiated without difficulty and opposition. There is no opposition now; every person acquiesces in advantages which have been gained. But there is another aspect to the question. Only one-half of the quantity of milk consumed in Liverpool is supplied from the city, the remaining half comes from the country districts. But surely, it may be said, if the cows kept in the cowsheds within a great and populous city are healthy, those coming from the sunny meadows of the country, with their fertile pastures and ample land, are free also. Unfortunately, experience does not bear this out; the *milk sent in from the country is more frequently tuberculous.* Thus, out of 422 town samples examined during 1899 and 1900 five were tuberculous, being less than 1 per cent.; but out of 490 country samples taken during the same period 20 were tuberculous, being a trifle over 4 per cent. How can we protect ourselves against this? A special Act of Parliament applying to a few great towns, including Liverpool, gives special powers to exclude from the city, under a penalty, the milk coming from the country cowsheds in which tuberculous cows are kept under dirty and insanitary conditions. But if it is difficult to deal with and to supervise the supply within our own city, it is evidently both costly and difficult to maintain a staff to send under the special Act of Parliament to the insanitary and tubercle-ridden cowsheds of the country cowman, but having overcome these difficulties the broad national question comes in, for although we succeed in protecting ourselves what happens with regard to the diseased cows and the diseased milk? The dealer refrains from sending diseased milk to the protected city, but what is there to prevent him from sending his milk for sale and consumption to a district where no special Act of Parliament exists to enable the community to protect itself or from selling his diseased cows to a dairyman in another locality? This is not the way to secure a supply of milk from herds free from tuberculosis, but there can be little doubt that the action of the great cities will not only protect themselves but will to a certain extent protect the country districts also and will strengthen the hands of rural sanitary authorities. No doubt the great cities are financially better able to protect themselves; they have their larger and more costly staff, they have their bacteriological laboratories, their veterinary and medical officers, but at best they are but valuable allies to the rural sanitary authorities, and these, after all, must take their own action, since the protection the cities afford them is an indirect vicarious one and, as in cases which I have alluded to, there is nothing to prevent the cowkeeper from sending his diseased produce to rural districts after he has been prohibited from sending it to the great cities. Furthermore, the undoubted decline in the proportion of tuberculous milk sent in from the country may really mean that a larger proportion is consumed elsewhere. The subject is quite important enough for a Government department—e.g., the Local Government Board—to take in hand and appoint a special staff to supervise the milk-supply and all appertaining to it throughout the country.

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NATURAL IMMUNITY FROM TUBERCULOSIS IN NATAL, SOUTH AFRICA.[1]

By JAMES F. ALLEN, M.D. R.U.I.,

DELEGATE FROM PIETERMARITZBURG, NATAL, SOUTH AFRICA.

SITUATION, TOPOGRAPHY, AND CLIMATE OF NATAL.

IN considering the means whereby the disease known as "tuberculosis" may be repressed climatology must always take an important place, it being a matter of common notoriety that in certain parts of the world, under certain conditions of climate, topography, and social relations, this disease is a scourge which almost threatens the existence of the human race; and again in other regions, and under different circumstances, it seems to have lost its power of injuriously affecting man, though in some degree it may be known to exist locally. How the human race can exist in any country where this disease is known also to be, and be practically free from its affects, is a question so interesting, important, and instructive that every effort should be made to explain such immunity. For what is a natural mode of defence in one country may be artificially produced in another, or at least so nearly approached as to give great protection; and by the knowledge thus obtained those predisposing causes and circumstances which favour its propagation can be lessened or removed. The evidence, therefore, of anyone who has practised the medical profession, and who has lived for many years in a land so favoured, with reference to this disease, that nature has made it practically innocuous there, and who has at the same time had considerable clinical experience not only in general practice but in the charge of a public hospital should be of some service in this inquiry. I have lived in Pietermaritzburg, the capital of Natal, for 26 years, and during the whole of that time I have been in charge of its public hospital, known as Grey's Hospital. I have also been the greater part of that time medical officer to the corporation of Pietermaritzburg and have thus been brought into intimate relations with all sections of its inhabitants and have had its local conditions, socially and physically, constantly under consideration with reference to public health.

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[1] A paper communicated to the British Congress on Tuberculosis, Section II., Medical, including Climatology and Sanatoria.

Natal is the last [illegible] the Drakensberg range. The healthiness of the eastern coast of Africa, from Cape Town to where Natal ends, depends upon the situation of the Drakensberg mountains. This range begins at Table Mountain behind Cape Town and as a guardian to human health ends at St. Lucia Bay in Zululand. After it passes St. Lucia Bay the range extends far north into the continent of Africa, but from St. Lucia northwards it ceases to be a factor in the preservation of health as far as human beings are concerned; indeed, it becomes a potent means of rendering the country almost uninhabitable to Europeans, thus forming a vast region where wild and savage beasts may be preserved, to await their own epoch for disappearance. Be t [illegible] from Cape Town to St. [illegible] that portion of the Af[illegible] malaria. But north of St. Lucia Bay it causes such a condition of soil-saturation as to form a developing ground for the parasite of malaria, of such vast extent as to render hopeless all human means of making it healthy. That the same mountain range should be the guardian of health in one region and in another be the cause of the country being almost uninhabitable needs some explanation; and as it will help to throw more light on the physical features and condition of the healthy district which I am considering some further reference must be made to it. The Drakensberg range from Table Mountain at Cape Town runs north-east, following the coast line to St. Lucia Bay for a distance of nearly 1000 miles, the last 200 of which form Natal. At St. Lucia Bay the mountains tend to the west, leaving the coast and gradually drawing inland, having an ever-increasing plain between the foot of the mountains and the sea. The result of this configuration is roughly to divide the eastern littoral of Africa into healthy, non-malarial, and unhealthy, malarial districts, St. Lucia Bay being the dividing point.

During the spring and summer, on the eastern coast of Africa, from Port Elizabeth northwards, the south-west wind blows on to the land, laden with moisture from the ocean; and it is from this source that Natal receives its plentiful supply of rain from October to May, which cools and fertilises the country, keeps it healthy, and renders it a suitable place for European settlement. On the other hand, it is also this rain-laden wind which, north of St. Lucia Bay, makes Africa, by the operation of the mountains, practically uninhabitable from malaria. The foot of the Drakensberg, from Table Mountain at Cape Town to the lagoon known as St. Lucia Bay, is practically conterminous with the sea. On this account moisture condensing into rain and falling on the range runs directly into the sea, there being no flat land intervening to receive it. Natal being part of the side of that range, its rainfall descends on the eastern watershed of the Drakensberg and runs directly into the Indian Ocean, leaving the earth and air dry and cool. But from St. Lucia Bay, north-east of Natal, on account of the westward tend of the mountains, the rain which falls on the Drakensberg, increasing from occasional thunderstorms in Natal to a torrential downpour as the mountains pass north and approach nearer to the equator, does not flow directly into the sea, but is in a great part absorbed by the ever-increasing plain which, as the mountain foot recedes westward, interposes between the range and the sea. From this vast plain arises the malaria which makes Eastern Africa uninhabitable for Europeans. The non-saturation of the soil of Natal is not only demonstrated by these physical features but also by the fact that it is completely free from malaria, which it certainly would not be if it was in the least water-logged. It is necessary thus fully to explain the origin of the malaria north-east of Natal to make it clear that the soil of that colony is dry and its surface and sub-soil well drained. Anyone watching a rainstorm forming in Natal would be surprised to notice that the clouds seem to come from the interior, where nothing but the waterless continent of Africa exists, the apparent marvel being that rain seldom or never seems to come from the direction of the sea. Great masses of cloud can be [illegible] Drakensberg or rapidly condensing [illegible] ocean, the [illegible] that range to the [illegible] is formed having passed eastward with the south-west wind until stopped and condensed by the mountain range in the interior, often with the grand electric disturbance so well known as the Natal thunderstorms.

The Drakensberg range runs north-east through Natal, [illegible] its spurs south-east, practically, if [illegible] to the main range. Rivers having [illegible] lands run down its valleys in an easterly direction directly to the sea, rapid mountain streams for the greater part of their course. The prevailing south-west rain-producing wind of the summer is occasionally interrupted by gusts of hot dry wind from the north-east. The latter, being evidently obstructed currents, blow directly on the earth, thus having the power of raising the dust, and are the cause of the dust-storms of Natal which are the most trying feature in the climate; but, fortunately, they are not of frequent occurrence, being most prevalent in August, September, and occasionally later in the summer, but occur on the whole not oftener than a dozen times in the year. Apart from the power they have of raising the dust, which away from the main roads and towns is very limited, they are not unhealthy. The atmospheric obstruction is of short duration, the hot wind seldom lasting more than a day, and often only a few hours, and is always followed by the cool rain-carrying south-west current which, being parallel with the earth's surface, does not raise the dust, and being moisture-laden soon condenses into rain, refreshing and cooling the earth. Thus it will be seen that the prevalent winds in Natal blow across the valleys, not up or down them, the result being that in almost every valley there is an exposed and sheltered side and a point of greatest rest, the exposed being the south-west face on the north side of the valley, on which beat directly the wind and rain from the south-west and which is protected from the dry, hot, north-east winds. On the other hand, the south side of the valley, with its north-east aspect, is dry and sheltered from the rain-storms and is open to the hot wind. The result on the vegetation of these valleys is remarkable; the bush almost invariably occupies the south-west aspect of the upper ridges of the northern slopes and the grass is rank and sour, all directly the result of exposure to the south-west rains and [illegible]-east winds; the ground re[illegible]ar in a sufficient degree to [illegible] only to grow but to resist the effects of the grass fires. So marked is this arrangement of the vegetation that the bush stops in a sharp and straight line along the tops of the hills as if it had been so planted by the hand of man and the grass becomes shorter and sweeter, the exposure to rain being less, and the drying greater. Deep in the valleys on the south side, well open to the north-east so as to escape the heat of summer, and high enough from water to avoid the cold in winter, which is always associated with water, is the best situation for a residence. Such is the situation in which Pietermaritzburg is built, and the choice of the site shows the knowledge of the country possessed by its Dutch founders. This rough landscape and weather guide apply more particularly to the highland and midland districts of Natal. Those seeking health there, suffering from, or threatened with, pulmonary tuberculosis, and who may wish to combine farming with that pursuit, must never forget that shelter is the great desideratum for man and beast in South Africa.

Natal, being practically the side of a mountain, possesses three fairly distinct climates and has as a result a very wide range of products. The climate of the coast is that of a warm and semi-tropical district; humid during the spring and summer, from September to May, on account of its proximity to the sea and the prevalence of the sea-breeze during that season. The average mean [illegible] throughout the year in th[illegible] autumn and winter, from [illegible] bright, dry, and free fro[illegible] fruits grow well—oranges [illegible] pineapples, bananas, guavas, and such productions as sugar, tea, coffee, maize (known locally as "mealies"), millet (or "Kaffir corn"), and tobacco. It is not a good cattle country, but cattle can be bred there; sheep do not thrive; poultry do well; and, for South Africa, it is thickly populated by natives and Indians. But it is not a region in which Europeans flourish. In the midlands the climate at an altitude of from 2000 to 3000 feet is very healthy and suitable for European settlement. The rainfall is about 30 inches per annum and the mean temperature is considerably lower than the coast. The atmosphere is much drier and there is a distinct fall in the temperature at night, which is refreshing and invigorating and induces sound sleep, the absence of which is perhaps the most debilitating characteristic of the coast; and during the winter frost at night is of common occurrence. The ground from the sea rises rapidly, ridge after ridge, into apparently confused hills and valleys, until, within 40 miles of the sea, the altitude of the whole country has risen to over 2000 feet. The landscape is open and undulating, well watered, and almost free from bush. Horses, cattle, and sheep thrive; mealies, millet, potatoes, oat forage, green barley, peas, beans, and tobacco grow well; citrus fruits of all kinds, and apples, pears, peaches, and plums flourish. It is the home of many European farmers, but it is by no means fully occupied and would support a much larger population than it carries at present, and there can be no doubt but that when South Africa is thoroughly known it will do so. Within it are high, and at the same time sheltered, districts peculiarly suited to persons threatened with, or suffering from, tuberculosis; where in the case of actual disease recovery may take place or strength may be maintained by continued residence, and where feebleness of constitution, unless disease exists, may be secured from invasion. The high land, up to the foot of the peaks of the Drakensberg, from 3000 to 6000 feet above the sea, is an open, rolling, grassy country, covered with sweet short herbage, on which stock of all kinds thrive. Indeed, it is the stock country of Natal—for horses, cattle, and sheep there is no better district in South Africa. The atmosphere in summer is cool and dry and cold and frosty in the winter. During the spring and summer, from September to May, thunderstorms and hail are not uncommon and are often destructive to fruit and crops; but during the winter, from May to September, no rain falls. The district, however, is so well supplied with running streams that nothing but the grass suffers from drought. Then, indeed, the country is dry and the grass is parched; but for all that cattle reared in the district can find subsistence until the spring grass appears, which is always early. As, however, the breed of horses and cattle has improved, and lands become inclosed, farmers have been compelled to provide some winter food. Grass cut on the veldt and made into hay, with very little else, is found to be sufficient. This district will in the future be not only the principal dairying country, but it will produce sufficient meat to supply the whole colony, for there the largest and heaviest breeds of cattle can be reared. European fruit of all kinds thrives. There are to be found the most successful orchards in the colony. Mealies, wheat, millet, oats, barley, turnips, peas, beans, and potatoes grow well, and human health is excellent. Thus it will be seen that the climate in Natal is very dependent upon altitude, but though it is thus varied in the main it consists of two seasons—the summer, in which there is rain, and the winter, in which there is none. During the summer the heat is often trying, but in the midlands and highlands it is greatly relieved by the fall in the temperature at night. During the cold months, from the end of April to September, the whole atmosphere of the country, from the sea to the summit of the Drakensberg, is cool, dry, and still. But no description of the climate can adequately convey to the mind the exhilaration of spirits and body produced by the certainty almost of pleasant weather and unfailing sunshine, with the possibilities it affords of open-air life which the inhabitants lead.

If we search for tubercle in Natal we shall get some instructive information if in the first instance we seek for it among cattle born and reared on the veldt of the colony. The cattle districts of Natal are the midland and highland terraces of the Drakensberg, especially the latter, at an altitude of from 2000 to 6000 feet above the level of the sea. Though the highlands are the best cattle-breeding districts and the largest and finest breeds can be reared there, being comparatively free from ticks, red water, and other pests which retard the success of cattle-farming elsewhere, as yet it is in the midlands that the greatest number of cattle are to be found, the highlands being but sparsely inhabited either by natives or Europeans and the midlands being thickly populated by natives who choose these sheltered districts on account of the mild climate, where they can grow mealies, millet, and tobacco in profusion and will not be exposed to sharp cold in winter as they would be in the higher altitudes. Here also their cattle get through the winter better, their owners not being put to the necessity of providing special food and shelter for them, as cattle there can, under normal conditions, find sufficient food on the veldt and shelter from the wind all the year round. The natives must have been well aware of the superior character of the country under the ridge of the Drakensberg for maintaining flocks and herds, if from nothing else, by the fact that during the spring and summer, before Europeans had settled in this district, the veldt was covered with game—antelopes of many different kinds in thousands and great herds of quagga; but all its recommendations sank to nothing in comparison to the inducements offered by the midlands, and to the fear that the great Zulu possessed for the little Bushman with his bow and poisoned arrows. In former times, before the Bushman was exterminated by Europeans, this weird race of savage mountaineers dominated this region and drove the Zulus from the sweet grass of the highlands. The last spurs of the Drakensberg were the home of the Bushmen. Here in the caves and rocks they could lurk in safety and from these heights they could survey the whole country spread out before them; and they had to hand the latest news of importance, as far as they were concerned, in those strange but life-like figures and drawings on the walls of caves and the protected faces of cliffs, whereby one roving band could convey to another the dangers and benefits to be found in each locality. Cattle-thieves by nature, the country offered them every facility for indulging the habit. Stolen cattle once in the defiles of the mountains were lost to their owners, and if overtaken before they reached their refuge with their poisoned arrows the Bushmen were always able to make a good defence against their pursuers. No wonder that the cattle-loving Zulu gave them a wide berth and even looked upon them with superstitious fear. This is the simple explanation of the uninhabited condition of the highlands of Natal on the advent of Europeans, and clears that part of the country from the least suspicion of unhealthiness. The midlands were and are the home of the Zulu. Here he possessed, before the rinderpest swept over the country, perhaps a million head of cattle—small, hardy, Zulu cattle suitable to the country. These animals, and indeed those belonging to Europeans, may with truth be described as wild cattle; a very few were tame enough to submit to being milked, but otherwise they were as free as the buck; they lived in a natural state, unaffected in any way by artificial surroundings, and whatever their state of health might be, it would be the reflex of the local natural condition of the country in which they were reared. If that land had a natural tendency to develop any disease which would affect cattle, then undoubtedly these cattle must suffer from it, as nothing was done by man to protect them; the country, too, being practically unfenced, they were fully exposed to contagion. Thus it was that rinderpest in a few weeks swept through the land and for the same reason lung-sickness (pleuropneumonia) devastates whole districts. Therefore the condition of the veldt cattle with reference to tubercle should be an indisputable piece of evidence as to the prevalence of that disease in the country. As the greatest number of cattle are to be found in the midlands, which experience suggests are not so likely to be as free from tuberculosis as the highlands, the field of inquiry cannot be said to be selected for the purpose of coming to a favourable conclusion. The result of observation and experiment, as far as it has gone in Natal, is to prove that the wild cattle—that is, the locally bred cattle running on the veldt—are free from tubercle. Though such an immunity goes far to prove that the disease is innocuous to animals living in a natural state on the veldt, yet it does not prove that tubercle does not exist in the colony. That it does exist there is easily demonstrated by examining dairy cattle. If healthy wild cattle are caught, handled, confined in cowhouses and fed, milked, used, and treated as dairy cattle, they seem to lose their immunity against tubercle, they may become affected with it and may suffer from it in the same degree as dairy cattle in England. The immunity possessed by wild cattle in Natal is therefore not directly due to climate. This is an important point to establish for those who have to contend against the disease in climates which are supposed to be favourable to its development.

Again, take the well-known history of another animal, the monkey, with reference to this disease. These animals, captured in a healthy condition, carried to Europe, and confined in cages, even though the greatest care is taken that their surroundings are healthy and the air they breathe is warmed, yet they die in great numbers from tuberculosis. Neither the cow nor the monkey eat meat or drink milk and could not be affected from their food, yet neither a warm climate nor food free from tubercle was sufficient to protect them. Both fall victims to the disease on losing immunit and both in common suffer this loss by being subjected t a complete change in environment and to confinement There being ample evidence to prove that tubercl bacilli are to be found everywhere, the tissues o these animals must have been able to resist the growth of the bacillus in their wild state Contact is therefore not the cause of the invasion, that must have taken place frequently before The change is in the animal itself—it has become vulnerable Exactly the same set of events occur with reference to the bacillus of putrefaction When death takes place immunity from its invasion disappears, it develops in the body and decomposition follows, exposure to the bacillus being the same before as after death Something has died in the cow and the monkey on their confinement which permits of the bacillus of tubercle developing What, then is this natural immunity which is thus capable of resisting the growth of a bacillus under one set of circumstances but is lost under another? It is evidently the result of bodily perfection and is the product of selection It is very different from scientific immunity, though its results while it continues, are the same It does not last as long as that caused by vaccination against small pox, but natural immunity, being dependent on selection and perfection, is more to be desired than scientific immunity, which has nothing to do with either, and can be established in the weak and diseased, while that of nature can only come after the weak have been made strong and the diseased are cured, and is thus always salutary, whether it is applied to the individual or to a race or species If we can discover nature's secret and adopt it or as much of it as climate and circumstances will permit, we shall be advancing undoubtedly on the right road We may thus in a great measure, supersede the necessity for the discovery of scientific methods for establishing individual immunity which though extremely important from a personal point of view, are essentially destructive as they tend to preserve the unfit with the fit, and which with reference to this special disease (tuberculosis) may not be attainable

That such natural immunity does exist, to a greater or less extent, against the invasion of almost every specific bacillus, no one with any clinical experience will deny Apparently such immunity differs with the bacillus one set of circumstances making the body liable to the invasion of that of tubercle, another to that of tetanus and a third to that of putrefaction, and so on but these three bacilli in relation to the human body have much in common and apparently demonstrate this theory of natural immunity very clearly The bacilli of all three seem to exist everywhere, and in any place a healthy living body can be made immune against their natural invasion, while, on the other hand, means can be found to cause it in the ordinary manner to become affected by all three The law seems to be that when immunity is lost invasion follows The futility, then of fighting such bacilli becomes clear as a side issue in the campaign it is right and desirable but as a central idea it is wrong and misleading For instance, inspecting food for tubercle is not of much use if the consumer is permitted to live in an abnormal environment under such circumstances as tend to cause loss of natural immunity—invasion and growth of the bacillus must follow whether it enters by food or otherwise The absence of tubercle from the food of the cow and the monkey does not protect th [illegible] ence of tubercle from the food of [illegible] city slum will not save them At [illegible] cillus is beginning at the wrong end of the problem Greater attention should be paid to that which is attacked than to that which attacks

Human beings in Natal are almost as free from tubercle as its cattle Tuberculosis in one or other of its forms is to be met with, but the number of such cases is so small, and as the disease shows no signs of increasing as a local product its existence is more a warning than a danger Tuberculous disease of the glands or of the membranes of children is as rare as pulmonary disease in adults and tubercle of the skin is very uncommon When therefore 60 000 people are exempt from the well known ravages of such a complaint, something must have developed in them a natural immunity which is capable of resisting the growth of the bacillus The presence of the disease among the people in the few cases which occur shows that it is immunity, not freedom from exposure which keeps the disease in subjection What, then are the conditions under which these people live which have developed this immunity? Undoubtedly they are to be found in the open air life which the benign climate and health- country have made possible [illegible] tained resistance in cattle and [illegible] power in man. The best Nata [illegible] is but a shelter from the sun and rain It is, as a rule, only one storey with matchwood ceilings and well ventilated roof The people sleep with the windows open at night Each family has a house to itself and often a piece of garden. There is no overcrowding and no one is deprived of fresh air and light The towns have no echoing streets of three- and four storey houses which exclude light and air from each other and the street between There are no flats or slums There is in Natal a tendency to abandon house life The love of reading, essentially a house pastime, is not a characteristic of the country Open air games, riding, bicycling and out-of-door occupations of all kinds are much sought after In the towns business will be suspended for a cricket or football match of any note All the shops must be shut and this only a very foolish trader would attempt to resist In the cities never since the Greek republics has there been a community so given to gossiping on public affairs in the open air When anything of interest stirs the public mind the whole population turns out to discuss the matter in the streets All the inquirer after public opinion has to do is to pass from group to group, and he will quickly know how the public leans So well understood is this that members of the Government well known public men, newspaper editors, and politicians of all kinds can be met in the highways and byways gathering information In no part of the world is the ' man in the street' such a reality or so supreme

So mild is the climate that people can sleep in the open air at night without risk A favourite form of picnic is to camp out in tents for a week or a fortnight at a time, and a blanket or less is consider [illegible] at night There are no [illegible] known It may not be [illegible] of the whole world in such a manner, but those who so live are certainly more free from disease of all kind more especially tubercle than the hard working, overcrowded populations of European cities

The Zulu natives of Natal are a stalwart, healthy race, husbandmen by calling and are in possession of a large proportion of the colony is theirs by right They are a prosperous and happy people The uncivilised Zulus can be said to be free from tuberculosis in all its forms, but with civilisation the disease appears The Kaffir inhabitants follow the rôle of the cow and the monkey in that respect. Confine them, alter their diet make them wear clothes, and the less robust soon lose their immunity and fall victims to the disease There is a high mortality among the children of the wild Kafirs, probably three times as great as among Europeans but it is not from tuberculosis As with Europeans, so among the uncivilised Kaffirs an occasional case of pulmonary tuberculosis is to be found Tubercle of the skin is rarely seen The diet of these people in their wild state is quite different from that of Europeans In Natal the latter eat more meat than would be considered wholesome in Europe, and is even less suitable to a climate like Natal The Zulu Kaffir lives in his natural state on maize, called locally "mealies," made into porridge or cooked in some other way, and curded milk, but the staple article of his food is Kafir beer or *ishwala* a thin fermented porridge made from millet (Kafir corn) This Kaffir beer leads to many a faction fight Occasionally this diet is varied with a substantial meal of meat *Ishwala* is prepared by allowing millet to sprout, thus malting it It is then dried and stored for use and at any time can be made into beer by a very simple process It is first pounded into a rough meal, put into calabashes, into which is poured a sufficient quantity of water, and the whole is allowed to ferment, during which time it is stirred, skimmed, and kept at a temperature which aids the process When it has acquired the right alcoholic strength, which is about that of lager beer, it is fit for consumption It is given to children a few weeks old and does not disagree if sound and given with judgment It is easily digested as most of the starch in the grain has been changed by fermentation into glucose It has a sour, pungent smell. Its taste is tart, pleasant, and agreeably refreshing It is most sustaining but it is thickish and reddish-yellow in colour It possesses the power of dilating the stomach after it is drunk by the quantity of carbonic acid gas which it evolves, a most valuable property where there is a tendency to contraction of that organ as takes place in many wasting diseases especially in phthisis, where contraction of the stomach, and consequent inability to take food, with failing appetite tends greatly to hasten a fatal result. I have used it freely in wasting diseases of different kinds and have always found it most invigorating I believe it would be a valuable article of diet for the purpose of sustaining strength and combating waste in phthisis, not only on account of its digestibility but also for its power of dilating the stomach. It contains a considerable quantity of alcohol which is quite capable of causing intoxication, but this alcohol is of such a digestible character that it does not cause organic disease nor does it demoralise as results from drinking European spirits; on the contrary, it helps to sustain and to invigorate. Certainly alcohol taken in that form, even though the quantity imbibed daily may be large, produces no predisposing tendency to tuberculosis. On the contrary, I think it would materially help in the curative treatment of that disease. The effect it has is greatly to increase the adipose tissue of the body. It is to the consumption of *tshwala* that the well-known obesity of Kaffir chiefs is due.

In reviewing the vital condition of the Kaffir race some allowance must be made for the fact that every Zulu who arrives at adult age is a "survival of the fittest," the weaklings having been weeded out; but though this secures to a great extent a vigorous people it does not prevent a failure of constitution under unfavourable conditions, with the loss of natural immunity against tubercle which allows the bacillus to grow in the body. During their wild existence they live a life which tends to maintain what selection has started. They have no cities and consequently there is no overcrowding. Their grass huts are about six feet high inside, just enough space for a tall man to stand upright. These are not lasting structures, being often destroyed and renewed—change of site for his residence being a Zulu's commonest recourse for protection when serious illness has attacked his family, and though he thus acts more from superstitious than hygienic motives the result is alike beneficial. Thus the houses do not become the home of all the disease-producing bacilli which have generation after generation affected the residents, as in the case of the old, disease-sodden dwellings of the poor of Europe. To the Kaffir, poor or rich, his hut is a friend, though it is but a shelter and a place to sleep in. To the poor of Europe their houses are often a deadly enemy.

The lithe, wiry figure of the Indian, clad in his bright-coloured clothing, is a familiar and picturesque object in the Natal landscape. 50,000 British Indians reside in the colony. They have been imported chiefly for field labour and are employed principally in the cultivation of sugar-cane on the coast, but though by far the greater number live there they have spread far into the interior and are to be found in every centre of population from Durban to Bulawayo. They belong to the labouring class in India and are for the most part low-caste Hindoos. Banyans—that is, Mahomedan traders from Bombay—have also found their way to Natal and many have acquired considerable wealth. Residence in Natal causes the Hindoo labourer to improve greatly in physique which is especially noticeable in the second generation. This is the result of the climate, the country, and the food, Natal being in all three respects for him a change for the better. The Hindoos are industrious and healthy. Their houses are grass-covered huts, or shanties covered with corrugated iron or the tin of packing-cases. They are almost vegetarians in diet, living principally on rice, mealies, peas, fruit, dried fish, clarified butter, and occasionally a little flesh—mutton, goat, or fowl. They are by no means a temperate people as far as the consumption of alcohol is concerned. They drink spirits freely, especially rum. They are practically free from tuberculosis in any of its forms. It is an exceptional thing to find an adult suffering from pulmonary tuberculosis, nor do children suffer from it in any other region, and tubercle of the skin is very rare.

Here, then, in Natal are two alien races, Europeans and Indians, differing in habits, customs, and food, from one another and from the native Zulus, but both in common with the native presenting the same aspect with reference to tuberculosis—almost entire immunity. The open-air life which each race lives seems to be the only common influence they enjoy which could account for it.

If the general hospitals in Natal are visited cases of phthisis will be, indeed, found among European patients, but almost invariably these are immigrants, mostly young men and in the last stage of the disease. Latterly the number of such persons visiting the colony in search of health has greatly increased and has caused attention to be paid to the matter by the Government so far that shipping companies have been asked not to give passages to persons in advanced consumption, but otherwise no serious attempt has been made to stop the entry of such cases into Natal. No country, however, will long consent to such an invasion, and if it is not checked and some discretion is not exercised in the selection of cases I feel sure that the colony will follow the example of New Zealand and refuse entry to persons suffering from tuberculosis. The great majority of the persons so suffering who have lately arrived in Natal are not only in a hopeless condition but destitute. Very many go with the hope that, the country being a British colony, they will be able to get employment, but as most are palpable victims of consumption no one will employ them and their failing strength soon makes work impossible. They then pass through many stages of hardship, until finally they find their way to the hospitals, where they are permited to remain till their death; but these institutions protest against receiving them as their limited funds are thus used in the treatment of hopeless cases which they should never have been called upon to admit. It is generally felt that the maintenance of such cases should be a charge on the country of their origin which they should never have been permitted to leave. If in the future Natal is to be used as a sanatorium for consumptives destitute persons must be sent there under some recognised system whereby they will be received and maintained in the colony until they are well enough to support themselves or until the end of their life. The present mode of casting them adrift is both inhuman and impolitic.

THE TREATMENT OF PHTHISIS AS A PREVALENT DISEASE IN HOLLAND.[1]

By Dr. R. de JOSSELIN de JONG.

WHEN the invitation sent by the committee of organisation of this Congress reached me, as one of the founders and the secretary of the society for organising sanatoria in Holland I was especially glad to be able to accept it because the movement is with us still in course of development, and I was convinced that for us beginners there could be much to be learnt here on this subject. Allow me, in a few words, as a contribution to a general survey about the organisation of sanatoria in Europe, to relate the state of affairs in Holland

We must not be looked upon as behind-hand because Holland is among the last of the countries to erect popular sanatoria. This has been caused by the historical succession of opinions as to how phthisis should be contended with. How long was it not believed that high mountain air was the first essential for a good health resort for consumptives? and to this day many are found who see the strongest therapeutic agency in a mountainous climate, in the influence of higher air. For some years a home for poor Dutch consumptives has existed in Davos Platz, started by private charity, but the idea that we *should build our own sanatoria* in the mother country—our low-lying Netherlands—has only been conceived in the last few years, after the experience gathered at home and abroad had taught us that the dogma of the mountain air therapy could be abandoned. Dr. Hamoch, our Nestor and president, Professor Kooyker and Dr. Wynhof, as well as others, have called repeated attention not only to the possibility, but to the urgent necessity, of founding popular sanatoria in our own country. What is being accomplished at Tuselbad, Laubbach, Halle, Rehburg, Bournemouth, Cheltenham, and other places can be accomplished with us, while it will be counted an advantage that the patients recover in the same climate in which they became ill. The change from sanatorium to their former life is less great if they have been treated in their own country.

In the beginning of the year 1897 about 20 men united to form a founding committee. Among them were the professors for internal diseases of all the four universities. This council has succeeded in awakening the interests of the country in their plans, and a society has been formed for the erection and provision of popular sanatoria for consumptives in Holland. 70 subdivisions were formed in different parts of the country with about 5000 members. H.M. the Queen-Mother graciously consented to become the patroness of the society. In the course of the first year 200,000 francs had been collected and the plans could be drawn up for the first sanatorium. The great question in our country was where the first sanatorium should be—on the sea-coast or in the interior? Professor Kooyker had already spoken on this subject at the Berlin Congress in 1899, and touched on the difficulties and advantages of both situations. Notwithstanding that, in proportion to the size of the country, our coast-line is a long one, it is very difficult to find a suitable spot for a so-called "seaside sanatorium." The exposure to west and north-west winds makes most of the places on the coast unsuitable, especially in winter. We decided to begin with an inland sanatorium, and we believe that we have found an excellent situation, for it in the east of the country—in the province of Overysel. It is, however, still most decidedly our purpose, when we are in a position to build a second sanatorium, to have it on the coast, as we are convinced that the strong, pure sea air will be a mighty power against phthisis; and although this air may not be suitable for more erethic constitutions, for less serious cases and for torpid tuberculosis it will, without doubt, be of the greatest advantage. This has been sufficiently proved to us by the beneficial effect a stay at the seaside has upon scrofulous children.

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[1] A paper communicated to the British Congress on Tuberculosis, Section II., Medical, including Climatology and Sanatoria.

There is a second reason why a seaside sanatorium should in time be built in Holland. H.M. the Queen-Mother when she ceased to be Regent in 1898 presented her estate, Orange-Nassau, together with a sum of 250,000 francs, being part of the sum collected by the people for a national memorial in her honour, to found a sanatorium for consumptive patients. Orange-Nassau Oord lies in Gelderland, also in the east of our country, and thus will be an inland sanatorium as well. This establishment is intended for paying patients only. Her Majesty appointed a separate committee of six members to manage her sanatorium for her. It will be opened in the course of the next two or three months as well as ours, so that before the end of this year Holland will possess two large sanatoria for consumptives. A third will soon be erected by the city of Amsterdam not far from the coast of the Zuyder Zee.

As I have said, the sanatorium "Hellendoorn," which will be opened in Overysel, and so called after the neighbouring village, bears the character of other continental establishments. It will at first contain 54 beds, but it is intended to enlarge the institution to accommodate 105 patients. It is intended only for poor patients and as much as possible, that is to say, for as much as the annual contributions will allow, the inmates will be treated gratis. In order to make the number of free patients as large as possible an attempt will be made to enlarge the funds by soliciting annual contributions from the Government, the various communities, and the industrial insurance societies. The less needy patients will pay a [illegible] 3s. 6d. a day. It is arranged to [illegible] women, strictly separated from [illegible] kitchen arrangements for Jews. The principal building is in the shape of a slightly bent half-moon, opening on the south. The verandahs, where the patients will be in the open air, are in the wings, while the domestic department is on the north side, more or less by itself. The building is sheltered on the west by extensive pine woods and on the north and east by hills covered with pine woods. A beautiful view to the south and west greatly increases the attractiveness of the place. Electric light and a central heating apparatus are being laid on. The floors are covered with torgament, as is the case at Sulzhaim in Harz. It is rather expensive to put down, but its durability renders it cheaper in the end. Drinking water of excellent quality has been procured on the spot by boring. More than six patients will not be allowed in one room: generally there will only be four. Within an hour's distance there are no factory chimneys and no railways, so that there will be no fear that the air will be poisoned by either. The soil is sandy, dry, and porous. I have myself been able to prove by experiments in the sand dunes near the Hague that bacteria, among others even the rather vigorous bacillus prodigiosus, are entirely destroyed in a few days in sand, so that for a sanatorium for tuberculous patients this soil is especially suitable. As for the air itself, there are still followers to be found of the doctrine, "No cure without mountain air," but in our country we have ceased to believe this exclusively.

Last year a small private sanatorium was opened near Putten, in Gelderland, on a spot surrounded by pine woods and at about an hour's distance from the Zuyder Zee. The patients were able to be out-of-doors there until nine o'clock, or sometimes even till half-past nine, all the year round, just as well as in Honnef and other places. The results gained there will bear comparison with those gained at foreign sanatoria. The experience gathered has been short, but it does not in any way put our expectations to shame; on the contrary, it gives us reason to expect great things of a sanatorium built after the strictest and newest improvements as that at Hellendoorn will be. The patients will be subjected to a very strict *régime* analogous to the rules laid down in like foreign sanatoria. And here I venture to remark that the earnestness and perseverance with which the director and the nursing staff impress these rules upon the minds of the patients, impressing upon them their immense importance, will to a great extent fix the bounds of the useful effect of the sanatorium treatment directly and indirectly. I purposely use the word "indirectly," because, to my thinking, the indirect influence of a sanatorium is not the least of its influences.

A sanatorium for consumptives must have two useful effects: (1) the improvement of the health of the patients admitted—this is a matter of course; and (2) it must be a centre from which good and clear ideas on the subject of hygiene are constantly being spread amongst the poor and less intellectual classes. The discharged patients must be so imbued with the value of good fresh air, simple but nutritious food, a quiet, even mode of life, cleanliness of their homes as well as of their persons, and so on, that upon their return to their former life they may become the teachers of hygiene to those about them. The experience which I have had in this way, in only a few years, from different patients treated in Davos-Platz is really surprising. The patients receive a printed list of the rules which they have to keep, together with a number of useful hints which may be of benefit to them in their future life.

I cannot leave this subject without saying a few words on two points which belong to it, and which seem to me to be of the greatest importance. If the treatment in a sanatorium is to have the good and lasting effect that is to be expected, it is absolutely necessary that if the patient admitted is the bread-winner of a family (as is often the case), provision should be made for the remaining needy members of the family. The board of our society have therefore urged the sub-committees to take care that in such cases assistance is rendered to those left behind. This will relieve and cheer the mind of the patient, and have a good influence towards his or her recovery.

In the second place, care must be taken that what has been gained in the sanatorium is not lost as soon as the discharged patients return to their own unhealthy surroundings. In other words, the improvement of the houses of the working-classes should keep step with the erection of sanatoria. In dry, well-ventilated, healthy working-men's homes the entirely or partially cured patient will be able to continue in the hygienic rules of life which he began in the sanatorium, and the results gained will remain or even be improved upon. It seems to me that this is one of the most weighty points which can arise in a discussion about the benefit of sanatorium treatment. In our country various private parties are doing much in this direction. The well-known Agnetapark in Delft can be quoted as an example.

As it is especially desirable that only those patients should be admitted who are in a not [illegible] disease the application must be [illegible] with the additional advice of [illegible] man. There will be 20 of these consulting physicians appointed in different parts of the country. After their application the medical director must decide whether or not the patients can be admitted. By these means we in time hope to be able to show results which can equal any of those obtained in foreign sanatoria.

THE PROPOSED SANATORIUM FOR CONSUMPTIVES AT WINSLEY.—At the Victoria-rooms, Clifton, an influential meeting has been held in support of the proposed sanatorium for consumptives at Winsley, near Bradford-on-Avon. The Lord Mayor presided and amongst those present were the Bishop of Bristol, Dr. P. H. Pye-Smith of Guy's Hospital, Dr. Long Fox, Dr. J. A. Weatherly, Dr. Markham Skerritt, [illegible] made an appeal [illegible]

ON THE RELATIONS OF TUBERCLE BACILLI TO OTHER BACTERIA RESISTANT TO ACIDS AND TO ACTINOMYCES.[1]

BY DR. ALFRED MOELLER.

DISCOVERIES that have been made in recent years of tubercle-producing bacilli resistant to acids and similar micro-organisms have made it impossible to diagnose the tubercle bacillus by the aid of the microscope alone. Before these discoveries were made it had been customary to call every genuine bacillus that was resistant to acids and alcohol a tubercle bacillus. It is true that what was known of the similar behaviour of the lepra bacillus with respect to colour reaction already showed that the tinctorial behaviour of the tubercle bacillus was to be regarded as dependent on its other biological qualities, that in course of time it might be possible to find other bacteria which were equally resistant to acids and alcohol and with the same peculiarities with regard to colour reaction as the tubercle bacillus.

There has been a good deal of discussion as to the nature of this colour-reaction and its relation to the real substance of the bacteria. Koch himself says that from a diagnostic point of view the peculiar colour-reaction of tubercle bacilli is at any rate of value, but that it is a great mistake to think that the etiological significance of tubercle bacilli stands and falls with its specific colour reaction. Recently Klein, and later Marmorek, have shown that quite young tubercle bacilli are not resistant to acid and alcohol. Marmorek attributes this to the fact that young tubercle bacilli are not yet covered with that fatty and waxy envelope which on the one hand prevents the ordinary basic pigments from coming into contact with the protoplasm of the tubercle bacillus, and on the other hand prevents acids and alcohol from decolourising them when once stained. Klein thinks that the resistance to acids of the tubercle bacilli depends on the production of chemical substances on the part of the bodies of the bacilli. These, in the young tubercle bacilli, are wanting, and therefore they are susceptible to acids. Borrel, by experiments, succeeded in taking away the resistance to acids and alcohol of the tubercle bacilli. Under the protracted action of warm xylol a growth-like mass could be removed from the tubercle bacilli, which was resistant to acids and alcohol, whilst the tubercle bacilli thus treated had lost these qualities, though they were still capable of producing tubercle. Whatever may cause this resistance to acids in the tubercle bacillus it is quite justifiable to attribute the same tinctorial behaviour of the other bacteria, which are resistant to acids, to a like cause. But this mutual colour reaction is only the outer band that keeps the whole together; what is of much greater significance is, that there is more or less close resemblance among the bacteria, and with the tubercle bacillus, with respect to morphology and pathogenesis.

Bacteria resembling the tubercle bacillus, and known to us for years, are the lepra bacillus, smegma bacillus, and the organism of avian tuberculosis. The bacillus of leprosy was first described, in 1877, by Armauer Hansen. It was found in leprous tubercles. It resembles the tubercle bacillus in form, but is generally of more uniform length, and shorter. It stains more readily than the tubercle bacillus—*e.g.*, it stains with aqueous fuchsin solution, even at room temperature, which the tubercle bacillus will not do. Neisser, who has done much to make the bacillus of leprosy more generally known, gives Weigert's method of granule staining as the differential stain. Neither Hansen nor Neisser have succeeded in obtaining pure cultures. Bordoni-Uffreduzzi, in 1887, is alleged to have succeeded in cultivating from the marrow of the bones of a leper a micro-organism resembling the tubercle bacillus, even as regards resistance to acids. The cultures were not maintained. Cultivated bacteria from the organs of lepers, described rather later by Babes, and still more recently by Czaplewski, differ from the genuine bacillus of leprosy in their incomplete resistance to acids. Both authors maintain that the bacteria cultivated by them resemble the bacilli of diphtheria. In any case it is very doubtful whether these bacteria cultivated from leprosy are the genuine bacillus lepræ. The smegma bacillus was first discovered by Tavel and Alvarez in 1885, in the normal preputial smegma, and also in the secretion of the outer skin, particularly where a collection of epithelium may occur, as in the anal and vulvar region, in the fold of the groin, or between the toes. With respect to differential diagnosis, especially in reference to urogenital tuberculosis, the smegma bacillus is undoubtedly of greater importance.

As a micro-organism resistant to acids which has long been known, I may also mention the organism of avian tuberculosis. It differs from the organism of tuberculosis in mammals in the appearance of the cultures and the temperature conditions. Bacilli of tuberculosis of mammals will not thrive at 42° C., whilst bacilli of avian derivation will thrive at this and even higher temperatures. Fischel, who worked under Huppe's directions, says that both micro-organisms are of one and the same kind as regards nutritive media. In consequence of the different physiological nutritive media of the colder mammalian bodies on the one hand, and the warmer avian bodies on the other, a distinction has arisen between the two kinds. By artificial cultivation Fischel succeeded in bringing about approximation in outer qualities between the two bacteria: he succeeded in getting the organism of tuberculosis in mammals accustomed to a higher temperature, and in given nutritive media he got a resemblance in the appearance of the cultures, but as regards pathogenesis he could not transfer one to the other. Fischel says that he was able, with the organism of avian tuberculosis, to bring about a general tuberculosis in a guinea-pig, but the cultures derived from the organs of this animal were not identical with those of avian tuberculosis. In my own similar experiments on animals I got the same results. Tuberculosis in cold-blooded animals is in the same way to be regarded as a modification of the tuberculosis in mammals. Bataillon and Terre succeeded in cultivating tuberculosis in mammals and birds by means of passing it through the body of a frog at room temperature. Lubarsh was able to modify tuberculosis in mammals by passage through the body of a frog, so that cultures taken from the spleen of a frog grew at a temperature of as much as from 28 to30°. Dubord also cultivated cultures taken from fish inoculated with mammalian tuberculosis which also thrived at room temperature. I was able to produce cultures from the spleen of a slow-worm inoculated with sputum containing tubercle bacilli, which flourished at 20°, but which ceased to grow at a temperature of 30° and over. The cultures resembled in appearance those of avian tuberculosis. I have not yet succeeded in obtaining cultures which got accustomed again to a temperature of 37°, even after passage through warm-blooded animals.

Recently it has been possible to demonstrate a series of micro-organisms in the outer surroundings of man which in many respects resemble the tubercle bacillus. Tubercle bacilli were found in such appalling frequency in butter and milk that it led to an inquiry as to whether the genuine tubercle bacillus was really always found. Petri and Rabinowitsch were the first to make such experiments. Both succeeded in getting a bacillus resistant to acids and alcohol from butter, that was *not* the tubercle bacillus. The micro-organisms described by these two authors are so materially alike that they are both generally described as the Petri-Rabinowitsch butter bacillus.

I have lately cultivated from milk in pure culture a micro-organism similar to the tubercle bacillus which does not differ materially from the grass bacillus II. All bacteria resistant to acids cultivated from milk and its derivatives show a great resemblance to the grass bacillus. Taking into consideration the habitat of the latter—namely, cattle fodder—we are certainly justified in regarding the milk and butter bacilli as varieties of the grass bacillus. Such differences as there are—and these are very slight—may be explained by the passage through the bodies of animals. I could prove the presence of the grass bacillus in grasses much used for cattle fodder and could cultivate them in pure cultures. As they were first discovered on timothy grass (phleum pratense) I have named them timothy bacilli. The timothy bacillus has the shape of a slender little rod, sometimes slightly curved. Microscopically it is often impossible to distinguish it from the tubercle bacillus. Like the latter it often contains deeply stained granules;

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[1] communicated to the British Congress on Tuberculosis. Pathology, including Bacteriology.

oval unstained patches are found in its interior; it divides into branches, and sometimes has club-shaped swellings at one end. In the decolourising solution, as well as in sections with the ordinary staining methods, it behaves exactly like the tubercle bacillus. The timothy bacillus grows best at incubation temperature, but it thrives badly at room temperature. It thrives on all usual nutritive media. After 36 hours, even at incubation temperature, patches of colonies are distinctly seen. The cultures generally vary considerably from those of the tubercle bacillus, but a similarity is sometimes attained if the timothy bacillus, after several passages through the bodies of animals, is cultivated at a uniform temperature of 37°. It then tends to become more like the tubercle bacillus in its slow growth. As regards pathogenesis, the timothy bacillus produces in guinea-pigs almost the same pathological changes as the Petri-Rabinowitsch butter bacillus. It has a different effect on rabbits. In them, if the timothy bacillus is injected into the veins and arteries of the animal, changes are produced which it is difficult to distinguish from true tuberculosis. There is also a variety of the grass bacillus, a micro-organism resistant to acids, found in the excreta of animals, and therefore called the "manure bacillus." I found it in a manure-heap which had lain for months, and also in the fresh excrementa of cows, donkeys, and other herbivora. The manure bacillus bears a morphological and tinctorial semblance to the timothy bacillus; in growth of cultures and in pathogenesis it also resembles the grass bacillus II.

In this *résumé* I prefer to pass over the lepra and smegma bacillus on account of their relatively rare occurrence, and because so little is known of their cultural growth, and the avian and cold-blooded mammalian tubercle bacillus on account of their unimportance as regard [illegible] fferential diagnosis. We are, therefore, left with [illegible] acilli as a primitive form, with its varieties, milk [illegible] er bacilli, and manure bacillus. With respect to [illegible] ction they all, with slight deviations, behave lik [illegible] le bacillus. The same may be said of their morpho [illegible] gh in form the different species vary more or less, [illegible] impossible microscopically, under certain condition [illegible] nguish them from the tubercle bacillus, and the t [illegible] bacillus itself varies according to the nutritive medi [illegible] t finds. I have made innumerable examinations [illegible] which I have seen the rods somewhat shorte [illegible] ger, sometimes thicker, and sometimes [illegible] kel first drew attention to the fact [illegible] in the florid form of tubercul [illegible] of short rods. Those forms wh [illegible] bacillus shape, such as rodlets, [illegible] swellings, as well as oval patches [illegible] cilli which will not stain, deeper-dye [illegible] met with in the tubercle bacillus, a [illegible] r bacteria resistant to acids. In cultural [illegible] ever, the grass bacilli differ materially from the tubercle. In the first place, in the appearance of the cultures; even when now and then a more or less close resemblance has been attained through the methods of cultivation the tuberculosis culture shows such characteristics uniformly, so that it is easy to distinguish it from all the others. Then it stands apart in its subtle behaviour with regard to temperature. Whilst other bacteria resistant to acids thrive at room temperature the tubercle bacillus requires incubation temp [illegible] The position of the tubercle bacillus is unique with r [illegible] its excessively slow [illegible] Other bacteria resistan [illegible] form visible colonies [illegible] t after 24 hours at in [illegible] temperature, wh [illegible] st moment that gro [illegible] existence of bacilli resistant to acids in the secretion of the respiratory organs, the diagnosis may be confirmed by the following simple method, based on the slow growth of the tubercle bacillus and its peculiar temperature requirements. The secretion in question is mixed with nutritive bouillon and kept at about 30°. If there is a visible increase in the bacteria resistant to acids it is certain that it is not the genuine tubercle bacillus. Sometimes in the tubercle bacillus the sputum, mixed with certain nutritive media, increases at incubation temperature. This proliferation, due in all probability to the importa [illegible] body, is, however, [illegible] after, at the latest, [illegible] bacilli a persistent further proliferation takes place at 30°. There was no pathogenic effect noticeable either in the bacteria isolated by Rabinowitsch in gangrene of the lung or in those found by me in mucus from tonsils, nose, and pharynx.

Different occurrences in practical life bring out the differentiation of pseudo-tubercle bacilli from genuine tubercle bacilli even more than at the sick-bed. I should like to give but two chief examples. For years two of our most important articles of food—milk and butter—were looked upon with lively horror because all the bacteria resistant to acids they contained were supposed to be tubercle bacilli. The isolation of manure bacillus showed the untenableness of the conclusion that the proof of bacteria resistant to acids in the excrementa of cattle was undoubtedly due to the existing bovine tuberculosis in the animals concerned. As regards pathogenesis, all bacteria resistant to acids have this in common, that they cause a tuberculous-like disease in the usual animals experimented on, the genuine tubercle bacillus always, but the pseudo-tubercle bacillus only in a limited number of cases and under certain conditions. The whole appearance of pseudo-tuberculosis in the bodies of animals bears macroscopically frequently a striking resemblance to genuine tuberculosis. But in the tubercles themselves there is a visible difference; whilst the genuine tubercles are of a solid proliferating kind, the pseudo-tubercles are of a more inflammatory character with tendency to abscess formation. The typically histological condition of genuine tuberculosis giant-cells, epithelioid cell nests, caseation, is only met with in pseudo-tuberculosis in very rare cases, when under given conditions, the bacilli are introduced into the bodies of animals. Another peculiarity of the tubercle bacillus I should still like to refer to. If, together with butter, it is injected intra-peritoneally into animals typical tuberculosis does not result, but peritonitis sets in *accompanied by severe formation of induration*, exactly the same as follows the injection of pseudo-tubercle bacilli and butter.

Though the obvious resemblances between bacteria resistant to acids and the tubercle bacillus are so many and so great, they only produce an outward relationship. As far as the real, I might say, *inner* being of the tubercle bacillus is concerned, its pathological effect on the human organism, its etiological significance in tuberculosis, it occupies a perfectly unique position among bacteria resistant to acids.

EXAMINATION OF CARCASSES IN CASES OF CATTLE TUBERCULOSIS.[1]

Illustrated by 100 Lantern Slides taken from Photographs obtained at the Carlisle Public Slaughter-house.

Hence it is incumbent upon every medical officer to make himself acquainted with at least the rudiments of cattle anatomy and pathology, and, though this may entail a heavy tax upon his time and energy, anyone who makes a practical study of the subject will be amply repaid by the novelty of the field opened out and by the light shed upon human diseases.

Those of us who have had no practical acquaintance with the post-mortem appearances of bovine tuberculosis on examining a case of so-called chronic generalised tuberculosis for the first time will doubtless be impressed with the great diversity in the naked-eye appearances of the lesions presented, many of which have a strange look to those whose pathological knowledge is confined to that of the human body. While, on the one hand, there will be no difficulty in recognising acute miliary tuberculosis of the brain and lungs, yellow tuberculous deposits in the kidney, and, perhaps, tubercle growing upon the peritoneal coats of the uterus and bladder, on the other hand, the grape-like masses—some of which are dark-purple in colour, hanging by long necks from the parietal peritoneum, the lichenous-looking masses on the surface of the liver, the great enlargement of the anterior and posterior mediastinal glands, looking like a chain of lympho-adenomatous tumours, and the enormous tuberculous solid growths, weighing many pounds, attached to the diaphragm—present characters unfamiliar to us and form in appearance a striking contrast to human tuberculous lesions.

Another striking feature of cattle tuberculosis calculated to make an impression on a novice at meat inspection is the close correspondence existing between the regional distribution of the lesions in cattle tuberculosis and human tuberculosis. Thus in cattle tuberculosis we speak of tuberculosis of the brain, the eye, the lungs and pleura, the pericardium, the bowels and peritoneum, the liver, spleen, and kidneys, and of the bladder, uterus, lymphatic glands, bones, and mamma, just as we do in the case of tuberculosis of the human body. The late Mr. Charles Darwin, in speaking of the homological structures in man and the lower animals, pointed out that man is liable to receive from the lower animals, and to communicate to them, certain well-known diseases, and that this fact proves the close similarity of their tissues and blood, both in minute structure and composition, far more plainly than does their comparison under the best microscope or by the aid of the best chemical analysis. I think that there is, perhaps, no disease common to man and animals in which this observation of Mr. Darwin is better exemplified than in the case of tuberculosis. While there is, perhaps, no tissue of the bovine body exempt from tuberculosis, that portion of the lymphatic system constituted by the lymph glands and the great lymph sacs of the thorax and abdomen are most frequently affected. A point of importance is that striped muscular tissue in the mature animal is remarkably free from tuberculosis, even when the muscle is found in close juxtaposition to tuberculous parts. This is well illustrated in the case of tubercle of either the parietal pleura or parietal peritoneum, which may be extensively involved, yet the underlying connective tissue and muscle are apparently free from tuberculous deposit.

With regard to the physical characters assumed by bovine tuberculosis in the different parts of the organism I shall not weary you with pathological details, but describe very briefly and illustrate by lantern slides the post-mortem appearances which have come under my personal observation at the Carlisle slaughter-house. The negatives for the slide-work were obtained under many difficulties and with much labour. In conducting a post-mortem examination of cattle the medical officer of health has to rely pretty much upon his own originality for the method or technique of such an examination, there being, so far as I am aware, no available book on the subject. During the course of this paper I shall refer to a few practical points on the performance of the examination which experience has suggested.

The brain.—There are two methods of exposing the brain for examination, but perhaps the most expeditious is to make a mesial antero-posterior section of the skull with a fine meat saw. Owing to the brain being fixed in its case a clean section is produced with very little disturbance of parts. The two halves of the brain are then lifted out of their respective beds for examination. I have seen at least eight cases of tuberculosis of the brain. Tubercle of the brain affords a good example of miliary tuberculosis in the ox. It generally occurs in the base, especially near the pons and medulla, but in the case from which the next slide was taken it was well marked in the walls of the lateral ventricle where numerous miliary nodules, some being collected into little heaps, were present. These little heaps or collections explain how tuberculous growths, whether great or small, are formed by the aggregation of miliary tubercles. The microscope showed the miliary nodules to be placed just below the fine epithelial lining of the ventricle, the membrane overlapping the nodule being bulged outwards. In two of the animals with brain tuberculosis oblique carriage of the head was observed, in another vertigo, and in a fourth the animal was carted into the slaughter-house in a paralysed state.

The eye.—I have several slides illustrating tuberculosis of the eye. The disease usually begins somewhere in the uveal tract, the growth pushing its way forward into the anterior chamber, where it can be seen through the cornea as a nodular growth of yellow colour. In the case from which the slides were made the tuberculous growth pretty well filled the eyeball, bulging the iris against the posterior surface of the cornea. I have never been able to find bacilli in tuberculosis of the bovine eye. The same negative result generally follows a search for tubercle bacilli in the human eye.

The pharyngeal glands.—Tuberculosis of the pharyngeal glands, especially in those of the retro-pharyngeal group, is very common and may exist with no, or only very little, evidence of tuberculosis elsewhere in the animal. So frequent is tuberculosis of the pharyngeal glands that I have been for some years in the habit of condemning the head in every case where a partial condemnation of the carcass was determined upon.

The tonsils.—The tonsils are said to be of insignificant proportions or absent in the ox. Our experience teaches us that they are always well-defined bodies opening into a cryptiform pouch, and sometimes tuberculous.

The cervical glands.—The slide shown gives a good example of tuberculosis of the upper cervical glands in a calf affected with generalised tuberculosis, including marked brain tuberculosis. It is seldom that we have an opportunity of seeing this condition of tuberculosis of the upper cervical glands owing to their being removed by the butcher when they have attained palpable dimensions. In one case we were able to get a tuberculous upper cervical gland as large as the closed fist from an animal which was apparently free from tubercle elsewhere. There is one of the lower cervical glands which from its position always escapes the vigilance of the butcher. This gland, the prescapular, is inclosed in a mass of fat in front of the anterior part of the scapula near its edge. The position of the gland corresponds to the point of the anterior border of the scapula placed opposite to the free point or acrominal end of the spine. This gland, like many other lymphatics, may be enlarged in tuberculous carcasses without displaying in its substance tuberculous deposits.

The heart.—Tuberculosis of the cardiac muscle I have never seen at the Carlisle slaughter-house, but tuberculosis of the epicardium and pericardium frequently. Nocard states that the tuberculous cuirass in tuberculous pericarditis causes atrophy of the cardiac muscles. In the cases which I have seen the heart has been much enlarged and the ventricular walls hypertrophied.

The larynx.—Several cases of tuberculosis of the interior of the larynx have come under observation at the slaughter-house. In one case there was a rounded tumour of about the size of a damson plum occupying the interior of the larynx, to which it was attached by a mobile neck at the junction of the alæ in front. The animal in which it occurred was said to have had a decided rattling sound in its throat during respiration. The tumour on microscopic examination contained numerous typical giant cells.

The lungs.—Of all the organs of the bovine body the lungs and pleura are the most frequently tuberculous, and the explanation for this I shall endeavour to offer further on. In a good many cases the disease is limited to the pleural membrane, but in the majority of cases the lungs also are involved. Tuberculous lungs are sometimes enormously increased in volume and weight from tuberculous growth. In one case a pair of lungs weighed 40 pounds, as compared with a normal weight of seven pounds. Tuberculosis of the anterior and posterior mediastinal lymph-glands forms a very remarkable feature in bovine tuberculosis. Even when the lung is little affected these glands are found to be enormously enlarged from tuberculous growth. A number of fanciful names are applied to the lesions of tuberculosis, one of which is "pommelière." The potato or apple-like form is well seen in tuberculosis of the [illegible] and not through the medium of infected air entering the bronchial tubes. In fact, we are led to believe from the post-mortem appearances that bovine tuberculosis is primarily a disease of the lymphatic system, including the great serous sacs, spreading to the various organs of the b[illegible] coverings of the organs. Therefore, when we speak of tuberculosis of the liver, spleen, uterus, and bladder, the expression often means nothing more than tuberculosis of their peritoneal coverings. If we regard the lymph-glands of the throat and neck as the chief portal of entrance of the tubercle germ it serves to explain why in cattle the pulmonary disease begins in the dorsal border of the lungs placed on each side of the vertebral column. The proneness of the apex of the human lung in the adult to tuberculosis has always afforded a subject for much theorising. A recent explanation of the frequency of apical phthisis in the adult is that of Professor Birch-Hirschfeld of Leipsic, who believes it is due to a peculiarity in the distribution of the bronchial tubes in the apex. He shows by means of fusible metal casts of the pulmonary bronchi of the human lung that the bronchi distributed to the apex pass almost at right angles from the main bronchus, thus facilitating [illegible] suspended matters of the [illegible]. A cursory glance at his [illegible], conveys the impression that suspended solid particles in the air would be just as likely to harbour in the terminal bronchi at the base of the lung. It seems probable that the proclivity of the apex to early phthisis in man is due to the direct transmission of the disease to the overlapping pleural sac through the channel of infected lymphatics in the neck.

The liver.—In the majority of cases the disease is confined to the fine peritoneal covering of the liver. The tuberculous deposits on the surface of the membrane have often a lichenous look suggestive of the appearance presented by laboratory cultures of certain micro-organisms upon artificial media, as, for example, anthrax upon sterilised potato. In the substance of the organ it occurs in the form of nodules of various sizes from a pin-head to large masses several inches in diameter, containing puruloid matter. The liver is occasionally enormously enlarged, and in one case weighed 51 pounds, the normal weight of the organ being 14 pounds.

The spleen.—In the adult animal tuberculosis of the peritoneal coat of the spleen is extremely common, but involvement of the substance with the disease is practically never seen. Congenital tuberculosis of the spleen in the calf is said to be frequently met with. It is a remarkable fact that the spleen is the only abdominal viscus in the adult animal which appears to be exempt fr[illegible] yet its peritoneal covering [illegible] tuberculous growth. Pr[illegible] singular freedom of the spleen from tuberculosis is to be found in the functional activity of the organ. Wherever we get structures freely supplied with arterial blood and where tissue change is rapid, as, for example, in the voluntary muscles and the muscle of the heart, there the bacillus *finds an* uncongenial ground for its operation. In the fœtus the spleen is inactive, and, beyond assimilating nutritive material for its growth from the fœtal blood does no physiological work. An [illegible] of the spleen from tube[illegible] curious mode of termination of the arterial capillaries which are *said* to terminate in the reticulated tissue of the pulp, thus allowing the blood to come into actual contact with the tissue elements. Arterial blood as we know is unfavourable to the existence of the bacillus tuberculosus.

The kidneys.—The kidney in the adult animal is comparatively rarely tuberculous. The early stage of the disease is manifested by yellow deposits situated, as a rule, in the peripheral portion of the cortical substance, forming conspicuous lesions when the capsule is removed. The deposits furnish good examples of tuberculous *follicles*, the fibrous formation or capsule surrounding the follicles being well marked. In one case a tuberculous tumour, firm in consistence and equal in size to a large marble, was found growing from the under surface of the renal capsule, bulging the kidney substance inwards into quite a deep depression. Tuberculosis of the kidney, according to Nocard, originates from the deep layer of the capsule or sub-capsular connective tissue. The situation of this tumour gives support to Nocard's view. I have only seen one case of tuberculosis of the bovine kidney where the disease passed beyond the stage of a few tuberculous deposits in the cortical substance. This case occurred a few months ago and was characterised by [illegible] substance where in one place a softened caseous mass existed. Suppuration of the bovine kidney would probably be as common as it is in the human subject, if circumstances were not altered in the case of the ox by the timely application of the pole-axe.

The peritoneum.—The peritoneum, like the serous sac of the pleura, exhibits the disease in the form of fine red granules, nodules, and polypoid masses. In the case of the peritoneum, however, the polypoid masses are more characteristic than they are elsewhere. Many of the polypoid growths are of a deep purple colour and their resemblance to grapes is such as to have led to tuberculosis being called the "grape disease." In Hayes's translation of Friedberger's and Fröhner's Veterinary Pathology, the grape disease is described as being synonymous with "perlsucht" or "pearl disease," but from the photographs already shown it will have been observed that there is a real pearl-like form of the tuberculous lesion as well as a grape-like form. The term "pearl disease" would be quite appropriate if applied to tuberculous growths, but gives us a very accurate conception of another and very common manifestation of thetuberculous lesion.

The uterus.—Tuberculosis of the uterine muscle and its [illegible] the lining [illegible]n. The [illegible]d, as far [illegible] than in other parts of the bovine body. The ovaries and fallopian tubes are frequently tuberculous, and in some cases the latter are enormously distended with caseous tuberculous growth, in which follicles and giant cells are abundant.

The bladder.—Bladder tuberculosis presents much the same character as tuberculosis of the uterus.

The udder.—Tuberculosis of the udder presents itself by small yellow deposits with or without calcification, cavities containing tuberculous products, or the tuberculous condition may be in the form of diffuse deposit or infiltration, which on section has a uniform yellow-white colour and cuts with a rasping feel. The naked-eye appearance of this latter form is more like cirrhosis than tuberculosis; but when a microscopical examination is made, tuberculous follicles and bacilli are found in abundance. It is important for the veterinary surgeon during his course of inspection of dairy cattle to remember the physical characters of this form, because the absence of nodulation might lead him to suppose that the induration is of a non-tuberculosis nature. In such a case the diagnosis may be helped by the tuberculin test. Induration of the udder is a common condition among dairy cattle, and we cannot expect cattle-owners to exercise much care in discriminating between a tuberculous induration and a non-tuberculous one, even if they possessed the requisite knowledge on the subject.

Bone tuberculosis.—Few opportunities are offered of seeing *bone tuberculosis in cattle carcasses owing to the circumstance* that the only sections of bone displayed are those of the spinal column and sternum. I have seen a few cases of tubercle of the sternum. The slide shows tubercle of the sternum, which probably became involved from an extension of the disease from a sub-sternal lymphatic. The tuberculous growth was easily picked out from the cancellated tissue of the bone and gave excellent examples of giant cells which were numerous and typical in character. Bone marrow is said to be an excellent culture medium for the tubercle bacillus.

The tubercle follicle may be regarded as a special arrangement and modification of the leucocyte or phagocyte for the purpose of resisting the invasion of the animal tissues by the tubercle bacillus. The giant cell forms a constant and conspicuous feature in the early stage of bovine tuberculous growth *just as it does in human tubercle. The genesis of the* so-called giant cell has always furnished material for endless discussion, the descriptions given in the various text-books as to the formation of the cell being all more or less different and equally difficult to understand. From many observations of the giant cell in bovine tubercle I think, with Metchnikoff, that its origin is capable of a more simple explanation than those usually given in which such terms as "epithelioid cells," "karyokinesis," and "karymitosis" enter very prominently. On examining a giant cell on section a central dirty-yellow granular mass is seen in which numerous tubercle bacilli are often present, as many as 50 bacilli having been counted in bird tuberculosis. Surrounding the central mass we have a row of cells which, so far as I can judge, in no way differ in character from the surrounding leucocytes of the follicle. In some cases the giant cell is composed entirely of leucocyte-looking cells, but the typical giant cell consists of a central granular mass surrounded by a row of cells arranged in the form of a circular or oval ring. What we see under the microscope is evidently only a section of the cell, and probably the original cell is in the form of a solid sphere or some modification of this form. Hence what look like young giant cells may be due to segments near the periphery or poles of the sphere. The central portion or core may be regarded as the débris of dead leucocytes engaged in conflict with the tubercle bacilli in the interior of the giant cell.

The mode of action of the leucocytes in tuberculosis is such as to suggest instinct on the part of this blood-cell. As soon as the tubercle bacilli invade the animal tissue the leucocytes or phagocytes squeeze their plastic bodies through the walls of the neighbouring capillaries and go for the bacilli, which they isolate in groups and surround, forming the so-called giant cells. Many of the leucocytes of the giant cells are killed in their action against the bacilli, the débris of their bodies constituting the yellow material in the centre of the tubercle follicle. Outside the active zone of giant cells there is a zone of phagocyte reserves, and beyond this a zone of outposts engaged in constructing a fibrous wall to prevent further advance of the enemy.

TUBERCULIN AS A DIAGNOSTIC AGENT.[1]

BY HAROLD SESSIONS, F.R.C.V.S., F.H.A.S.

IN the present state of our knowledge it must be allowed that tuberculosis is a disease of a contagious nature—a virulent death-dealing disease that can pass from one animal to another and from one species to another. The power of resistance to the disease varies in different species of animals and even in different families or individuals of the same species. Allowing for these variations the fact remains that we have this death-dealing disease, terrible in its ravages, and we are met here to-day to ask ourselves and each other what means are the most effectual that we can direct towards lessening these ravages? The total eradication of the disease we may safely leave to the care of some future conference.

Apart from human beings, the animal in which tuberculosis chiefly shows itself is the cow. The two are so intimately connected in civilised life that it is natural that a good deal of danger is apprehended that the disease may pass either through the milk or flesh of an affected cow to a human being, or from a tuberculous human being to a cow. But quite apart from any danger to human beings, I have long held and advanced the view that the ravages of tuberculosis among our domestic animals is so great that for that cause alone we are fully warranted in taking all needful measures for its curtailment now, because we can get rid of it in the domestic animals long before we can do so among human beings.

After the first recognition of the disease some years ago the trouble that we had to contend with was to get an approximately correct diagnosis, and I think I may say, without fear of contradiction, that, except in advanced cases, we could not with any certainty diagnose 5 per cent. of affected animals. With the discovery of tuberculin a fresh stage was marked in the diagnosis of the disease. We soon found that we had an agent which had a marked effect on animals affected with the disease, and the next few years were devoted to brilliant anticipation, study, and rash assertions of the power of tuberculin. I wish to take this opportunity to remind and to emphasise the fact to some of the critics of the power of tuberculin that during those years many of us worked, not, as some people seem to think, to find out cases in favour of tuberculin, but to find out whether we could obtain any reliable results from its use and what those results were likely to be. Using some of the first tuberculin obtainable on cattle of my own the results appeared to be far from satisfactory. It was only after a prolonged and careful working under a variety of conditions that I became an advocate for its use.

I do not propose to deal with tuberculin from a laboratory point of view, because there are others better able to do so than I, and having been on the Army Remount Commissions during the last 12 months in Spain and South America I have not had the facilities needful to keep in touch with the advance recently made. I have been able to see and to hear a good deal as to the value of tuberculin from a practical and commercial point of view. The proposition which I put forward is, concisely, "It is expedient to use tuberculin for diagnostic purposes in cattle." At one time there appeared in the press a number of loose statements as to the incorrect results given, and the contradictory results obtained by using tuberculin. Some of the statements I took the trouble to follow up and invariably found that they were neither exact nor correct. They may have arisen:—(1) From a tuberculin being used that was old or inefficacious; (2) from the test being hurriedly or improperly performed; (3) from errors at the post-mortem examination; and (4) from the inability of the operator to understand what he sees.

1. *Old or inefficient tuberculin.*—Some few years ago I suggested that tuberculin was much too dangerous an article to be sold, except under strict supervision, and that the whole community would benefit by such supervision. A central authority alone should issue tuberculin; and though they might and probably would license several competent people to make it, all that is made should pass through their hands for issue. They should demand that with all tuberculin sent out within a month a report of how and where it was used should be sent to them, and as far as possible the results obtained with official temperature charts filled up. This would lessen the risk of the indiscriminate use of tuberculin and the chance of one animal being re-tested within a week or so. It would also form a basis for much-needed statistics. I consider this a most important point and shall bring forward a motion to that effect later.

2. *Hurried or improper performance of the test.*—Few people seem to realise how very delicate a physiological reaction the test is; and that only when an animal is in a perfectly normal condition can the test be applied. That in the case of cattle even bringing them in from a field to tie them up in a shed when they are not regularly tied up is enough to upset them for two or three days to such an extent that you may not be able to test them. It is quite natural that those who have animals which they want tested should desire to have them tested as quickly, cheaply, and with as little trouble as possible; and those who test animals have continually to fight against these influences. Otherwise the test results being incorrect they will bring on the tuberculin test a discredit that is not properly its own.

3. *Errors at the post-mortem examination.*—To make a post-mortem examination requires much time and skill, and simply cutting open an animal and looking at the larger organs cannot be regarded as a post-mortem examination. When after a reaction of tuberculin an animal is killed and no visible lesions are found, before believing that the test is wrong I always ask myself whether the post-mortem report is not quite as likely to be incorrect. I would even go a step further. It seems to me that a tuberculin reaction may be obtained when an animal is in the very early stages of tuberculosis and before there are definite marked lesions in the tissues. I should consider this to be very probably the case when animals from an inspected herd react to the tuberculin test and on slaughter show no post-mortem symptoms of the disease. If animals bred on a farm on which tuberculosis does not exist, and as far as can be ascertained there is no probability of the animals being affected, a reaction with negative post-mortem results may well be viewed as due to the tuberculin test if the conditions under which the test was applied were accurate—it may reasonably be called an error.

4. *Inability of the operator to interpret the facts.*—Several times I have met with cases where, after an animal had been

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[1] A paper communicated to the British Congress on Tuberculosis. Section IV., Veterinary.

tested and a typical tuberculosis reaction had been obtained animals have been declared free from disease. On the other hand, cases have occurred where an animal's temperature has risen suddenly during the test, not in a typical manner, and no allowance has been made for an extraneous cause. A system of sending all temperature charts to a central authority and having them reduced to a graphic form would very materially help to eliminate this class of mistake. There is not time in this paper to advance the evidence in favour of correct results obtained by the use of tuberculin; I have already done that in some detail in a small book that, conjointly with Dr. T. M. Legge, I wrote after the publication of the report of the last Parliamentary Commission. I will therefore sum up the evidence in a sentence by saying that there are many thousand instances recorded where tuberculin has given correct results and these in cases where there were no other means of diagnosis. On the other hand, there are advanced some instances—not a very great number—where apparently the tuberculin test has been wrong. Amongst these, some of the cases that have been most prominently brought before the public are those of animals sold in Europe as being free from tuberculosis, but which two or three months afterwards have been tested in the Argentine and found diseased.

I had the opportunity while in the Argentine of talking over this matter both with the Minister of Agriculture, Dr. Garcia Merou, and wit [illegible] and also I saw [illegible] a necropsy. I [illegible] culture with a very carefully worked-out series of answers to some questions which I raised as to the progress of the disease in the Argentine and what he considered the best means of checking it. He further kindly supplied me with copies of charts of temperatures of animals tested, post-mortem results, and in some cases with the certificates that had come from Europe. Between the dates of April 12th, 1898, and Nov. 15th, 1900, 2092 imported animals were tested, out of which 158 animals reacted to the tuberculin test. Of these 158 animals 51 were slaughtered and 107 were re-shipped principally to the Republic of Uruguay. They were re-shipped, because since April, 1898, no animal is allowed to enter the Argentine until it has been tested by tuberculin under the authority of the Argentine Government and certified as free from tuberculosis. If the animal reacts it has, if left in the docks, *to be slaughtered.* However, in January, 1900, the Government of Uruguay also established an import sanitary inspection; and as since that date no rejected animals have been re-exported there and only a few are re-exported to Chili and Brazil, almost all those that show any reaction are now slaughtered at the Argentine sanitary stations. Of the 51 animals that were slaughtered 50 proved on post-mortem examination to be diseased, the macroscopical diagnosis being confirmed by microscopical observations and inoculations on guinea-pigs. The one case that was incorrect was that of a bull that had swallowed a four-inch nail, which, perforating the stomach, had formed an abscess, causing septic infection with a rise of temperature. The rise of temperature was not typical and it was suggested by the veterinary inspector that the animal should be considered doubtful and re-tested, but it was thought, as it was a suspicious case, that it would be wiser to have it killed. These 2092 animals were nearly all pedigree cattle of value, some selling for several hundreds of pounds. At least 1750 had been tested in Europe before embarkation, and of these a total of over 1600 tests agreed in Europe and the Argentine. There were, on the other hand, over a hundred discrepancies. Can these be satisfactorily accounted for? I feel convinced from what I have seen and the information in my possession that the error in very many of the cases was made in Europe. The animals were tested sometimes in remote country places—sometimes after a railway journey; and doubtless in not a few instances the *animal* to be exported was the first one that had been tested by the operator, and experience had not taught him the need for great care. Again, it is possible under the present system of free use of tuberculin that a veterinary surgeon may test an animal and finding it to react the owner may at once sell it, and within a week another veterinary surgeon may test the animal for exportation, being quite unaware of the first test. The result and the certificate on which the animal is exported are wrong, because it is well known that you cannot correctly test an animal within some weeks of an injection of tuberculin. Again, it is quite conceivable that an owner may test an animal on his own account—there is nothing to prevent it—and then, not being satisfied with his own work, call within a few days for an expert opinion without admitting the fact that he has already tested the animal. All these and many other circumstances have to be considered by the practical mind before accepting all these discrepancies as being due to the tuberculin.

There is another point, too, that has to be considered. Between the two tests animals pass through the tropics, and in one or two cases I found while analysing these figures that an animal certified healthy in England had been carried by the same boat, and probably in the same stall, as an animal which the previous voyage had been slaughtered on landing and found diseased. This second animal on arriving at the Argentine reacted to tuberculin and a post-mortem examination showed it to be diseased. In view of the very contagious nature of the disease among show animals new fittings, mangers, &c., should always be used when conveying valuable animals. Besides these 2092 imported animals the tuberculin test has been officially applied in the Argentine to 52,716 dairy cattle and 21,873 other cattle, and the test is believed to be of practical value.

In passing, it may be interesting to observe that in the province of Buenos Ayres the percentage of animals affected with tuberculosis, as revealed in the slaughter-houses, is 0·476 per cent. on the total of 1899. The percentage increases to 2·32 in the highly-crossed Shorthorn cattle killed and decreases to 0·0012 in pure native cattle. Consequently it may be inferred that the number of animals affected increases in proportion to the higher degree of crossing with improved imported stock. During the last five years in the Argentine the slaughter-house returns show an increase of tuberculosis. In 1895 the percentage on the total number of animals slaughtered was 0·281; in 1896, it was 0·467. Considering these figures and the very strong feeling that the Argentine Government appear to have as to the need of testing all animals before they are allowed to enter the country, I raised the question as to whether when the re-embarkation of pedigree stock commenced, a *modus vivendi* could not be arrived at to prevent animals after having reached the Argentine being thrown on the importers' hands, causing much expense and friction. I am glad to say from the information supplied me that that Government would be quite willing to make suitable arrangements *to test animals in England before embarkation, provided* our Board of Agriculture would on their part furnish guarantee as to the testing, which they might very well do.

[illegible] in [illegible] En [illegible] at the same time, the statistics which I have quoted show the danger of an increase of tuberculosis in their large and valuable herds; and they are right in doing all they can to check its further inroads. For the good of their country, if tuberculin was correct in only 80 per cent. of cases, it must be of manifest advantage to use it; whereas, from our present information, it can be correct in over 95 per cent. of cases where it is used.

I have no doubt that many of the points which I have touched upon will lend themselves to your criticism, and that in the press afterwards, perhaps more than at this meeting, instances will be adduced to show that tuberculin is not reliable, but, in anticipating them, may I venture to reply that I have been careful in this paper to make the claims of tuberculin moderate, and that I have before writing considered and thought over from a practical and scientific aspect the objections already published, and I believe that under proper control tuberculin is a safe and reliable agent to use and the only means we have at present for approximately diagnosing tuberculosis in cattle.

In conclusion, I would beg to move that this Congress, believing that tuberculin is an efficacious and reliable diagnostic agent, liable to gross misuse whereby it becomes a public danger, would ask the Minister of Agriculture and the President of the Board of Trade whether it would not be feasible to allow tuberculin to be issued by a central authority only, who should demand from those who use it a statement of the results obtained. The advantages derived being the use of properly prepared standard tuberculin, the compilation of much-needed statistics, the minimising of the danger of the fraudulent or wrong use of tuberculin, and the supervision of the temperature charts.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

> Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus Morb.*, lib. iv., Proœmium.

BRADFORD ROYAL INFIRMARY.

A CASE OF MALIGNANT INTUSSUSCEPTION OF THE SIGMOID FLEXURE; REMOVAL BY THE RECTAL ROUTE; RECOVERY.

(Under the care of Mr. J. BASIL HALL.)

THE junction of the sigmoid flexure and the rectum is frequently the site of a malignant growth, yet this seldom *gives rise to an intussusception.* Should, however, an invagination occur and the tumour present at the anus, the growth may be removed per anum and the intussusception relieved at the same time, though the cases in which this is advisable are not numerous, for usually a laparotomy would make resection of the bowel easier with a very slight increase in the risk.

A man, aged 56 years, was admitted into the Bradford Royal Infirmary on Oct. 14th, 1900, with all the signs of acute supervening upon chronic intestinal obstruction. He stated that 12 days prior to admission, without any previous symptoms, rectal tenesmus commenced, followed by the frequent passage of loose motions containing much blood and mucus. Vomiting soon set in, the abdomen became distended, and his condition passed into one of acute obstruction. On admission the patient looked much older than his years; his abdomen was considerably distended but still moved with respiration. The tongue was moist but very dirty and the breath was most offensive. The pulse was quick, soft, and compressible; the temperature was 99·8° F. The hands and feet were cold and his condition generally was feeble. On rectal examination the finger impinged one and a half inches from the anus *upon an intussusception* with an annular carcinoma at the apex. The mass appeared to be about five inches long. There was much sanious and offensive discharge.

Under ether, after stretching the sphincter, a view of the mass was obtained. It was quite black, with every appearance of sloughing. It was therefore decided, considering the condition of the patient, to relieve the obstruction by opening the colon in the iliac region and at the same time *to gain what information could be obtained through the* colotomy wound. The obstruction was thus temporarily relieved, but contrary to expectations no sloughing of the mass occurred except a superficial necrosis at its apex. At the end of 10 days therefore Mr. Hall decided to attempt resection after Mr. A. E. Barker's method. Ether being given the anus was divided posteriorly and the coccyx was excised, thus exposing about half the mass. A stout silk cord was then *slipped over it and the intussusception was dragged* as low as possible. Three silk ligatures were then passed with a hernia needle as near the base as possible. Each ligature included about one-third of the circumference of the wall of the intussuscipiens and the intussusceptum together, and the mass was then amputated below them. A stump about one inch long was left which it was calculated would speedily be obliterated on account of the great traction upon it. The opening in the rectum was closed. The silk ligatures were left long and hanging through the anus.

After the operation the patient recovered fairly rapidly but the silk ligatures did not come away, becoming loose without cutting through the segment of bowel included within them. At first this was attributed to the stump becoming less swollen and œdematous. Three weeks later, *however, a prolapse of the remaining three* inches of the sigmoid occurred through the colotomy wound. This piece of gut had a blind end and it then became evident that owing to the great traction it had been drawn up as soon as the ligatures had cut through and its lower extremity had then closed. On examination again under ether it was found that the distance between the remaining portions of sigmoid and rectum was so great as to exclude any possibility of uniting them. The remaining portion of the sigmoid was accordingly excised through the colotomy wound. The condition of the patient, therefore, was as follows. The descending colon ended by an artificial anus in the left iliac region; below this point the whole of the bowel had been removed with the exception of a small portion of rectum which ended blindly about five inches above the anus. The general health was excellent. The patient wore a well-fitting belt of webbing in which was a cup (similar to that on the colotomy truss) which covered the colotomy opening. This arrangement suited him better than a truss, as it allowed him to stoop and to undertake manual labour without chafing or becoming displaced.

The intussusception removed measured four inches. This, together with the inch left at the operation, represented about 10 inches of bowel. The base of the intussusception, therefore, was about six and a half inches and the growth was 11½ inches from the anus. Microscopically, the growth was of the usual columnar type.

Remarks by Mr. HALL.—It is now 13 years since Mr Barker[1] published the first case in which he successfully resected a malignant intussusception per anum, and the rarity of such an opportunity is shown by the very few records of this procedure. Indeed, with the exception of the examples in Mr. Barker's first publication and his second case recorded five years later,[2] I am not aware of any other published cases. In the case recorded above the operation cannot strictly be said to have been performed "per anum," since the sphincter had to be divided and the coccyx excised before the base of the intussusception could be reached, but the case bears sufficient resemblance to those of Mr. Barker to be classed with them.

One of the most interesting points in the case was the manner in which the small remnant of sigmoid flexure protruded through the colotomy opening. I have spoken of it as a prolapse, but, strictly speaking, the protrusion always commenced as a true *retrograde intussusception* which became a complete prolapse as soon as the whole length of gut had escaped. In consequence of the shortness of this remnant portion of bowel the intussusception stage of the protrusion was necessarily of brief duration, but on more than one occasion I satisfied myself that a true retrograde intussusception occurred. This phenomenon has been observed before under similar conditions and recorded by Lawford Knaggs,[3] Golding-Bird,[4] and Barth[5] *It is not necessarily* associated with the existence of an obstruction below the artificial anus, for in Golding-Bird's case a retrograde intussusception occurred through a patent Meckel's diverticulum It is apparently a reflex phenomenon produced by the surface irritation from the artificial anus. In the present case the protrusion not infrequently occurred when the dressings were removed and the abdomen was exposed to the cold air—a fact which lends colour to the view that *occasionally* intussusception is the result of irregular peristalsis set up by reflex nervous impulses.

Medical Societies.

BRITISH GYNÆCOLOGICAL SOCIETY.

Complications and Degenerations of Fibroid Tumours of the Uterus as bearing upon the Treatment of these Growths

A MEETING of this society was held on July 11th, Dr J. A. MANSELL MOULLIN, the President, being in the chair

Dr. CHARLES NOBLE (Philadelphia) read a paper on the Complications and Degenerations of Fibroid Tumours of the Uterus as bearing upon the Treatment of these Growths Hæmorrhage was by no means their chief and only danger; there were the risks of necrosis, of myxomatous or cystic degeneration, of calcareous infiltration, of associated malignant disease, and of complicating adnexal affections, and even their indirect effects upon the alimentary, vascular, and nervous systems might lead to death or invalidism. Dr. Noble then gave details in tabulated form of 218 cases of fibromyoma uteri upon which he had operated up to May 24th, 1901. Had operation not been performed the complications which were found to be present in 66 of these must inevitably have proved fatal, in 25 others they would have imperilled life, and they would have rendered 30 of the remaining patients chronic invalids. Therefore 78 of these 218 patients would, at a low estimate, have died from the complications present, while 15 would probably have been the lowest death-roll from hæmorrhage, chronic anæmia, car[illegible] other direct effects of th[illegible] mated total mortality of [illegible] malignant disease and large ovarian tumours were not included, at least a third of the patients would have died as a result of the tumour or of its complications. The disappearance of fibroid tumours after the menopause or after pregnancy was merely one of the curiosities in the history of these growths. In women with fibroids the menopause was delayed for from three to 10 years and even if improvement followed it necrosis of the tumour might subsequently take place. Twelve of his patients were over 50 years of age when they sought relief from sufferings which, according to classical teaching, should have already ceased. Only 91 of his patients had been pregnant. Deaths directly due to fibroid tumours were seldom recorded, as when the symptoms became grave operation was generally resorted to. Those advocating the expectant treatment agreed that when hæmorrhages had produced profound anæmia operation was indicated; yet anæmia materially increased the risk of narcosis, œdema of the lung, and sepsis, and anæmia when established might prove very intractable. Adhesions had in many cases increased the difficulty and risk of operation, while phlebitis and embolism had proved a source of danger both before and after it. In short, if left alone, more than one-third of his own cases would have ended fatally, in more than one-fourth the patients would have been chronic invalids, and of the remaining one-third but few would not have been incommoded by the presence of the tumour. It was difficult to say whether his own was or was not an average experience. The only table of cases resembling that upon which he based his observations was published by A. Martin, who had tabulated 205 cases, analysing the complications met with. Martin, however, made no reference to the condition of the adnexa. Allowing for this difference in [illegible] similar. At [illegible] the result of [illegible] he mortality [illegible] uly operation not only reduced the mortality from the disease from over 33·3 to less than 10 per cent., but saved the patient a long period of invalidism otherwise unavoidable. Small multinodular sub-peritoneal fibroids in women over 40 years of age were those least likely to grow or to cause serious trouble, and there was a small percentage of cases in which operation was not more advisable than was expectancy.

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[1] Transactions of the Royal Medical and Chirurgical Society, vol. lxx, p. 335.

[2] Brit. Med. Jour., 1892, p. 1226.

[3] THE LANCET, April 24th, 1897, p. 1137.

[4] Transactions of the Clinical Society of London, vol. xxix.

[5] Deutsche Zeitschrift für Chirurgie, vol. xxvi.

The PRESIDENT, in drawing attention to a collection of specimens exhibited in reference to Dr. Noble's paper and which had been brought together by Dr. Macnaughton Jones, said that he thought that he was correct in saying that such a collection had never before been on one table. The specimens incl[illegible] cystic, mucoid[illegible] others which [illegible] rhage had tak[illegible] several in which, in addition to the myoma, a carcinomatous, sarcomatous, or cysto-sarcomatous tumour was present; a single, large, semi-fluctuating fibroma (exhibited by Dr. Snow and termed by him "monoma") which showed in one portion isolated tissue resembling carcinoma, a microscopical slide in this [illegible] the museum preparation; [illegible] ldition to the myoma uteri, [illegible] f the adnexa and broad ligaments.

Dr. H. MACNAUGHTON JONES, in opening the discussion, said that an examination which he had made of the specimens preserved in the museum of the Royal College of Surgeons of England and in the museums of several of the larger London hospitals showed that 85 per cent. of the tumours had undergone degeneration or were accompanied by some serious complication. It also rendered very evident the fact that a vast mass of material, invaluable in estimating the dangers and consequences of these growths, had passed through these hospitals and had been lost. Countless tumours had also been shown at societies of which no microscopical or even careful examination had been made, though the time had passed when it was of advantage to demonstrate the feasibility of their removal. One danger not often realised was that other pathological conditions of the uterus and adnexa were, by excusable errors of diagnosis, liable to be mistaken for fibromata and, even though of a fatal nature, allowed to remain without surgical relief until their removal had become difficult or impossible. Considering the frequency with which various degenerations and complications of these tumours were now known to occur he warmly advocated surgical treatment of them.

Mr. F. BOWREMAN JESSETT did not agree with Dr. Noble as to the relative frequency with which carcinoma and sarcoma co-existed with fibromata. He could remember at least five cases in his own practice in which the pathologist pronounced a portion of a fibroid tumour to be of a sarcomatous nature. The position of the tumour should be considered when determining the treatment; if subperitoneal it might in a large number of cases be permitted to remain. When submucous or interstitial myomata gave rise to hæmorrhage or symptoms of pressure, or were necrotic or of rapid growth, they should be removed. The opposite conditions prevailing, the surgeon could afford to wait.

Mrs. SCHARLIEB believed that a certain number of fibromata decreased in size after the menopause, yet waiting for any very problematical benefits which might then ensue involved serious risk. The youngest patient on whom Dr. Noble had operated was 17 years of age. She had removed, with Mrs. Stanley Boyd, a tumour from the anterior wall of the uterus of a girl 15 years of age. The edges of the uterine incision had been brought together and the uterus and its appendages had been left complete.

Mrs. STANLEY BOYD referred to the difficulty of distinguishing between a tumour which had been sarcomatous *ab initio* and one found on removal to be sarcomatous but which had become so as the result of degeneration in a fibroma. She asked Dr. Noble whether in his experience curetting ever permanently arrested hæmorrhage produced by a fibroid tumour. She regarded it as a temporary measure to arrest hæmorrhage, possibly with a view of encouraging the patient to undergo the major operation at a later date.

Dr. HERBERT SNOW said that the soft œdematous solitary fibroid first differentiated by Mr. Lawson Tait had from its inception a malignant tendency peculiar to itself. The common multiple, hard fibroid in a few rare instances underwent cysto-sarcomatous degeneration. Carcinoma might be present as a coincidental complication or as a result of the irritation and vascularity produced by a fibroma.

Mr. STANLEY BOYD said that the etiology of certain complications was obvious, as, for example, necrotic or other change in the tumour itself, salpingitis or pyelitis, but such a condition as cancer must be necessarily accidental, being a growth of epiblastic tissue. Sarcomatous degeneration was theoretically conceivable. A mesoblastic tissue already growing abnormally might apparently easily take on a sarcomatous nature. True degeneration, however, he believed to be rare.

Dr. HEYWOOD SMITH took exception to the statement that parturition was not followed by a shrinkage in the tumour.

Dr. J. MACPHERSON LAWRIE agreed with Mr. Bowreman Jessett rather than with the reader of the paper as to the indications for and against operation.

Dr. SKENE KEITH was much opposed to operation to the extent which had generally been approved.

BRITISH LARYNGOLOGICAL, RHINOLOGICAL, AND OTOLOGICAL ASSOCIATION.

Exhibition of Cases and Specimens.—Tumours of the Pharynx from their Clinical Aspect.

A GENERAL meeting of this association was held on July 12th, Mr. MAYO COLLIER, the President, being in the chair.

The PRESIDENT showed a case of Double Optic Neuritis with Paralysis of both External Recti following Right Tympanic Disease. The interesting point was the cause of the neuritis.—Dr. C. O. HAWTHORNE suggested cavernous sinus thrombosis.—Dr. DUNDAS GRANT spoke of the possibility of tubercle.—Dr. R. H. WOODS also spoke.—The PRESIDENT, in his reply, objected on anatomical grounds to implication of the cavernous sinus.

The PRESIDENT also related a case of Deafness due to Chronic Sclerosis of the Middle Ear which had been greatly improved after relief of nasal obstruction, and he showed a case of Epithelioma of the Maxillary Antrum nine months after operation, in which there had been, so far, no return.

Dr. BARCLAY BARON showed a case of Complete Aphonia with Close Approximation of the Cords. It had resisted all treatment, and was brought forward for diagnosis and suggestions for treatment.—There was general agreement that the case was functional, chloroform narcosis, hypnotism, and the cautery to the enlarged veins at the base of the tongue being variously proposed.

Mr. LENNOX BROWNE showed a specimen of a Fibro-Myxomatous Polypus, removed from behind the Palate, which was found to have proceeded from the maxillary antrum through the opening in the inferior meatus made during the course of operation performed some months previously for the relief of maxillary empyema.

Mr. LENNOX BROWNE also showed the following: 1. A case of Pretuberculous Condition of the Larynx in a patient who had been treated by him 20 years previously for traumatic perichondritis due to the impaction of a chicken-bone in the larynx. The patient had since developed symptoms which pointed to tubercle, but both pulmonary and laryngeal evidences had been, to say the least, inconclusive. The main feature was recurrent aphasia, but with phonetic cough. 2. A patient with Sarcoma of the Pharynx who had been exhibited twice previously—first in March before removal, secondly in May after removal—and now again, to demonstrate, first, that a certain amount of infiltration suggestive of a possible recurrence had entirely subsided, and, secondly, in regard to the epiglottis which, formerly compressed by the growth, had now entirely recovered its form and position. 3. A patient, aged 66 years, with an Enormous Tonsil and Glandular Infiltration which had existed for three months, and which up to now, though causing comparatively little difficulty in swallowing, had been the occasion of severe pain. The microscopical examination revealed that the growth was a sarcoma, and it was suggested that although quite inoperable the case was one suitable for treatment by Coley's fluid, of which the exhibitor had had more than one favourable experience.—The PRESIDENT, commenting on the interest of the third case, expressed the opinion that the majority of malignant tumours of the tonsil were sarcomata.

Dr. A. McCOLL showed a patient suffering from Laryngeal Tuberculosis in an advanced stage which had been treated by insufflations of resorcin and orthoform. Both deglutition and voice had been greatly improved and the laryngoscope showed several cicatrices of healing. The general treatment had been that of "open air" and the patient had gained a stone in weight.—The PRESIDENT, Mr. LENNOX BROWNE, and Dr. DUNDAS GRANT spoke in congratulatory terms on the result.

Dr. S. LODGE showed a patient with Lupus of the Nose cured by Excision according to the method of Anderson with an artificial nose of aluminium made by the patient himself which had proved a greater success than one of ordinary manufacture.

Dr. DUNDAS GRANT showed: (1) a case of Post-Diphtherial Paralysis; (2) a case of Ulceration of the Tongue, probably malignant; and (3) a case of Thrombosis of the Jugular Vein.

Dr. WOODS opened a special discussion on Tumours of the Pharynx from their Clinical Aspect. He related several cases in his own practice both in the naso-pharynx and in the lower pharynx and his methods of operating. The chief interest turned on the advisability of operation.—Mr. LENNOX BROWNE spoke in favour of removal at the earliest possible moment after diagnosis and related several cases.—The PRESIDENT discussed the question from the point of view of surgical anatomy, giving several fatal instances which, from the experience of others, might have been successful had they been attacked with courage in their early history.—Dr. DUNDAS GRANT confessed himself at a loss to account for the undoubted hesitancy of even bold surgeons to interfere with these cases, considering the great advances that had been made in radical operations generally.—Dr. LODGE related a case of, and showed photographs of a successful operation for, Removal of a Sarcoma of the Naso-pharynx and of Involved Cervical Glands.

Reviews and Notices of Books.

Einführung in die Augenheilkunde. Von Dr. J. HIRSCHBERG, Ord. Honorar-Professor an der Universität zu Berlin, Geh. Med.-Rath. Zweite Hälfte, erste Abtheilung. Mit 113 Figuren und einen Titelbild. (*Introduction to the Study of Diseases of the Eye.* By Dr. J. HIRSCHBERG. Second half, first division. With 113 Figures and a Chromograph.) Leipsic: George Thieme. 1901. 8vo. Pp. 249. Price 9 marks.

THIS part of Dr. Hirschberg's manual maintains the high reputation of its author. It is a matter for regret that his numerous engagements should have left him so little time for scientific work that nine years have elapsed since the appearance of the first part published in 1893. The students who read and profited by the perusal of that first part must have begun long ago to practise for themselves and will hardly require to be taught the principles required to be known and understood for the successful treatment of refraction cases. Dr. Hirschberg commences this portion of his work with the subject of Ophthalmoscopy, describing the invention of the ophthalmoscope by Helmholtz and its gradual improvement by Rekoss, Helmholtz's assistant, and others. He relates with some humour an event that happened to himself as he crossed the Atlantic "Do you know," he was asked by an American, "my nephew who invented the ophthalmoscope?" "Certainly I do," replied Dr. Hirschberg, "and in Europe we call him Helmholtz." "The ophthalmoscope appears to be a French discovery," says another, a Frenchman, and we think we have heard the name of Cummings cited as the real originator of it by—an Englishman. It has certainly proved an invaluable aid in the recognition and diagnosis of the diseases of the eye, and upwards of a hundred modifications have been suggested, with all of which, says the learned professor, the practised observer can see the fundus of the eye and of many of which he describes the construction. He discusses the character of the illuminant that is used, and very properly objects to sunlight except under certain special conditions. He seems to prefer an oil lamp. In England it is probable that an Argand gas burner is most commonly in use. In regard to the red colour of the fundus as seen through the ophthalmoscope it is attributable, he says, to the light emerging from the observed eye being tinted in part by the retinal pigment and the pigment of the choroid, but mainly by the vessels of the choroid which absorb the blue and the violet rays. It is certainly not exclusively caused by the "visual red" as was in the first instance erroneously supposed by its discoverer Boll. Dr. Hirschberg describes at considerable length and with great clearness the respective motions of corneal, lenticular, and vitreous opacities under different positions of the observer, both with and without the employment of lenses. A long and interesting chapter is devoted to the pathologically formed precorneal plexuses of vessels. A historical summary is given of the observations that have been made on these vessels from the date of the Arabian physician El-Razi in the tenth century to the present time. Dr. Hirschberg's own researches agree with those of Professor Schöbl whose beautiful injections show that two sets of vascular loops are normally present—a coarser set continuous with the conjunctival and episcleral vessels and a finer set continuous with the scleral vessels. The extension and development over the corneal surface of the former set result in the pannus crassus that is seen in cases of granular lids, whilst the deeper-lying set give origin to the vessels present in interstitial keratitis and forming the salmon-coloured patches of Hutchinson in syphilitic inflammations. In pannus crassus the vessels form plexuses of tree-like aspect, whilst in pannus tenuis their distribution resembles a brush. Once formed they are permanent and may be seen by transmitted light with a strong lens behind the ophthalmoscope, as Dr. Hirschberg believes he was the first to demonstrate. Under the general heading of Ophthalmoscopy Dr. Hirschberg gives, logically enough, an account of the opacities of the lens and in the vitreous—including, therefore, the different forms of cataract—the recognition of foreign bodies and cholesterine crystals in the eye, and, finally, the objective diagnosis of errors of refraction. This branch of ophthalmology is treated very skilfully and at great length, the physical and mathematical side of the subject being particularly dwelt upon. The remaining section of the work, dealing with the symptomatology and treatment of diseases of the eye and with the operative procedures, will, we trust, appear at an early date.

Dental Surgery, including Surgical Anatomy and Pathology: a Manual for Students and Practitioners. By HENRY SEWILL, M.R.C.S. Eng., L.D.S.R.C.S. Eng. Fourth edition, edited by W. J. ENGLAND, L.D.S.R.C.S. Eng., and J. SEFTON SEWILL, M.R.C.S. Eng., L.R.C.P. Lond., L.D.S.R.C.S. Eng. London: Baillière, Tindall, and Cox. 1901. Pp. 622. Price 10*s.* 6*d.* net.

THE present edition of this book is an advance on previous ones. The subject-matter has been considerably increased, new illustrations have been added, and the work all through has been subjected to revision. There is, however, room for further improvement, and in its present form the work cannot be regarded as a thoroughly trustworthy text-book for the student. Many subjects are scantily treated, many points on which stress should be laid in teaching are omitted, and some of the principles laid down are liable to misinterpretation by the student.

The first three chapters are devoted to (1) the Anatomy and Histology of the Teeth; (2) the Development of the Teeth; and (3) the Growth of the Jaws. To the text are added some excellent illustrations, most of which are from photo-micrographs and sections by Mr. Charters White, Mr. Arthur Underwood, and Mr Hopewell Smith. These chapters are the most attractive in the book.

In the section dealing with irregularities in position of the teeth there is much to be desired—the classification is far from being clear; indeed, for the purpose of teaching it is almost useless. The etiology is scanty and the treatment in many places is not in keeping with present-day ideas. There is a decided leaning nowadays, and justly so, to treating irregularities at their early stage by the judicious extraction of teeth, and in many cases of the unerupted premolars. This latter line of treatment has been shown to produce excellent results, especially in that difficult type of irregularity known as superior protrusion. Early treatment, however, does not seem to be approved of by the editors of this book, and the reason is given on page 128—viz., that the operation is somewhat severe and necessitates a rather prolonged anæsthesia, making it, according to them, necessary to administer ether or chloroform, the prolonged method of administering nitrous oxide being apparently lost sight of. To their contention that the cases in which the early treatment is recommended can be remedied by ordinary methods we would point out that the great advantage of early treatment is that a crowded condition of the teeth is avoided and therefore mechanical treatment is unnecessary.

There is an excellent description of caries, with a good number of illustrations. In the section dealing with the artificial production of caries reference is made to the work of Mr. Pound and Mr. Sewill, but hardly sufficient credit is accorded to Dr. Miller of Berlin who was the first to produce caries artificially.

The chapter on the Treatment of Caries lacks lucidity and conciseness, while the classifications of diseases of the pulp and periosteum are meagre and not sufficiently up to date. Considering the large amount of literature which has accumulated around the subject of pyorrhœa alveolaris some reference at least to the more important papers is to be expected. We hardly think that the editors have given sufficient consideration to the investigations of Pierce, Kirk, and others on the question of certain varieties of periodontitis being due to the deposit of urates in the periodontal membrane.

There is an excellent chapter on Morbid Growths of the Teeth and Bland-Sutton's classification of odontomes is adopted. The chapter on Empyæma of the Antrum is good and contains much useful advice on treatment. The value of the book would have been enhanced by a fuller index.

LIBRARY TABLE.

Food Analysis. By HENRY LEFFMANN, A.M., M.D., and WILLIAM BEAM, A.M., M.D. Philadelphia: P. Blakiston's Son, and Co. 1901. Pp. 384. Price $2.50.—The value of a work upon food analysis depends chiefly upon the extent to which that work deals with modern methods. New and more accurate methods appear from time to time—almost day by day—in the scientific periodicals and those who have not access to periodical literature or do not avail themselves of it will be constantly finding out that they are employing methods which are obsolete or methods which give accurate results only after a tedious working. Even those possessing periodical literature on the subject find it inconvenient to seek out what may be new matter upon analytical method. The book before us is intended to help in this direction, being "a concise summary of analytic methods adapted to the needs of both practising analysts and advanced students in applied chemistry." Books of this type, however, need constant revision, so rapid is the advance of analytical chemistry. The authors' endeavour has been to collect most of the valuable matter relating to food analysis which has been published in official papers in the United States. However well they may have succeeded in this the fact that some of these methods though officially recognised in the United States are not so here will detract somewhat from the work as an authoritative guide on analytical methods in this country. The authors admit, however, drawing from the pages of the *Analyst*, the official organ of the Society of Public Analysts and many of the valuable works contributed by the members of that society. The chapter on Milk and Milk Products is much in a line with the very useful work issued conjointly by these authors on this subject some years ago. An admirable chapter on Colours is appended and a list of the colours permitted and forbidden by the National Association of Confectioners of the United States is added. Indeed, this chapter is a novel and valuable feature of the book. With the exceptions mentioned the book should serve as an excellent guide to students who are commencing the work of analytical chemistry as applied to food, and who have, of course, a knowledge of chemistry and of laboratory practice. It has been compiled with care and with the aim of making it a trustworthy source of reference in regard to modern analytical methods.

The Story of Wild Flowers. By Rev. Professor G. HENSLOW, M.A., F.L.S., F.G.S., &c. London: George Newnes, Limited. 1901. Pp. viii.-249. Price 1*s.*—In writing this work the author, to use his own words, has "tried to add something additional by putting life into those dry bones of structure" which generally forms the subject-matter of the ordinary text-book. Evolution is the thread running through the book. A feeling of disappointment was experienced in reading the volume, for the same fault is obvious here which is characteristic of so many popular works on science—that is, too much ground is covered and the facts given are too numerous. One result of this is that as examples many plants are cited which the reader probably will never see and which will, in fact, remain nothing more than mere names. For example, on page 115 may be found descriptions of Hiptage Metablota, Combretum argenteum, and Ipomæa argyræoides. Many writers of books on popular science seemingly lose sight of the fact that the knowledge of the subject possessed by the majority of their readers is practically *nil*, and hence it is difficult to appreciate a large portion of the information given. The facts generally are correct, although some inaccuracies may be found. For instance, on page 16 we find that collenchyma is described as a "hardened cellular tissue." It is doubtful whether botanists will agree with many of the author's interpretations of his facts. Our space is insufficient to enter into a discussion of them, nor, indeed, is it desirable to do so here. A useful appendix is added giving information as regards the place of origin, &c., of some of the commoner garden flowers.

Catechism Series: Botany. Part I. Edinburgh: E. and S. Livingstone. Pp. 88. Price 1*s.*—This work consists of a number of questions and answers, the latter condensed to the smallest possible dimensions: discussion and explanation are reduced to a minimum, prominence being given only to facts. This is obvious when it is remembered that the morphology, physiology, biology, and classification of plants are considered in 88 small pages. The facts are accurate on the whole. On page 14 we notice that Ranunculus ficaria (*sic*) is given as an example of plants which are propagated by means of bulbils which are described as "buds which separate from the parent and develop into new plants on the soil surface." In the description of the crocus corm we notice that no mention is made of the contractile roots. Many portions are inadequately considered, amongst others might be mentioned geotropism and the ascent of sap. In no sense of the word could the work be regarded as a text-book; as a cram-book it may find favour with many who desire to remember a few botanical facts for examination purposes.

Dopes. By NATHANIEL GUBBINS. London: Everett & Co. Price 1s.—After the recent stir made in the racing world on account of certain assertions in reference to the "doping" of racehorses it might naturally be expected that small books or pamphlets on the subject would in a short time make their appearance. "Dopes" is one of these, and its framework consists of a dissertation upon the racing world in general with a chapter thrown in upon "doping." By the term "doping" is understood the drugging of racehorses in such a way that they may be enabled to obtain greater speed for the time being or to last out a race; occasionally too, it is done to depress a horse so that he may not win. The principal drugs used include cocaine, nitroglycerine, various preparations of alcohol, opium, indian hemp, and bromides. It is needless to say that in the hands of the unscrupulous and untrained the administration of noxious drugs often leads to unforeseen and disastrous results. Cocaine in particular is an agent which, even in the hands of skilled veterinarians, has been known to give rise to peculiar and toxic symptoms. Some experiments made a few years ago by Professor Hobday, F.R.C.V.S., showed that even when this drug was used for surgical anæsthesia the idiosyncrasy of the animal was a factor which must always seriously be considered. Similarly with other drugs, overdoses give rise to disaster and the detected "doper" is not a man to be envied. The author of "Dopes" relates several instances which savour suspiciously of drug administration—one in which a five-year-old mare "seemed to go mad, knocked down and seriously injured a gatekeeper, ... and running 'amok' against the wooden fence which abuts on the racecourse, broke her neck." Doping is a criminal offence and, if only by opening the eyes of the general public a little to the rascalities which may be practised in this line, Nathaniel Gubbins may be said to have done something towards the eradication of illegal methods so commonly associated with racing.

New Inventions.

A SAFETY WINDOW-CLEANING APPARATUS.

IN THE LANCET of June 4th, 1898, p. 1543, we gave an account of a window-cleaner's chair invented by Mr. H. Gold and said: "In our opinion there should be no necessity for such an invention, inasmuch as in the interests of humanity local authorities should have the power, if they do not already possess it, of making it illegal for a person either to sit or stand on a window-sill above the ground floor of a building for the purpose of cleaning a window. Until such necessary laws are made, however, we welcome any device which will prevent or minimise danger to life or limb from this cause." The by-laws have been made, but we think that very possibly, like so many other laws made for the comfort and safety of citizens, they are no more enforced than are the laws about rolling casks, &c., on the footways between certain hours, or the laws about street noises. Windows in London must be cleaned; the majority of them are fixed except in a vertical plane and are too high for ladders to reach conveniently. Therefore, although a man may break the law by standing on the sill he will be able to do so without breaking anything else by using Mr. Gold's latest invention. As will be seen from the illustration it consists of a strong adjustable bar which fits diagonally across the window. To this are attached a strong rope and belt. Particulars of the apparatus may be obtained from Mr. H. Gold, 36A, Camomile-street, Bishopsgate, London, E.C.

THE LANCET.

LONDON: SATURDAY, JULY 27, 1901.

The British Congress on Tuberculosis and the Public Weal.

THE meeting of the British Congress on Tuberculosis which is taking place during the present week is being held under as favourable conditions as are possible while the Court is still in mourning and the country plunged in war. Many contend that such a Congress as the one now in our midst is of no practical utility. A heterogeneous gathering *is, they argue, not the place at which the results of serious* work should be brought forward. The tendency, they strongly affirm, is that any scientific paper read has usually been written for the personal glorification of the reader of that paper. Every man, they allege, has his own axe to grind, and wishes to grind it in public. To put the matter in its briefest form, they say it is "all advertisement." Others attack medical and scientific congresses from a different standpoint, but with no less vigour of invective. Science is serious, they remark; congresses are chiefly *social* arrangements which tend to become gigantic picnics, taking in vain the sacred name of Science. We do not agree with either of these views. But there is a substratum of truth in the statements that are so constantly made by the critical, so that it is fitting that we should state what are the benefits which we hope and believe will result from the Congress now sitting in London. This can be done quite briefly. We think that the communications which have been brought forward in the section devoted to the State and municipal aspects of protection from tuberculosis will be of great service to the public. The fact that the highest municipal representatives of some of the chief cities have taken an interest in these matters cannot fail to do good, and we look with the greatest confidence to the local authorities to give practical effect to the teaching which results from the laborious experiments of the men who have devoted their lives to scientific hygiene. To be of real use the knowledge acquired in the laboratory must be applied outside its walls. To do this falls within the scope of the municipalities Without their active help nothing effective can be accomplished, but we may feel sure that all our urban and rural authorities will recognise, after they have read the proceedings at this Congress, that activity in the prevention of tuberculosis will be expected from them, and that their efforts will be generally supported by those beneath their supervision. There are questions in regard to the prevention and treatment of tuberculosis which it is to be feared are still beyond a measurable distance of settlement, but the work of the Congress will, it is hoped, do much to focus the attention of the public on certain important matters which concern their welfare and which depend for fulfilment on themselves alone. A knowledge by the people of the facts concerning the origin and mode of spread of tuberculosis cannot fail to be of use to them. When the facts are appreciated it will ultimately fall on the people to decide whether or not in the public interest all cases of tuberculosis should be notified in the same manner as that which is adopted in the case of some other diseases. Some of the refinements of bacteriological teaching will be regarded by the public as analogous to the theological discussions of the middle ages, and therefore best left to those whose mental constitution finds pleasure in them. This is well. There is no need for laymen to take any interest in such details. What is necessary is that it should be more generally understood that certain facts have been definitely established—e.g., that tuberculosis may be communicated from one person to another; that the infectious matter is capable of being conveyed by the sputa; that light, fresh air, and high altitudes are generally beneficial; that houses should be kept clean and well ventilated; *that well cooked and nourishing food forms a suitable diet*; and that intellectual stagnation is good for no man. If the public in their millions, whether at first hand through the press reports or more remotely from conversation with their fellows, can learn these simple lessons from the Congress, an enormous stride forward in practical sanitation will have been accomplished.

Professor Koch's Address at the Congress on Tuberculosis.

THE remarkable address which was delivered before the British Congress on Tuberculosis at the second general meeting by Professor KOCH cannot fail to attract attention throughout the medical world. And this not merely because of the personality of the speaker, whose presence at such a gathering was singularly opportune—for is it not to his genius that we owe our knowledge of the true nature of this widespread disease?—but because the message which he had to deliver was full of hope in a successful issue of the struggle against this prevailing scourge. Upon such a subject Professor KOCH speaks with an authority which none can dispute, and we may be sure that he would say nothing that was not based upon sound data. Nor does he admit that finality has been reached. With characteristic modesty he details his latest investigations and asks that others should take up this line of inquiry in order that the inferences which he has drawn from them may be confirmed or refuted. If they are confirmed the gain will be enormous, for the measures taken for the prevention of tuberculosis amongst mankind will be restricted within far narrower limits than the results of commissions and the laborious investigations of comparative pathologists have led us to believe that they could be. With this brief reference to the topic which seems to us to stand out prominently from all other parts of this noteworthy utterance we may follow Professor KOCH in his arguments, noting that they are marshalled with the method and enumerated with the lucidity to which all his deliverances have accustomed us.

In regard to its main theme the address was, as we have said, most hopeful, indeed optimistic, in tone. It was the expression of conviction that, now that we clearly apprehend the nature of tuberculosis the lines can be laid down for its prevention and eventual extirpation. No longer considered to be generated, however much it may be fostered, by conditions of "social misery," or to be transmitted by inheritance—except in the rarest cases—it takes rank with many another acquired disease which, like it, is essentially parasitic in nature. But various diseases are, as Professor Koch reminds us, not to be combated by measures of the same type. We must know the etiological circumstances in each one separately and modify our lines of prophylaxis accordingly. We may group them all as infective disorders, but before we can successfully cope with them we must rightly understand in what way they are infective—in other words, by what means the parasite is conveyed to the human being. He cited the cases of plague, cholera, hydrophobia, and leprosy to show how no general set of preventive measures is applicable to check their spread, but that in each the particular mode of transmission has to be reckoned with. Thus human plague, except in its comparatively rare pneumonic forms, is now known to be mainly transmissible from the rat, and no matter how elaborate the measures to prevent infection it will not be stayed if this necessary factor be overlooked. Cholera is mainly diffused through the medium of water-supply and its preventive measures must have the regulation and purification of potable water for their aim. Hydrophobia cannot be hindered from spreading so long as the infected dog is suffered to roam about unmuzzled. Leprosy, in some respects akin to tuberculosis and transmissible from man to man living in conditions favouring close contact, is shown to be scientifically most effectively prevented by the segregation of the worst cases, thus following on the track of the system which in the pre-scientific era led to its banishment from Central Europe and from this country.

With these examples before him Professor Koch next proceeded to inquire into the methods whereby infection of human beings takes place in tuberculosis. We venture to say that if this question had been put to the members of the Congress prior to their listening to this address there would have been an almost unanimous opinion that it was transmitted in two main ways—(1) by inhalation of dust containing tubercle bacilli; and (2) by the ingestion of food-stuffs, especially milk and flesh coming from infected animals. Professor Koch admits the first in its entirety, but he deals a staggering blow to faith in the second alternative. This is so important and far-reaching a view that it demands a thorough reconsideration of the whole question of the transmissibility of tuberculosis from animals to man. Indeed, if Professor Koch be right, time may prove that the labours of one whole department of this Congress have been thrown away and will come to be regarded as an example of misdirected science at the dawn of the twentieth century. Professor Koch reminded his hearers that in his earliest researches he was somewhat sceptical as to the identity of human and bovine tuberculosis. His most recent work has almost, if not quite, changed his doubts into certainties. Our readers can glean for themselves the facts which led him to this conclusion. Summarily they may be said to depend on the experimental test that tubercle-free bovines (and other animals, such as swine, asses, sheep, and goats) are immune to infection—whether by inoculation or in other ways—as far as regards human tuberculosis, but singularly vulnerable to the bacilli of the bovine disease. And he appeals in confirmation of these results to the older experiments of others as to the insusceptibility of cattle to human infection and urges that the inquiry should be taken forward, as we do not doubt it will be on all sides. The German Government has already appointed a Commission with this object. Of course, Professor Koch admits that because bovines may be insusceptible to human tuberculosis it does not follow that the converse is the case, and experiment is out of the question in this respect. But he declared with a boldness which compels admiration, since it runs directly counter to teachings which we have had from all quarters in the past decade, that there is very little evidence of tuberculous infection by way of the intestinal tract. He cited statistics from the Charité Hospital and other hospitals to show the rarity of intestinal tubercle in children apart from pulmonary and bronchial tubercle, and he inferentially led his hearers to believe that all such cases are explicable on the view that occasionally human tubercle bacilli may be swallowed rather than inhaled. But he goes farther and tells the sceptics that their doubts can be set at rest by an appeal to the experimental test. If the disease in the human subject be of bovine origin, then the cultures of bacilli from its foci will transmit the disease to a bovine inoculated with it: but if it be of human origin this test will yield a negative result. Here then we have a clear issue and one which, in the interests of the community, as well financially as socially, will, we hope, be definitely determined before long.

Setting aside this question of transmissibility from animals, which we consider more in detail in the article which follows, there is ample scope for preventive medicine in checking the ravages produced by infection through the ordinary channels. Professor Koch shows us how closely this subject is linked with that of the housing of the poor; how under the prevailing conditions of overcrowding in great cities the means for infection not only of families but of dwellings are only too clear; and he paid a well-merited tribute to the work set on foot in this direction by Dr. Hermann Biggs of New York. He also pleaded for more special hospitals, or, at least, for special wards for consumptives, and attributed much of the decline in the disease in this country to the fact that we have so many of these institutions. Notification, disinfection, and the dissemination of knowledge of the nature of the disease amongst the people were other measures from which he hoped much good to accrue, whilst he bade the Congress not to be too sanguine as to the results to be expected from sanatoria, although he said enough to show the value of their work in limiting foci of infection and in increasing the proportion of recoveries of those attacked by the disease. All must feel that this address was worthy of the occasion and of the eminent leader in epidemiology by whom it was delivered.

Professor Koch and Tuberculous Milk and Meat.

"Though the important question whether man is susceptible to bovine tuberculosis at all is not yet absolutely decided, and will not admit of absolute decision to-day or to-morrow, one is nevertheless already at liberty to say that, if such a susceptibility really exists, the infection of human beings is but a very rare occurrence. I should estimate the extent of infection by the milk and flesh of tuberculous cattle and the butter made of their milk as hardly greater than that of hereditary transmission, and I therefore do not deem it advisable to take any measures against it."

Already, before these memorable words of Professor Koch could be published in The Lancet, they had carried solace or given rise to astonishment, and even incredulity, in most parts of the civilised world. Their effect it is at present impossible to estimate. If they are true there would seem no reason, *quâ* tuberculosis alone, why we should not consume raw tubercle-riddled udder and give to our children milk drawn from similar sources. The truth, however, must survive, and it remains for us to decide wherein is truth. It would have been difficult for our distinguished and honoured guest to have chosen a more fitting or a more dramatic occasion for his remarkable announcement, seeing that not a little of the labours of the State Section of the Congress is concerned with the control of our milk and meat supplies. Accustomed as we are to accept the researches of Professor Koch almost without demur, we feel, nevertheless, a little staggered by the directness and conclusiveness of the statement which prefaces this article. That statement has for its support much evidence; and the results of a series of experiments performed by Professor Koch and by Professor Schütz of the Veterinary College in Berlin during the last two years are calculated to make us pause. Briefly stated, they are as follows. Two series of young cattle were taken and tested with tuberculin and were concluded to be free from tubercle. The members of one series were inoculated with, and made to inspire, bovine tubercle, those of the other series were infected with tubercle of human origin. The first series was attacked by tuberculosis and the second remained free. Similarly an analogous experiment was made with two series of swine and almost identical results were obtained; but there is this exception—a straw indicating something—"here and there little nodules in the lymphatic glands of the neck, and in one case a few grey nodules in the lungs" were found. Asses, sheep, and goats, into the vascular system of which the two kinds of bacillus were injected, behaved in the same manner as bovines.

Professor Koch's address is published in full in our columns and we feel sure that all will agree with him that "it seems very desirable that these experiments should be repeated elsewhere in order that all doubts as to the correctness of my assertion may be removed," and it is clear to us that the duty devolves forthwith upon the Government of this country. If Professor Koch's experiments are confirmed, and those who confirm them are able to draw similar inferences therefrom, a very marked change must occur in our methods of sanitary reform. If we can, according to Professor Koch, consume bovine tubercle with impunity it is clear that much meat and milk have been wasted. In this country alone there have recently been two Royal Commissions upon the question of tuberculosis. One Commission decided, upon experiments done at its instigation by Dr. Sidney Martin, Professor Sims Woodhead, and others, that the inference was justified that danger attached to the consumption of tuberculous milk and meat; the other laid down some useful precautions arising out of these inferences. According to Professor Koch the inferences are unsound, as also are the deductions based upon the behaviour of tabes mesenterica in infants and the conclusions as regards the accidental inoculation by bovine tuberculosis of persons engaged in the care and slaughter of tuberculous animals. These cases are recorded by Professor Nocard of Alfort, a delegate from France to the Congress, in his work on "The Animal Tuberculoses and their Relation to Human Tuberculosis." But assuming the series of experiments which were performed by Professor Koch to have been in every way satisfactory, are the inferences which some will draw therefrom justified? Is it safe, in view of the serious consequences at stake, to assume that, because human tuberculosis is not communicable to bovines, the converse of the proposition—that bovine tuberculosis is not communicable to man—holds good? For our part, we must hesitate to affirm the proposition. The well-known difficulty of the communicability of small-pox to bovines and other similar phenomena must make us critical, as also must the fact that in inoculating human tuberculosis into bovines we are inoculating with a virus possessing a lower degree of virulence than is possessed by bovine tuberculosis. Is it, too, established beyond a doubt that pulmonary tuberculosis is always air-borne? These points and many others were raised by Lord Lister after Professor Koch's address in a manner worthy of the highest traditions of English science and courtesy. We possibly incline to the view that the harm wrought by tuberculous meat has in the past been a little exaggerated by certain medical officers of health, but to pass from this to what amounts to a negation of any harm from tuberculous meat or milk is a somewhat heroic stride, and, as Lord Lister remarked, it is "a serious matter if the conclusion be wrong." How serious in the direction of putting back reform in our meat and milk traffic, those who are familiar with the excuses of sanitary authorities for a policy of inactivity can judge.

Lord Lister's advocacy of caution was entirely endorsed by such observers as Professor Nocard, Professor Bang, and Professor Sims Woodhead. But their criticisms, though weighty, are under the circumstances insufficient. On all sides our medical officers of health will be met with the difficulty which has been raised, and with sanitary authorities, as doubtless with magistrates, the utterances of Professor Koch will carry, as well they may, a weight which nothing but a repetition and extension of the experiments in question can affect. We therefore trust that the British Congress on Tuberculosis, which has opened under excellent auspices and from which much is expected, will make it one of its duties to press upon the Local Government Board and the Board of Agriculture the enormous importance of at once acting upon Professor Koch's generous and thoroughly scientific suggestion that his results should be forthwith checked. In our view the Congress will fail in its duty if, after having been largely responsible for raising this great issue, it neglects at least to instigate the Government towards a speedy solution of the matter.

Annotations.

"Ne quid nimis."

THE FIRST REPORT OF THE ROYAL COMMISSION ON ARSENICAL POISONING.

WE regard with satisfaction the decision of the members of the Royal Commission on Arsenical Poisoning to report their proceedings from time to time and to summarise in a series of reports the conclusions at which they have arrived from evidence already at hand. The first report has just been published and relates chiefly to that part of the subject—viz., arsenic in beer—which first gave rise to the expediency of a Parliamentary inquiry being instituted to examine into the whole question of arsenical contamination of food. We approve this course strongly, especially in the present instance, even at the risk of some of the conclusions being premature, for the recent epidemic of poisoning by beer was a most serious occurrence and such as naturally caused considerable alarm. It was the obvious duty of the Government to allay this alarm without delay, to check the evil, and to prevent its recurrence. But as a matter of fact, as the commissioners in their first report acknowledge, when beer was discovered to contain arsenic steps were immediately taken by brewers and by sanitary authorities to ensure that this arsenical beer was withdrawn from sale, and this was done usually with commendable rapidity and as a result the epidemic came speedily to an end. Such a satisfactory termination was evidence of an intensely practical kind that—to adopt in part the phraseology of the terms of inquiry of the commission—(1) the amount of recent exceptional sickness and death was attributable to poisoning by arsenic, and (2) that such exceptional sickness and death were due to arsenic in beer. The Royal Commission, after hearing the evidence of over 50 technical and expert witnesses, have, of course, come to the same conclusions. Their duties, however, by no means cease here. They have yet to consider the apparent ubiquity of arsenic, by what safeguards the introduction of arsenic into foods and countless other things besides beer can be prevented, and whether it is practicable to keep out arsenic altogether or if not to decide what amount of arsenic in food may be safely regarded as negligible, and what methods of analysis may be relied upon to determine such limitations Thus there are many important points left for future determination and this is frankly acknowledged in the first report. The Royal Commissioners propose to make further inquiry into the relative value of quantitative tests, and in the case of beer as to the possible existence of arsenic in it in some combination with organic matter which defies detection by the ordinary tests. They hope also to obtain further facts in regard to the many important medical and toxicological aspects of the epidemic, and by inviting the coöperation of public analysts throughout the country, and in other ways, to obtain further information with regard to arsenic in articles of food and drink other than beer. Further inquiry also must be instituted before a standard test, should it be decided to impose one, can be recommended. Lastly, it is evident that amendments in regard to administrative measures have to be considered, not only with reference to the question of arsenic in beer, but also in relation to the broader question of the machinery available to public health authorities to obviate the risk of arsenic or other poisonous substance gaining access to articles of food and drink in general. At present it is impossible to make final recommendations upon this important general question. The commission, however, think that as a provisional measure the machinery under the control of the Board of Inland Revenue might effectively be turned to account to check the introduction of arsenic into beer by way of its ingredients. To this end they recommend that the Board of Inland Revenue should possess, and should exercise, powers to specify in detail those individual ingredients of beer which are liable from their origin or mode of preparation to be contaminated by arsenic; to prescribe for all such ingredients, and for the different materials used in their preparation, an adequate test which should ensure their freedom from arsenic; and to prohibit under penalty the use in a brewery of any material which infringes the prescribed test. Dr. B. A. Whitelegge demurs to the wide terms of this recommendation, since, as he points out, they include the more remote materials which are not to be found in the brewery or in the sugar factory—such, for example, as the fuel which has been used in the malting. There is much to be said in favour, we think, of limiting this control to ingredients actually coming into the brewery which excise officers can sample and submit to the Government laboratory for analysis. A certificate of analysis from the vendor, it is well to remember, would only be a guarantee of the particular parcel of fuel from which the sample was taken. Clearly, if the kiln-dried malt is free from arsenic the fuel used for the purpose must have been free from reproach. The Royal Commission have begun their work well. They have yet many vexed questions to elucidate which will need considerable patience and considerable work, but their first report leads us to look forward hopefully to a satisfactory conclusion being arrived at as far as is possible having regard to the great number of knotty points which the inquiry involves.

THE "DOPING" OF RACEHORSES.

IN another column we have briefly reviewed a small work on the above subject which has recently been published for the lay reader. "Doping," or drugging, is supposed to be done to a much greater extent in America than in England, but in either country it can only be practised at racecourses where the rules are lax or the morals are of the lowest possible kind. For temporarily increasing the speed stimulants containing ether or alcohol used to be given, but these are difficult to administer without detection and have now been almost entirely superseded by the hypodermic use of cocaine. The effect of the latter upon horses and dogs has been made the subject of numerous experiments by Professor Hobday, F.R.C.V.S., a leading article on whose work (published in the *Journal of Comparative Pathology and Therapeutics*, vol. viii., p. 20, and vol. x., p. 80) appeared in THE LANCET of August 31st, 1895, p. 533. This observer found that in medicinal doses cocaine acted temporarily as a strong stimulant to the muscular system and this was well exemplified by the use of hypodermic injections in cases of chorea; in dogs affected with this troublesome disease the twitchings disappeared entirely whilst the drug maintained its influence, but the after-effect was bad, the patient being perceptibly weakened. After large or over-medicinal doses both horses and dogs became very much excited and quite frantic, it being impossible permanently to keep the subject still. This stage of hyperæsthesia is the one which the "doper" wishes to avoid, for until the effects began to pass off, it would be quite impossible for the movements of the racehorse to be controlled. Besides, the wild appearance of the eye, the curious twitchings of the muscles, even if the animal was brought to a standstill, would at once give rise to suspicion. That the "doping" of racehorses is wrong in principle goes without saying, as from no point of view can it be defended. A horse should win entirely upon its own merits without the aid of artificial stimulants, quite apart from the bad after-effect which such drugs have upon the system when they are frequently used. In addition to the drugs which stimulate the use (generally for dishonest purposes) of those which depress or narcotise must not be overlooked. Of these opium and bromides are the most common, or even a dose of purgative medicine may be resorted to. The "doping" of racehorses is a crime which is punishable by law in addition to the social ostracism which would inevitably follow detection of the persons who used such means, and it is a practice which we are thankful to say cannot be considered at all common in our country.

THE SALE OF INTOXICANTS TO CHILDREN.

IT can hardly be doubted that the great majority of persons who have really given their attention to the subject are agreed that the Bill to prevent the sale of intoxicants to children should find its place in the statute-book. There is no question that children are employed in fetching liquor from licensed houses a great deal more than is advisable for their own good. Accurate statistics are hardly necessary to assure us of this fact, but recent evidence of this kind, if it be desired, is not wanting. In a letter published in the *Times* of June 4th the Marquis of Northampton quoted details of a series of observations bearing on this point. These included the following. On a Saturday between 9 P.M. and midnight 200 public-houses in four districts of London were under observation and a total number of 7019 children were seen to enter them. A respectable house in a quiet street was seen to be entered within the same hours by 26 children and 225 adults. A low-class house during the same hours was visited by 201 children and 1282 adults. These particulars may be regarded as illustrative of Saturday evening trade in London. In another town of 117,000 inhabitants 12,000 children were seen to enter licensed premises on a Saturday during four consecutive hours. The figures relating to one house observed during the seven legal hours on a Sunday are even more remarkable. The number of adults entering was 2558; that of children was 1365. Of the latter 706 were noticed to enter between 1 P.M. and 3 P.M. and 369 between 7 P.M. and 9 P.M.—that is to say, about the times when beer would be in demand for the family meals. Children according to the terms of the new Bill are young persons under 14 years of age. The statistics just quoted refer as nearly as could be judged to young people under 16 years of age, the average being 10 years. Where there appeared to be reasonable doubt as to the age the child was not counted. The Standing Committee of the House of Commons which is now occupied with this subject held a meeting on Friday, July 19th. As regards the expediency of the Bill itself no question was raised, but an amendment was moved in the name of Sir Lewis McIver to allow the sale to children of liquor in corked or closed vessels. This was carried by a majority of one. A further amendment moved by Sir W. Houldsworth to substitute the words "corked and sealed" for "corked or closed" was also adopted. There appears to be some ambiguity here in the proposed wording of the Bill which it is highly desirable to have rectified. A corked and sealed vessel is a definite object enough, a "closed" vessel might be made to denote almost any kind of receptacle. It might be a jug with a moveable lid or a pot covered in with paper. In either case the proper object of the Bill—namely, to remove from children as far as possible the temptation to help themselves to an intoxicant—would be virtually set aside. For this reason we trust that if the amendment is to stand as part of the Bill any existing uncertainty will be entirely removed and that care will be taken to have any vessel carried by a child properly corked and sealed. It is also to be remembered that much of the good which the Bill is intended to do will be done away with if its wording is not so framed as to require that children shall not be served at the ordinary bar but in a separate department. "Sipping" which some affect to scoff at, though it must often have led to freer indulgence, is only a part of the evil which it is sought to remove. The atmosphere of a bar-room with its frequently rowdy associations can hardly fail to exercise a mischievous effect on young people at the most impressionable period of life. But what, after all, is the practical value of this amendment in favour of the off-licence? To us, indeed, it appears to give little promise of practical utility and we should not be sorry if it were excluded. It is almost certain that the great majority of children who enter public-houses are sent, not for liquor in bottle, but for dinner or supper beer or for small quantities of spirits. It is difficult to see, therefore, what the amendment will do even for public convenience. There might, perhaps, arise an occasion, such as an emergency of illness in which no other messenger but a child was obtainable. In most cases of this kind, however, some adult neighbour would usually be at hand and the services of such a one would certainly be preferable. With the possible exception of such an occasion for which a special arrangement might be made we cannot see where the necessity should exist for the employment of children at all as carriers of liquor. We have noted that the limit of childhood for the purposes of the proposed Act is 14 years. We hope to see this age raised to 16 years. No hardship would be thus inflicted, and we believe that a fairer standard would then be realised of the period at which independent responsibility should be recognised.

CÆSAREAN SECTION THREE TIMES IN THE SAME PATIENT.

IN the Journal of the American Medical Association of June 29th Dr. J. W. Coakley has published the following remarkable case. A woman, aged 30 years, was in labour on August 3rd, 1893. In two preceding labours craniotomy had been performed for contracted pelvis. The conjugate diameter was two and a half inches. An incision was made in the abdominal wall from four inches above the umbilicus to two inches above the pubes. The peritoneum was opened and the uterus was lifted outside the abdominal cavity. A rubber ligature was passed around the uterus to prevent hæmorrhage. An incision four inches long was made into the uterus and the child was removed with the membranes intact. The uterine and parietal wounds were sutured. Recovery was uninterrupted. The patient was again in labour at term on July 27th, 1895. The placenta was attached near and over the os uteri. Cæsarean section was again performed: the cicatrix of the former operation was cut through and the wall of the uterus was found to be very thin. The membranes were ruptured and the child was removed. The placenta was removed and the adherent portions of the decidua were separated. Recovery was again uninterrupted. In February, 1900, the patient was in the eighth month of pregnancy. She was in poor health; the urine was loaded with albumin and there were headache and other symptoms of renal insufficiency. Labour began on March 2nd, but Dr. Coakley was absent and could not operate until the following day. On cutting through the abdominal wall at the side of the old cicatrix the peritoneum was found adherent to the uterus and also to the abdominal wall.

The adhesions were broken down and the uterus was lifted out of the abdomen. Dr. Coakley did not on this occasion pass a rubber ligature around the uterus, having abandoned the procedure on the ground that if tight enough to control the hæmorrhage the ligature would injure the uterus. In 13 minutes the operation was completed except for the tying of the abdominal sutures. Recovery was rapid, the only complication being a temperature 1·5° F. above normal on the fourth day. On the twentieth day the patient was removed to a house three miles distant.

THE CHEAP PISTOL.

THE *Times* of July 22nd contained a report of the inquest upon a youth, aged 19 years, who had committed suicide, after expressing in shorthand upon the margin of a novel by a popular lady author his approval of a phrase which he had found in the mouth of one of her characters that "suicides have no souls." On what grounds suicides were to be thus distinguished from their fellow-men does not seem to have been discussed either by the lady novelist or by Harold Paris, but the boy, having been apparently impressed by the profundity of an observation which seems to us meaningless, and having resolved to die in the company of a penny novelette and "The Romance of Two Worlds," found no difficulty in providing himself with a suitable weapon. Had he tried to drown himself or to stab himself to death his resolution would possibly have failed him—had he tried to buy a sure but painless poison he would have encountered difficulties in making the purchase; but a postcard found among his effects showed that a Birmingham firm was able to supply him with a pistol for the sum of 3*s*. 3*d*., and it may have been, although it was not so stated at the inquest, that the 50 cartridges also possessed by him were bought at the same time and included in the same payment. The sale of cheap revolvers from time to time engages the transitory attention of Parliament, but the House of Commons shrinks apparently from interfering with the maker of cheap pistols, whether at home or abroad, and with a trade that is practically confined to toyshops. It has often been pointed out that a tax that would hardly affect, or which could be remitted from, the more expensive revolver used in warfare would entirely shut out of the market the gimcrack weapons that are now a source of danger to their usually youthful owners, to the friends of those young persons, and to innocent persons residing in their neighbourhood. Not a week passes but we see, not perhaps an account of deliberate murder or suicide by shooting, but an account of a pistol accident, or a wound inflicted in a quarrel by some young rowdy on some person against whom he has had a grudge or who has been passing by when he chose to fire or when the pistol went off in his irresponsible hands. Many more such cases are, no doubt, hardly reported or heard of; the calendar, however, of charges at the Old Bailey, published on the same day as the newspaper to which we have referred, contains two cases of attempting to murder with the pistol and, without doubt, it would be pretty safe to wager that the value of the two weapons alleged to have been used will not be found to amount to a sovereign. Can a trade which supplies these always dangerous, sometimes deadly, weapons be worth protecting? It is true that murders and suicides are perpetrated with the help of knives, razors, hammers, drugs, and other inanimate agents, but all these have uses of their own which are obvious and their abuse cannot altogether be prevented. The cheap revolver has no use. It is not a sporting weapon, it is of little or no effect as a protection against violence, while the householder who believes that he needs some such protection could afford to pay the tax on revolvers that we have contemplated and to purchase at the same time a superior weapon, although we must add that, as a rule, revolvers are more dangerous to the occupants of the house than to the intrusive burglar. Skill in the use of the toy pistol is not a prelude to skill with a weapon of use in war, for the schoolboys who buy toy pistols do not cultivate their aim by practice at marks, and revolvers are of little or no use in modern fighting. Such weapons as that with which the boy of whom we have written killed himself are simply dangerous and their danger is not confined to those who use them and to the circle of their friends and playmates—it is shared by those who have no acquaintance with the person who causes the discharge. As a means of committing suicide the cheap pistol has the merit of not being infallible, but it attracts by its reputation for causing a speedy death and possibly by its association with the phrase "blowing his brains out," which figures largely in the literature that the brainless peruse.

THE HEALTH OF CANNES.

THERE has been a good deal of typhoid fever all along the Riviera from San Remo to Marseilles during the last two or three years and it is very interesting to note how, having spared Cannes so long, an epidemic has at length declared itself at that place. There are four factors to be considered as influencing the sanitary condition of Cannes—(1) the water-supply, (2) the main drainage system, (3) the floricultural industry with its incessant irrigation and manuring, and (4) the turning up of considerable areas of earth. As regards the water-supply Cannes has a supply of most excellent water which comes straight from the limestone hills above Grasse some 30 miles away. Unfortunately it is brought in a canal which is practically uncovered and passes through or near many villages or farms from which fæcal pollution is quite possible. For more than 20 years the English medical men at Cannes, supported by one or two of their most scientific and far-seeing French colleagues, have been pressing upon the town council the necessity of either covering in this canal or making another for supplying the town with pure drinking-water in pipes. They have so far succeeded that a plan is now before the town council for bringing a supply of pure water in pipes from the river Loup which is not very far from Cannes and the water of which is beyond suspicion. But, as usual, there are many members of the council who are unwilling to spend money except for additional amusements, or theatres, or a casino, or ornamental buildings, or advertisements which they suppose will attract strangers to Cannes. The main drainage system which was undertaken by the town council under great pressure from the English residents and medical men, has never been completed. The intercepting drain, which was to have been furnished with powerful pumps and to have conveyed the sewage to be discharged into a deep current of the sea at a safe distance from the town, has never been made; the various collecting drains therefore discharge into the bay of Cannes at a short distance from the shore. There is, too, no proper supervision of the junction of house drains with the main drainage system. The natural vegetation of Cannes and the Riviera consists of olives and fir trees. These flourish with comparatively little water. They are gradually being used up for fuel and their place is being taken by florists' flowers which now form the chief industry of the coast and which require constant irrigation and manuring (partly with human excreta, the contents of cesspools, and the like). All along the Riviera during the last few years there has been a great deal of earth-turning and road-making which has brought to the surface much sewer-tainted earth, and this seems to have opened the door in some way to the epidemic of typhoid fever. The construction of roads and sewerage at Mentone was followed by the outbreak of typhoid fever.

The making of new roads and houses at San Remo was accompanied by typhoid fever from which two of the English medical men suffered. At Antibes the old fortifications were levelled and typhoid fever appeared; at Nice the excavations for the large hotels, the new drainage, and the railway to Grasse were followed by a great outbreak of the disease; and now at Cannes where a large surface of sewer-polluted land has been turned up for the railway works and the building of the Palais de Justice this outbreak of typhoid fever takes place. About 20 years ago the Crédit Lyonnais made an immense boulevard from Cannes to Cannet and a large area of earth had to be upturned and at that time occurred the last epidemic of typhoid fever. With regard to the immediate cause of the present outbreak the French medical men are divided. One party declare that the fever is nothing, that it is not typhoid, and that it cannot be due to water pollution and will not allow that money should be expended on such useless improvements as drains and waterworks; the other party, more broad-minded, think that they have traced the outbreak decidedly to the water-supply and are doing their best with their foreign *confrères* to hasten the completion of the new drinking-water canal Probably the epidemic has been led up to by various circumstances and conditions which are common to the whole Riviera. The effluvia which have been constantly at work from the use of human excreta for manuring the plants, from the turning up of sewer-polluted ground, and the smells from the badly kept dairies have reduced the power of those exposed to them to resist any typhoid poison. This poison has been supplied either through the drinking-water or by the eating of uncooked vegetables and fruit which have been watered with human excreta, or perhaps by typhoid germs blown from the innumerable establishments of horticulture which poison the beautiful air of the Riviera in all its most desirable quarters. Cannes would be the healthiest town on the Riviera if only—(1) the drinking-water could be conveyed in pipes; (2) the main drainage could be finished and the pumping machine brought into use as proposed; (3) the dairies could be properly supervised and the stalls kept cleaner; and (4) proper laws could be made to regulate the manuring of the floricultural establishments: (*a*) as to the hours during which the manures might be applied; and (*b*) as to the covering of the manure with earth or mixing it with disinfectants when it is applied

THE DISTRIBUTION OF PLAGUE.

A TELEGRAM from the Governor of Cape Colony, received at the Colonial Office on July 18th, states that for the week ending July 13th the cases of plague at the Cape were as follows: Malays, 2; native, 1; Europeans, coloured persons, Indians, and Chinese, 0; total 3. There were no corpses found. The deaths are as follows: 2 occurred among Malay and none among other nationalities. The total cases of plague up to July 13th were: Europeans, 185, coloured persons, 330; Malays, 61; Indians, 11; Chinese, 1; natives, 142; total 730. The total deaths for July 13th numbered: Europeans, 43; coloured persons, 175; Malays, 44; Indians, 9; Chinese 0; natives, 61; total, 332. At Port Elizabeth the cases for the week ending July 13th were: Europeans, 1; coloured persons, 1; natives, 3; total, 5. One coloured person died. The total cases to July 13th were: Europeans, 7; coloured persons, 5; Indians, 1; Chinese, 1; natives, 14; total, 28. The total deaths numbered 10, and the total cases of plague at all other places were 10, of which number 5 were Europeans. A second case of plague in an Indian from the remount camp at Port Elizabeth has occurred among persons under naval and military control and the area of infection remains unchanged. A telegram from Mauritius, received on July 19th, states that in the week ending July 18th a fatal case of bubonic plague occurred. As regards Egypt, for the week ending July 14th only 3 cases of plague and 1 death from the disease have occurred throughout all Egypt. Zagazig furnished these cases. The present situation with regard to the plague in Egypt may be considered extremely satisfactory, and we trust that before long the disease will have completely disappeared. The disinfection and cleansing of the towns infected, it appears, are being thoroughly carried out. In Hong-Kong for the week ending July 20th there were 13 cases of plague reported and 16 deaths.

THE PROPOSED LEGISLATION ON BAKEHOUSES.

OF course it is to the interest of the public at large that the bread which we consume should be made in clean and wholesome bakehouses, but some consideration should also be given to the comfort and health of the journeymen bakers who are engaged in kneading our daily supply. It is possible, though perhaps not very probable, that an underground bakery may be quite clean and that there may be no open drain in its immediate vicinity. On the other hand, the efficient ventilation of an underground bakery must be a matter of great difficulty and the room is not likely to be sufficiently lofty. The insanitary conditions of such bakehouses were described and denounced in a report by our Special Commissioner which was published in THE LANCET of Nov. 30th, 1889, page 1140. We then also stated that the secretary of the Journeymen Bread and Biscuit Bakers' Pension Society informed us that 14 out of 18 men, then receiving pensions, were more than five feet eight inches in height. This was no exception but the general rule. A short man's head would be in the line of the draught going to the oven furnace. A tall man's head would be above this draught and nearer the ceiling where the vitiated air stagnates. In view of this circumstance there should be apertures or ventilating shafts along the ceilings. In any case the bakehouses should be lofty so that even tall men would not respire from the layer of vitiated air. Naturally, it is much more difficult to obtain such conditions in a cellar than in a bakehouse built above ground. The other disadvantages of underground bakehouses are better known and appreciated by the public at large and have been often denounced, so that altogether there can be no question but that their total abolition would be a great boon to the public in general and to the journeymen bakers in particular. We are therefore pleased to note that the Government Bill to amend the Factory and Workshop Act proposes in Clause 28 that after Jan. 1st, 1904, underground bakehouses shall not be used unless certified by the district council as suitable for that purpose. "Underground" is defined as a room with a floor that is more than three feet below the level of the roadway, but even such bakehouses will not be abolished if they obtain a certificate. The worst of this enactment is that its success depends on not only the energy but also on the technical knowledge of the district councils. If such a matter is left to their discretion, many abuses, we fear, will still survive and there will be no uniformity. A committee of experts should draw up model plans, giving illustrations of typical cellar bakehouses and showing how these can be altered in a satisfactory manner; for it seems to be the opinion of the framers of the Bill that this is possible. Certainly, we can conceive that a bakehouse which has its floor four feet instead of three feet below the level of the street might be fairly ventilated and healthy if the wall, or rather the ceiling, was six feet above the street. In these six feet of space above ground, four feet of which would be above the head of a tall man, a thorough draught might be established and effective ventilation secured. But will all the district councils be technically capable of securing these advantages, unless they are taught and stimulated to take energetic action by a more competent central authority? In any case, some good will undoubtedly result, though its extent will vary in different places, according to the intelligence and activity of the local authorities. Yet an attempt was made to delay even this measure of reform, and it was proposed that Clause 28 should not be applied till Jan. 1st, 1906. Fortunately, Mr. John Burns energetically opposed such adjournment, and quoted some of THE LANCET reports to show how great were the existing evils. Sir Henry Fowler and other members of the Grand Committee of the House of Commons, we are pleased to see, supported Mr. Burns, and finally Mr. Ritchie declared that he would adhere to the date originally proposed—namely, Jan. 1st, 1904.

EQUINE SUN-BONNETS.

THE use of the sun-bonnet as a head covering for the horse during the intense heat of summer is much more noticeable this year in our streets than it has been previously. The idea is unquestionably a good one and, although it was very much ridiculed some two years ago when it was first introduced, it has undoubtedly come to stay. Several of our great omnibus companies and the owners of other large studs have adopted them universally, and the general consensus of opinion is that cases of sunstroke and heat apoplexy are of much less common occurrence in consequence. In devising a sun-bonnet there is no need to carry the idea to an absurd point; what is really needed is a covering slightly raised from the head which will protect the poll and base of the brain from the direct rays of the sun. The ears should be left free, and ribbons and tassels, although perhaps adornments, are not a necessity. Straw seems to be the favourite material, but we have seen several very good patterns made up of light calico spread over a wire framework. As equine sun-bonnets can be obtained for as small a sum as 2¾*d.* (with a probable reduction on taking a quantity) the cost is not prohibitive and there is no reason why the coster's donkey should not be as effectually protected as the gentleman's carriage-horse.

ANKYLOSTOMIASIS.

MR. C. LE NEVE FOSTER, D.Sc., F.R.S., in his report just issued for 1900 as His Majesty's Inspector of Mines for the North Wales, &c., district, makes the following interesting allusion to this disease: "When I learnt that the company owning the Frongoch mine in Cardiganshire had imported a number of Italian workmen it occurred to me that they might unwittingly be the means of introducing ankylostomiasis, or miners' anæmia, into this country. I at once put myself into communication with the mine doctor, who reported to me that certain of the men were unwell, and possibly suffering from this disease. I obtained samples of their evacuations, and with your permission transmitted them to Dr. Malvoz, of the Bacteriological Institute, Liége, who has had much experience in searching for the obnoxious parasite among miners in his own country. I was glad to learn from him that, after careful investigations, he had come to the conclusion that the men were free from the disease. Though there is little chance of the eggs being hatched and the disease being propagated in the comparatively cold workings of Frongoch it is quite possible that infested foreign workmen may go into other mines which afford such conditions of warmth and dampness as are necessary for hatching the larvæ. Here there would be danger and seeing the havoc which the malady has caused among miners on the Continent it is well for the British employer to be on his guard. For my own part I would not employ a foreign workman below ground in a warm and damp mine until I had satisfied myself by a simple microscopical examination that he was free from the troublesome worm. It is in no spirit of hostility to Italian workmen that I make this remark. I lived among them for three years and know from experience that many of them are hard-working and excellent miners; it is, moreover, to their own advantage to be freed from the troublesome intruder and there is no reason why they should not be employed at the surface until the mine owner has satisfied himself that they are clear of it." The importance of the ankylostomum duodenale is very great for the anæmia to which it gives rise is extremely severe and often fatal. In countries in which it is endemic a very large proportion of the inhabitants are affected, and Dobson found it in India in the stools of 75 per cent of persons to whom he had administered thymol and it is said to be discovered in the intestine at nearly every post-mortem examination in Egypt. The disease, according to Cobbold, is not endemic in this country and therefore every effort should be made to exclude it. Fortunately we have in thymol, if properly administered, a very efficient means of treatment, though it must not be given with any liquid which will dissolve it, for otherwise severe symptoms of poisoning occur.

FEVER IN SYPHILIS.

IN syphilis fever of such degree as to attract attention seldom occurs, but the subject is well worthy of investigation. The *New York Medical Journal* of June 22nd contains an important paper by Dr. Thomas B. Futcher, which includes descriptions of three cases from the clinic of Professor Osler in the Johns Hopkins Hospital. Syphilitic fever may occur—very rarely—three or four weeks before the secondary eruption. It may precede or concur with the secondary eruption. This is the so-called "fever of invasion" and is a common and important symptom of secondary syphilis. Finally, fever may occur at any time during the secondary or tertiary stages. The "fever of invasion" is rarely absent at the onset of the secondary symptoms. It usually precedes the eruption by a week or 10 days and is accompanied by headache, malaise, and general pains. It may be moderate, not reaching 101° F., or the afternoon elevation may be as high as 104° or 105°. The pyrexia may be of a continuous, remittent, or intermittent type. Case 1.—A married woman, aged 34 years, was admitted to hospital on Sept. 28th, 1900, complaining of abdominal pain which had begun three weeks before. On the previous night she had a rigor which was followed by sweating. On Sept. 29th and 30th the temperature ranged between 98·7° and 101° F. On Oct. 1st a pelvic abscess, which possibly was the cause of the fever, was evacuated per vaginam. The temperature failed to fall and on Oct. 4th, after a rigor and profuse sweating. it rose to 104·2°. There was slight erythema. One of the acute exanthemata was thought to be developing. The temperature fell slowly and had not reached normal before another febrile exacerbation occurred (on Oct. 6th), 105·5° being reached. It fell rapidly and reached normal on Oct. 7th A third exacerbation took place on the 9th and a fourth on the 14th. From this time the temperature gradually fell, but there were slight evening elevations. No cause for the pyrexia could be found in the pelvis or elsewhere. The character of the fever suggested æstivo-autumnal malarial infection, but repeated examinations of the blood failed to show parasites. The spleen was palpable, but Widal's reaction was negative. As the temperature was elevated only about 1° every day the patient was discharged practically well on Oct. 21st. She returned on the 30th with a macular and papular syphilitic eruption. Inquiry showed that her husband had been under treatment for a chancre on August 11th and that he had a syphilitic eruption on August 27th. No history of primary sore in the patient could be obtained. It is noteworthy that the eruption did not appear until practically four weeks after the onset of fever and when the temperature had subsided to normal for some time (A similar case was recorded by Dr. Burney Yeo in the *British Medical Journal* in 1884 (vol. i., p 317) The patient had fever ranging as high as 104° or 105° F., with daily oscillations of 5° or 6°, which began from 25 to 30 days after exposure and from three to four weeks before the appearance of the secondary eruption.) Case 2—A man, aged 39 years, was admitted to hospital on August 8th, 1894, complaining of pains all over the body. For three weeks he had felt feverish and had been unable to work. For a week he had had nausea, vomiting, and diarrhœa. The spleen was felt four centimetres below the ribs. Examination for malarial parasites was negative. The temperature at 8 P.M. was 103·4° F.; it ran a remittent or intermittent course, being 102° or 103° in the evenings. Typhoid fever was prevalent and the case was treated as such. On Sept. 12th it was noticed that both clavicles towards their sternal ends were remarkably thickened and bowed. The patient said that he had had a sore on the prepuce. Iodide of potassium was given in 15-grain doses thrice daily and the dose was gradually increased. The effect was striking. From Sept. 13th the temperature gradually fell. On the 16th it became normal and so remained The patient was discharged on Oct. 18th feeling well. Case 3—An unmarried man, aged 57 years, was admitted to hospital on August 24th, 1892, complaining of chills and fever. He contracted syphilis in 1864 and had a number of tertiary ulcers On June 15th, 1892, several sores appeared on the body. About the end of July recurring chills with temperatures of from 102° to 104° F. began. They were thought to be malarial but did not yield to quinine. Two weeks before admission tenderness and swelling developed over the sternum and in the left shoulder-joint Iodide of potassium was given. On admission the chills had ceased, but there were evening elevations of temperature to 101°. Under the iodide the temperature gradually became normal Syphilitic fever is thus liable to be mistaken for a number of conditions—malarial, typhoid, and other acute fevers, tuberculosis, and acute rheumatism. Hence in all obscure cases of fever syphilis should be looked for.

ARGYLL-ROBERTSON PUPILS AS AN EARLY SIGN OF SYPHILITIC DISEASE OF THE NERVOUS SYSTEM.

AT the meeting of the Société Médicale des Hôpitaux of Paris on May 17th M. G Babinski and M. Charpentier communicated an important paper on this subject. In a previous publication they endeavoured to establish that permanent abolition of the pupillary reflexes, particularly of the light reflex, is a sign almost, if not completely, pathognomonic of acquired or inherited syphilis [1] They presented four patients illustrating this view. Case 1.—A woman, aged 34 years, had acquired syphilis at the age of 27 years She had nodes and Argyll-Robertson pupils. There were no signs of organic nervous disease, the tendon reflexes were normal, sight was good, micturition was normal, Romberg's sign was absent, and there had never been any pains Case 2.—A woman, aged 48 years, contracted syphilis at the age of 16 years. The pupils responded to accommodation but not to light. There was no other sign of nervous disease Case 3.—A man, aged 46 years, contracted syphilis at the age of 31 years. Argyll-Robertson pupils were the only sign of nervous disease present, but, contrary to the preceding cases, the patient had suffered for several months from lancinating pain and his memory was becoming enfeebled. Case 4.—A woman, aged 52 years, had Argyll-Robertson pupils. There was no other sign of nervous disease or history of syphilis, but she had had one abortion. Since infancy she had had "sabre-shaped tibiæ." Hereditary syphilis was thought probably to be present. M. Babinski and M. Charpentier think that the abolition of the pupillary reflex in such cases is a sign that the central nervous system has been attacked by syphilis and that the patient is "a candidate for locomotor ataxy, general paralysis, or confirmed cerebro-spinal syphilis." The interval between the appearance of the sign and the development of other signs of these diseases may be very brief or may be prolonged indefinitely. There are cases intermediate between the types of these diseases in their completely developed form and those cases in which abolition of the pupillary reflex is the sole sign of nervous disease Case 3 is an example. As Argyll-Robertson pupils, which are of such high value in the diagnosis of early syphilis of the nervous system, may be present without loss of vision they are not likely to attract the attention of the patient Hence they should be looked for systematically by the practitioner. Their recognition is of great importance They reveal the existence of a state which is often the precursor of grave troubles and imperatively demands specific treatment. This early stage is the most favourable time for the treatment of syphilitic nervous disease.

TREATMENT OF INSOMNIA AND DELIRIUM DUE TO COMBINED ALCOHOLISM AND NICOTINISM.

A REMARKABLE case of insomnia and delirium due to combined alcoholism and nicotinism is recorded by Dr. John E Beebe of Chicago in the *Journal of Nervous and Mental Diseases* for June, together with the results of treatment. The case was that of a man, aged 34 years, married, and of good family He had been placed in a sanatorium to undergo treatment for the abuse of whisky and cigarettes. The result of enforced abstinence was that he quickly passed from a state of relatively good health into a condition of furious delirium, difficult to control, and attended by marked insomnia; for two weeks he had been under continual supervision, and he was at length showing symptoms of cerebral exhaustion. His history was that he had smoked on an average from 40 to 80 cigarettes per diem since he was 18 years of age "During the six weeks he was under my care," says Dr. Beebe, "a steady pitch-like flow of disagreeable odour oozed from his nicotine-stained hands" The young man, a son of luxury, had been drinking excessively for over six years, and his digestive and intestinal functions were considerably disordered and impaired. A diagnosis of alcoholic delirium, complicated with profound nicotinism, was made. The chief difficulty was to induce rest and quiet in the patient who was delirious, restless, roaming about his room, and gibbering without being still even for a few minutes. Morphine was given both hypodermically and by the mouth but without effect The bromides were likewise ineffective, and chloral seemed only to add to the frenzy of the already exhausted patient. Having obtained a slight relief with trional it was now determined to push this drug. Doses of from 10 to 30 grains were given at first, but after a few trials 15 grains every four hours and up to 90 grains per diem were given. At first his restlessness and delirium continued with slight remissions, the culminating point of his disorder being reached once when he lay restless and sleepless for 36 hours, in spite of everything that could be done. At this stage the patient was treated with hot-water packs, the hottest that he could endure, and held firmly in bed, while during 24 hours he was treated with trional to the total extent of 117 grains. After this he went to sleep for about 20 hours. Henceforth from time to time he was given large doses of the same drug, while the strongest stimulants were given hypodermically to keep his failing heart up to its work, especially as the patient had suffered for over a year from a weak heart which at one time caused much anxiety when he was undergoing a surgical operation a year previously. After a period of six weeks of the above treatment he recovered, his body-weight, however, showing a loss of about 30 pounds. The temperature during the earlier half of the period varied from 101° to 103° F. No single bad effect was observed from the large doses of trional with which he was treated, the aggregate quantity administered up to the beginning of convalescence being several ounces. From the above and a number of other cases Dr. Beebe concludes that "if attention is paid to elimination, if liquid foods are freely and regularly used, and if the heart is kept in the best possible condition," trional will prove successful in the treatment of such cases as the above.

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[1] Bulletin de la Société de Dermatologie, June 13th, 1899.

IS ICE INNOCENT?

ALLEGATIONS have from time to time been made against ice as a possible source of infection, and in 1893 we instituted a practical inquiry upon the subject so far as it related to the London ice-supply. The results on the whole were of a reassuring character in the light both of chemical and bacteriological examination. It was shown that certainly not less than nine-tenths of the ice sold in London were obtained from small lakes and ponds in Norway, situated in such solitary and secluded sites as to render any contamination with animal matters highly improbable. According to a fresh inquiry commenced last week, we still find that most of the ice supplied in London shops is Norwegian ice and, moreover, that it is of excellent quality, pure, sparkling, and clean. There might, of course, be exceptions to this. The water which was yielded on melting contained less than a grain per gallon of dissolved mineral matter, no nitrogen either in organic or mineral shape, and but a trace of chlorides. In short, the composition of the ice-water approached very nearly to that of distilled water or of the water of mountain streams. It was very soft and very pure. There were a few ordinary and harmless species of water bacteria present. These results are excellent and show that the Norwegian ice-supply is highly satisfactory and that no harm is likely to accrue even when the ice is consumed as it is when placed in beverages for cooling purposes. One curious fact came to light during our experiments and that was that if the ice be allowed to melt in a leaden vessel the resulting water was found to contain a very appreciable amount of the poisonous metal. This is not surprising when we consider how very soft Norwegian ice-water is, but it affords the important lesson that care should be taken not to keep melting ice in leaden vessels or to allow it to come into contact with lead in any way.

THE SUSPECTED CASES OF PLAGUE AT PLYMOUTH.

THE circumstances connected with the arrival of the *Ormuz* at Marseilles were sufficient to raise a suspicion that there had been, or were, cases of plague on board. The *Ormuz* left Sydney on June 8th and touched on her homeward journey at the usual ports of call. She carried a crew of 160 Europeans and 174 passengers. It appears that on July 5th a coal-trimmer who had shipped at Sydney developed inguinal buboes and certain other symptoms suspicious of bubonic plague, and on July 17th another of the crew noticed an axillary swelling, which, however, may have had as its cause a burn on the finger. Both cases were, it seems, regarded with suspicion, and as the restrictions sought to be imposed upon the *Ormuz* at Marseilles were somewhat onerous, the captain elected to forthwith proceed to sea. Both patients have now, we understand, been isolated in the port sanitary hospital at Plymouth, and, although the local bacteriologist has had some suspicions as to the real nature of the disease, it is not improbable that the cases may eventually be regarded in a negative light. However this may be, the patients are comfortably housed, or rather shipped, in Plymouth Sound, and are not likely to be the means of infecting the town itself.

THE Royal Commissioners appointed in 1898 to inquire into and to report as to what methods of treating and disposing of sewage may properly be adopted have issued a preliminary document in which they deal with some of the more urgent questions on the subject. With certain reservations they doubt if any land is entirely useless for the purpose. They are satisfied that satisfactory effluents can be produced by bacteriological methods in many instances without interposing land treatment. They suggest the creation of a new department of the Local Government Board—"a supreme rivers authority"—to deal with the pollution and purification of rivers and to keep local authorities up to a strict sense of their duty in these matters.

THE deaths are announced of two noteworthy medical men. The name of Mr. Carsten Holthouse, who died in his ninety-first year, stood first on the chronological list of the Fellows of the Royal College of Surgeons of England. Dr. E. S. Morley was a prominent practitioner in Blackburn and was an elder brother of the Right Hon. John Morley, M.P. We hope to publish obituary notices of both these gentlemen in a future issue.

A DINNER was given in honour of Professor Robert Koch, M.D., by the Royal Institute of Public Health at the Hôtel Métropole on July 24th. The Harben Gold Medal and the Honorary Fellowship of the institution were presented to Professor Koch in recognition of his many notable scientific researches.

MR. MALCOLM MORRIS will deliver the Lane Lectures at San Francisco in the first week in September on the subject of Skin Diseases.

COUNTY OF DURHAM MEDICAL UNION.

THE third annual meeting of this union was held in the Mayor's Chamber at the Town Hall, Durham, on June 28th, Alderman E. JEPSON, M.D. Durh., the President, being in the chair. There was a large attendance of members from Durham, South Shields, Whickham, Jarrow, Low Fell, Gateshead, Bishop Auckland, Sunderland, West Hartlepool, Stockton-on-Tees, Wingate, Stanley, Howden-le-Wear, Sedgefield, Willington, Ryton-on-Tyne, Washington, Sherburn, Easington, and Spennymoor.

The PRESIDENT, in opening the meeting, congratulated the members on this being the third annual meeting. He said that some had predicted an early decline for their union, but rather than decline or signs of decay there were indications and evidences of more stability. It was true that they were not engaged in any sharp conflict at that time, but the union had gradually asserted itself in many places and a higher rate of pay had become recognised in many parts of the county. The position of those directly opposed to the union was becoming worse every day. The President further stated that he and Dr. Alfred Cox (Gateshead) had been invited to a meeting of the Hartlepool Medical Society to explain to the members of that society the objects and aims of the union with a view to their affiliation with them, and that they attended and so far pleaded their case that two days since he had received a letter from Dr. H. Schmitz, the secretary of the Hartlepool Medical Society, to say that that society had unanimously resolved to become affiliated to the union. This, he considered, was very gratifying, and pointed distinctly to growth and strength in the union. He added that he had repeatedly tried to induce the Darlington Medical Society to become affiliated with them, but hitherto without success That day, however, he had had a letter from Dr. J. Hern to say that the matter would be further considered in October. There was one more society to be wooed and won, and that was the Gateshead Medical Association. When these two societies had joined them the county union would be nearly complete. In conclusion, he thanked them for their kindness and courtesy during the past year, and begged them most earnestly to use a free and open mind in performing the duty of electing his successor.

Dr. J. F. ARMSTRONG (South Shields) said that he had very great pleasure in moving the re-election as President of Dr. Jepson who had been a great power and help to the society. He had spared neither time nor trouble in furthering their interests.

Mr. W. GALLOWAY (Low Fell) seconded the motion which was carried unanimously.

The PRESIDENT, in returning thanks, said that he did not believe in repeated re-elections, but he could not resist their kindness and would do all in his power to help on the union.

On the motion of Mr. M. A. WARDLE (Bishop Auckland) and Mr. A. W. Attwater (Whickham), Dr. James Murphy (Sunderland) was unanimously re-elected Vice-President.

The following were elected members of the Council: Dr. Armstrong (South Shields), Dr. Cox (Gateshead), Mr. Galloway (Low Fell), Dr. J. H. Hunter (South Shields), Dr. R. S. Hubbersty (Sunderland), Mr. R. E. Ingram-Johnson (South Moor), Dr. C. F. G. Mann (Washington), Dr. G. V. Miller (Stockton), Dr. A. Mackay (Crook), Dr. J. Taylor (Chester-le-Street), Mr. R. Stuart (Durham), Mr. Wardle (Bishop Auckland), Mr. E. S. Davis (Hartlepool), Mr. Arthur (Wingate), Dr. G Stephen (West Auckland), Mr. K. C. Hill (Jarrow), Dr. J. Charles (Stanley), Mr. Attwater (Whickham), [illegible] A. D. M. McIntyre (Bl[illegible] A. A. D. Parker (Easin[illegible] H. Lyon Smith who is [illegible] he place of Mr. W. Ni[illegible] practice, and Mr. Arthur takes the place of Dr. W. A. G. Russell who was, it was stated, at the seat of war in South Africa. Messrs. Graham and Shepherd (Sunderland) were re-elected joint secretaries, treasurers, and solicitors. Dr. C. D. Hill Drury (Darlington), Dr. Hern (Darlington), Dr. David V. McIntyre (Brandon), and Mr. Davis (Hartlepool) were elected members.

The treasurers' statement, showing a balance of £66 3*s*. 1*d*. in favour of the union, was submitted and adopted. A sum of £50 was ordered to be paid to the secretaries on account of the balance due to them. Reports were made by representatives from Sunderland, Chester-le-Street, Stanley, Jarrow and Hebburn, Consett, Trimdon, and Stockton, which were generally very satisfactory.

Some discussion took place as to the fixing of a minimum midwifery fee for the county, and Mr. ATTWATER (Whickham) gave notice that at the next meeting he would bring forward a motion fixing the minimum midwifery fee at 15*s*.

Mr. ATTWATER moved :—

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Several members expressed themselves in favour of the desirability of such an agency being attached to the union, and the motion was carried unanimously.

Mr. SHEPHERD, on behalf of his firm, promised to give the matter careful consideration. He thought an agency of the kind would be a most useful adjunct to the union

The SECRETARIES reported that the resolution unanimously passed at the general meeting on Feb. 5th requesting the General Medical Council to remove from the Register any medical practitioner who countenanced or encouraged canvassing by any union or association of working men and others on his behalf had been brought before the Executive Committee of the General Medical Council on June 3rd, but that no action was taken thereon. Great disappointment was expressed at the lack of interest in matters affecting the general practitioner thus displayed by the General Medical Council, and it was unanimously resolved, on the motion of Mr. ATTWATER, seconded by the VICE-PRESIDENT, and supported by Dr. ARMSTRONG, Dr. CHARLES, and Mr. ARTHUR, that the resolution should be again sent to the General Medical Council and that Mr. G. Brown, Mr. Victor Horsley, and Dr. J G. Glover should be specially asked to give it their support.

A reprint of the rules with the amendments made since the first issue was ordered; and on the motion of the PRESIDENT, seconded by Dr. ARMSTRONG, it was agreed that a half-yearly letter or report should be sent out in the months of March and October to all the members, giving a short statement as to the work which had been done and of the meetings held, and as to any resolutions, &c., passed, so as to keep the members in touch with the executive.

Considerable interest was evinced in the question of the fees paid by insurance companies for medical examinations and it was decided that the matter should be further considered at the next meeting. The PRESIDENT said that he would give notice of a proposition which he would move on the subject.

A hearty vote of thanks to the President brought a successful meeting to a close.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 33 of the largest English towns 6377 births and 3927 deaths were registered during the week ending July 20th. The annual rate of mortality in these towns, which had been 15·1 and 15·6 per 1000 in the two preceding weeks, further rose to 17·9 per 1000 last week. In London the death-rate *was 16·2, while it averaged 19·0 in the 32 large provincial* towns. The lowest death-rates in these towns were 7·7 in Croydon, 8·4 in Brighton, 11·9 in Hull, and 12·0 in Cardiff; the highest rates were 22·5 in Blackburn, 29·1 in Birkenhead and in Sheffield, and 30·5 in Liverpool. The 3927 deaths in these towns last week included 897 which were referred to the principal zymotic diseases, against 431 and 567 in the two preceding weeks; of these, 616 resulted from diarrhœal diseases, 103 from measles, 62 from diphtheria, 49 from whooping-cough, 35 from "fever" (principally enteric), 32 from scarlet fever, and not one from small-pox. No death from any of these diseases was registered last week in Brighton; in the other towns they caused the lowest death-rates in Croydon, Wolverhampton, and Hull, and the highest in Birkenhead, Liverpool, and Sheffield. The greatest mortality from measles occurred in Leeds and Birkenhead; from scarlet fever in Blackburn; from whooping-cough in Newcastle and Swansea; and from diarrhœa in Preston, Leeds, Birkenhead, Sheffield, and Liverpool. The mortality from "fever" showed no marked excess in any of the large towns The 62 deaths from diphtheria in the 33 towns included 30 in London, five in Leicester, five in Manchester, five in Salford, and four in West Ham. No fatal case of small-pox was registered in any of the 33 towns; five small-pox patients were admitted into the Metropolitan Asylums hospitals during the week, and 14 remained under treatment on Saturday, July 20th. The number of scarlet fever patients in these hospitals and in the London Fever Hospital at the end of the week was 2907, against numbers increasing from 1622 to 2918 on the 12 preceding Saturdays; 371 new cases were admitted during the week, against 408, 363, and 324 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 165 and 133 in the two preceding weeks, rose last week to 135, but were 35 below the corrected average The causes of 49, or 1·2 per cent., of the deaths in the 33 towns were not certified, either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Bristol, Salford, Bradford, Cardiff, Sunderland, and Oldham, and in 10 other smaller towns; the largest proportions of uncertified deaths were registered in Leeds, Sheffield, Birmingham, and Liverpool.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 19·0 and 17·2 per 1000 in the two preceding weeks, rose again to 18·4 per 1000 during

during 24 hours he was treated with trional to the total extent of 117 grains. After this he went to sleep for about 20 hours. Henceforth from time to time he was given large doses of the same drug, while the strongest stimulants were given hypodermically to keep his failing heart up to its work, especially as the patient had suffered for over a year from a weak heart which at one time caused much anxiety when he was undergoing a surgical operation a year previously. After a period of six weeks of the above treatment he recovered, his body-weight, however, showing a loss of about 30 pounds. The temperature during the earlier half of the period varied from 101° to 103° F. No single bad effect was observed from the large doses of trional with which he was treated, the aggregate quantity administered up to the beginning of convalescence being several ounces. From the above and a number of other cases Dr. Beebe concludes that "if attention is paid to elimination, if liquid foods are freely and regularly used, and if the heart is kept in the best possible condition," trional will prove successful in the treatment of such cases as the above.

IS ICE INNOCENT?

ALLEGATIONS have from time to time been made against ice as a possible source of infection, and in 1893 we instituted a practical inquiry upon the subject so far as it related to the London ice-supply. The results on the whole were of a reassuring character in the light both of chemical and bacteriological examination. It was shown that certainly not less than nine-tenths of the ice sold in London were obtained from small lakes and ponds in Norway, situated in such solitary and secluded sites as to render any contamination with animal matters highly improbable. According to a fresh inquiry commenced last week, we still find that most of the ice supplied in London shops is Norwegian ice and, moreover, that it is of excellent quality, pure, sparkling, and clean. There might, of course, be exceptions to this. The water which was yielded on melting contained less than a grain per gallon of dissolved mineral matter, no nitrogen either in organic or mineral shape, and but a trace of chlorides. In short, the composition of the ice-water approached very nearly to that of distilled water or of the water of mountain streams. It was very soft and very pure. There were a few ordinary and harmless species of water bacteria present. These results are excellent and show that the Norwegian ice-supply is highly satisfactory and that no harm is likely to accrue even when the ice is consumed as it is when placed in beverages for cooling purposes. One curious fact came to light during our experiments and that was that if the ice be allowed to melt in a leaden vessel the resulting water was found to contain a very appreciable amount of the poisonous metal. This is not surprising when we consider how very soft Norwegian ice-water is, but it affords the important lesson that care should be taken not to keep melting ice in leaden vessels or to allow it to come into contact with lead in any way.

THE SUSPECTED CASES OF PLAGUE AT PLYMOUTH.

THE circumstances connected with the arrival of the *Ormuz* at Marseilles were sufficient to raise a suspicion that there had been, or were, cases of plague on board. The *Ormuz* left Sydney on June 8th and touched on her homeward journey at the usual ports of call. She carried a crew of 160 Europeans and 174 passengers. It appears that on July 5th a coal-trimmer who had shipped at Sydney developed inguinal buboes and certain other symptoms suspicious of bubonic plague, and on July 17th another of the crew noticed an axillary swelling, which, however, may have had as its cause a burn on the finger. Both cases were, it seems, regarded with suspicion, and as the restrictions sought to be imposed upon the *Ormuz* at Marseilles were somewhat onerous, the captain elected to forthwith proceed to sea. Both patients have now, we understand, been isolated in the port sanitary hospital at Plymouth, and, although the local bacteriologist has had some suspicions as to the real nature of the disease, it is not improbable that the cases may eventually be regarded in a negative light. However this may be, the patients are comfortably housed, or rather shipped, in Plymouth Sound, and are not likely to be the means of infecting the town itself.

THE Royal Commissioners appointed in 1898 to inquire into and to report as to what methods of treating and disposing of sewage may properly be adopted have issued a preliminary document in which they deal with some of the more urgent questions on the subject. With certain reservations they doubt if any land is entirely useless for the purpose. They are satisfied that satisfactory effluents can be produced by bacteriological methods in many instances without interposing land treatment. They suggest the creation of a new department of the Local Government Board—"a supreme rivers authority"—to deal with the pollution and purification of rivers and to keep local authorities up to a strict sense of their duty in these matters.

THE deaths are announced of two noteworthy medical men. The name of Mr. Carsten Holthouse, who died in his ninety-first year, stood first on the chronological list of the Fellows of the Royal College of Surgeons of England. Dr. E. S. Morley was a prominent practitioner in Blackburn and was an elder brother of the Right Hon. John Morley, M.P. We hope to publish obituary notices of both these gentlemen in a future issue.

A DINNER was given in honour of Professor Robert Koch, M.D., by the Royal Institute of Public Health at the Hôtel Métropole on July 24th. The Harben Gold Medal and the Honorary Fellowship of the institution were presented to Professor Koch in recognition of his many notable scientific researches.

MR. MALCOLM MORRIS will deliver the Lane Lectures at San Francisco in the first week in September on the subject of Skin Diseases.

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HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 19·0 and 17·2 per 1000 in the two preceding weeks, rose again to 18·4 per 1000 during the week ending July 20th, and was 0·5 per 1000 above the mean rate during the same period in the 33 large English towns. The rates in the eight Scotch towns ranged from 14·2 in Perth and 14·8 in Aberdeen to 19·1 in Edinburgh and 22·6 in Dundee. The 585 deaths in these towns included 45 which were referred to diarrhœa, 25 to whooping-cough, 24 to measles, four to scarlet fever, and three to "fever." In all, 101 deaths resulted from these principal zymotic diseases last week, against 81 and 89 in the two preceding weeks. These 101 deaths were equal to an annual rate of 3·2 per 1000, which was 0·9 per 1000 below the zymotic death-rate last week in the 33 large English towns. The fatal cases of diarrhœa, which had been 24, 19, and 29 in the three preceding weeks, further rose last week to 45, and included 26 in Glasgow, six in Edinburgh, five in Dundee, four in Aberdeen, and three in Paisley. The deaths from measles, which had been 25, 25, and 22 in the three preceding weeks, rose last week to 24, of which 17 occurred in Glasgow and six in Dundee. The fatal cases of whooping-cough, which had declined from 30 to 25 and 22 in the three preceding weeks, rose again last week to 25, and included 11 in Glasgow, 10 in Edinburgh, and three in Dundee. The deaths from scarlet fever, which had been seven in each of the two preceding weeks, fell last week to four, all of which were registered in Glasgow. The deaths from "fever," which had been one and six in the two preceding weeks, fell last week to three, which were all registered in Glasgow. The deaths referred to diseases of the respiratory organs in these towns, which had been 95 and 75 in the two preceding weeks, rose last week to 79, but were one below the number in the corresponding period of last year. The causes of 23, or more than 4 per cent., of the deaths in these towns last week were not certified.

HEALTH OF DUBLIN.

The annual rate of mortality in Dublin, which had been 20·7 and 21·0 per 1000 in the two preceding weeks, declined again to 18·4 during the week ending July 20th. During the past four weeks the death-rate has averaged 19·6, the rates during the same period being 14·7 in London and 17·1 in Edinburgh. The 132 deaths of persons belonging to Dublin registered during the week under notice were 19 fewer than the number in the preceding week, and included 18 which were referred to the principal zymotic diseases, against seven and 10 in the two preceding weeks; of these 14 resulted from diarrhœa, two from fever, one from diphtheria, and one from scarlet fever. These 18 deaths were equal to an annual rate of 2·5 per 1000, the zymotic death-rate during the same period being 2·9 in London and 2·8 in Edinburgh. The deaths from diarrhœa showed a considerable excess over the numbers recorded in recent weeks. The 132 deaths in Dublin last week included 24 of infants under one year of age and 33 of persons aged upwards of 60 years; the deaths of infants were about equal to the average in recent weeks, and those of elderly persons were rather below the average. Ten inquests were held and seven deaths from violence were registered; and 48, or more than one-third, of the deaths occurred in public institutions. The causes of four, or more than 3 per cent., of the deaths in Dublin last week were not certified.

THE SERVICES.

Royal Army Medical Corps.

Major J. J. P. Doyle has arrived at Brighton for duty and taken over medical charge of the Station Hospital, vice Lieutenant-Colonel J. J. Crean, A.M.S. Lieutenant Adderley is transferred from the Poona District to the Bombay District. Major John Osburne to be Surgeon-Lieutenant. Dated July 20th, 1901.

Army Medical Reserve of Officers.

Surgeon-Lieutenant Leonard Leighton Hanham, 2nd Devonshire Volunteer Artillery, to be Surgeon-Lieutenant. Dated July 20th, 1901.

Volunteer Corps.

Artillery: 7th Lancashire (the Manchester Artillery): Surgeon-Major R. A. S. Daly to be Surgeon-Lieutenant-Colonel. Dated July 20th, 1901. *Rifle:* 1st Cadet Battalion the Royal Fusiliers (City of London Regiment): Arthur Robert Owst to be Surgeon-Lieutenant. Dated July 3rd, 1901. 1st Volunteer Battalion the Lincolnshire Regiment: Surgeon-Captain G. M. Lowe to be Surgeon-Major. Dated July 20th, 1901. 3rd Volunteer Battalion the Royal Welsh Fusiliers: Second Lieutenant John Robert Williams resigns his commission, and is appointed Surgeon-Lieutenant. Dated July 20th, 1901. 1st (Pembrokeshire) Volunteer Battalion the Welsh Regiment: David Arthur Hughes to be Surgeon-Lieutenant. Dated July 20th, 1901. 6th Volunteer Battalion the Gordon Highlanders: Surgeon-Lieutenant T. A. Sellar to be Surgeon-Captain. Dated July 20th, 1901.

South African War Notes.

The following have been discharged from hospital for duty:—*Civil Surgeons:* John Brodie Boyd and Hamilton Arthur Stewart. The following are on passage home: Civil Surgeons: J. Sowden and J. W. Miller.

Affairs in South Africa.

A great deal has taken, and is taking, place since we last chronicled the course of events in South Africa, some of which has an important prospective bearing on the war, while much is of more or less medical interest. The capture and publication of the Reitz-Steyn correspondence come under the first category. It discloses a disorganised state of things in regard to the Boers and their Governments which has been long suspected and it serves to demonstrate the necessity of a vigorous prosecution of our military policy by mounted troops if we would overcome resistance and put an end to hostilities. While we can all be touched with a feeling of pity in connexion with the circumstances attending the illness and death of Mrs. Kruger at Pretoria, separated by so many miles from her husband, and the grief which her death has naturally caused to Mr. Kruger, this country has nevertheless the satisfaction of feeling that all that kindly consideration and forbearance could do for Mrs. Kruger was done. With regard to the concentration camps the Government have appointed a committee of ladies to inquire into and to report upon the arrangements made by the military and medical authorities. We imagine that this is the first time that such a step has been taken. In addition to the casualties from repelling attacks by the Boers in their various raids, there are still rather long lists of sick from various causes incidental to war and camps. There has been a reception at Marlborough House by the King of a deputation of American ladies to present His Majesty with a memento of the work done by the American hospital ship *Maine* for the sick and wounded in South Africa and China in 1900 and 1901. A gold medal, which had been designed and struck for the purpose of presentation to Her late Majesty Queen Victoria was offered to, and accepted by, the King. The *Maine* was at the end of her work, it will be remembered, presented to the British Government.

Vital Statistics of the German Navy, 1897–1899.

A biennial statistical report on the Imperial German Navy has been issued for the period ending March 31st, 1899. It is a voluminous document, comprising 315 pages, and contains a large amount of valuable and well-arranged matter in addition to numerous tables and diagrams. In the first half of the biennium the average strength, afloat and ashore, was 22,692 men, but during the second twelvemonth it rose to 27,067, an increase of nearly 20 per cent. The general admission-rate, at home and abroad, was 790 per 1000 per annum for the two years, which was about the same as that prevailing among the German land forces. The average time under treatment was 16·5 days per case, and 37 men were constantly sick out of each 1000. The first year the death-rate was 3·5 per 1000, but the second year it fell to 2·8 per 1000, the average for the two years being consequently 3·15 per 1000. This [illegible] compares favourably with that of all the [illegible] statistics, but in gauging its tru[illegible] rates must be taken into account. In 1887–88 the average number of men invalided from the German navy was 14 per 1000, whereas in the first of the two years under report the loss from this cause was 40 per 1000 and in the second 38 per 1000. The revaccinations during the biennium amounted to 19,884, and in no fewer than 12,935 instances, being 65 per cent. of the whole, the operation was successful. Of the failures 5201 were again vaccinated, some for a fourth or fifth time, success attending on 29 per cent. of the attempts. The capital operations performed during the period were

84 in number. Among them there were two trephinings (both successful), four laparotomies (two deaths), four operations for appendicitis (all successful), 13 operations for the radical cure of hernia (all likewise successful). 23 sick-men were sent for treatment to Wiesbaden, Aix, Oyenhausen, and Teplitz, their disabilities being mostly chronic rheumatism, sciatica, and syphilis.

DEATHS IN THE SERVICES.

Surgeon-Major Frederick Robinson, at his residence at Eastbourne on July 21st. He entered the service as Assistant Surgeon in the 74th Foot and was transferred to the Scots Fusilier Guards in 1852. He became Surgeon-Major of the battalion in 1867. He accompanied the Scots Fusilier Guards to the Crimea and served with the battalion until the termination of the war. He was present at the battles of the Alma, Balaclava, and Inkerman and at the siege and fall of Sebastopol and the sortie of Oct. 26th (British medal with four clasps, Medjidieh and Turkish medals). Surgeon-Major Robinson was the author of "A Diary of the Crimean War."

GENERAL BADEN-POWELL'S HOSPITALS.

The generous donors of literature and subscriptions to [illegible] s to the South [illegible] know that the [illegible] ng shipped this week, thus carrying out General Baden-Powell's personal wish expressed in a letter to Lady Sarah Wilson as follows: "My idea was to make up the books into cases of say 50 to 100 volumes in strong, locked travelling cases. A case would be sent to each hospital for a month and then passed on to the next hospital. In this way there would be a monthly arrival of a fresh lot of books."

HONOURS FOR CHINA AND SOUTH AFRICA.

Colonel J. T. B. Bookey, I.M.S., has been appointed a Companion of the Bath for services rendered during the recent operations in China, and the following officers have been appointed to Companionships of the Order of the Indian Empire for services in the same operations: Lieutenant-Colonel W. J. R. Rainsford, R.A.M.C., Major J. J. C. Watson, R.A.M.C., and Lieutenant-Colonel L. A. Waddell, I.M.S.

The King has appointed Deputy Surgeon-General H. J. Blanc to be Knight Commander of the Royal Victorian Order.

Sir William Thomson, C.B., has been appointed a member of the Army Medical Reorganisation Committee.

Correspondence.

"Audi alteram partem."

"THE CONTAMINATION OF POST-OFFICES."

To the Editors of THE LANCET.

SIRS,—A letter in THE LANCET of July 20th, p. 171, under the heading "The Contamination of Post-offices," signed "P. M. O." sets out with the laudable intention of enlightening the public on the very numerous inaccuracies of certain other letters. The latter part of this letter contains some reference to a previous communication from me. "P. M. O." refers to my "allegations as to the excessive prevalence of tubercle among telegraphists" and my "attributing it to the insanitary conditions of post-office buildings." I have looked up my original letter and I find that I referred to "the high incidence of phthisis among certain classes of employés in the English Post Office," those classes being sorting clerks and telegraphists, but I made no comparison with any other class and did not use the word "excessive." The most careful scrutiny of my letter does not reveal the fact that I attributed the phthisical mortality of the Post Office to the insanitation of the buildings or to any other cause. I contented myself with a statement of the facts. The statistics which I quoted were statistics referring to the whole postal ser[illegible] n the annual reports of [illegible] od of calculation I [illegible] Dr. Mignot in calcu[illegible] postal service. Dr. Mignot's report runs as follows:—"During the year 1899, out of nearly 71,000 employés of different grades in the Posts and Telegraphs, 200 were certified as having died from tuberculosis, and 88 were retired on account of the same complaint, making a mortality of 28·1 per 10,000, and a loss from tuberculosis of 40 per 10,000, for it cannot reasonably be supposed that a very large number of those retired escaped death." The total loss is obtained by adding together the deaths and retirements from tuberculous disease. Retirement from the British Post Office on account of phthisis means that the patient's decease from that complaint is assured if not imminent. Applying the same method to the official statistics published by the British Post Office we get the result shown in the following table. The figures refer to the established staff only—every member of which is a selected life:—

Table showing Loss from Phthisis.

Year.	Staff.	Deaths.	Retirements.	Total.	Loss per 1000 living in the postal service.	Loss per 1000 living in the general population.
1896	62,852	86	67	153	2·4	1·3
1897	76,866	72	80	152	1·9	1·3
1898	79,121	70	87	157	1·9	1·3
1899	82,172	62	83	145	1·7	1·3

This table shows that there was a progressive increase in the number of retirements after 1895 and a corresponding decrease in the number of deaths, a fact which proves how close is the relation between the two sets of figures and fully confirms the method of computing the total loss from phthisis.

So much in substantiation of the statistics of my letter. Reference is made by "P. M. O." to other statistics "just issued" which "reveal that this disease exists only to a very limited degree amongst all grades of postal employés." If this statement be true then the Postmaster-General is wrong, for the figures I have quoted are from his annual reports. "P. M. O." must settle this with Lord Londonderry.

But the most extraordinary statement is made that these statistics have been recently collected and apparently classified. "P. M. O.," I imagine, means "Postal Medical Officer," and I also imagine that information in the possession of postal medical officers is readily accessible to the Postmaster-General. Yet on Tuesday, June 18th last, when Sir Walter Foster asked for statistics of this very nature the Postmaster-General's representative replied "that it would be difficult to give all the details referred to," &c.

That the men fall short in many respects in their private life I am ready to admit, and in this matter they share the ignorance of the great mass of the British public concerning the causation and prevention of consumption. But their sanitary standard owes nothing to the intelligence of the Post-office medical department which allows month-old, nay, year-old, dust to remain on the walls of the General Post Office itself, and has provided not a single spittoon nor a publicly exhibited prohibition against expectoration within the buildings.

I am, Sirs, yours faithfully,
CHARLES H. GARLAND.

"UNBOILED v. BOILED MILK."

To the Editors of THE LANCET.

SIRS,—In THE LANCET of July 20th, p. 169, Dr. Robert Hutchison, by producing a large amount of experimental evidence, has completely refuted Dr. Dukes's main contention "that the nutritive value of milk is very largely diminished by boiling." In THE LANCET of August 20th, 1892, p. 434, *are quoted some experiments of* Dr. Chamouin of Paris which support Dr. Hutchison's views. Kittens fed on boiled milk were twice as fat and healthy as those fed on raw milk. Dr. Chamouin also investigated the infantile mortality of Paris and came to the conclusion that "thousands of infants are annually safeguarded from intestinal disease and death by the precaution of boiling the milk on which they feed." It appears to me that Dr. Dukes magnifies the dangers arising from boiled or sterilised milk and minimises those from unboiled milk. One can only form an opinion from one's own experience and mine is decidedly mode adopted for deciding which of the candidates (B and C) should retire is really a fair one. It must be admitted that it was the quickest way of determining the point, but looking at the facts of the situation—viz., that it was well known that the two strongest candidates were A and C and that the supporters of A could easily arrange for some either not to vote at all (as evidently was the case from the fact that there were three papers *unmarked*) or else vote for B, the weaker of the two candidates, it is apparent that although the quickest it was not the *fairest* way of arriving at a decision. It is not probable that there are many examples of such a state of things, but if any of your readers can call to mind any similar ones it would be interesting to know what course was adopted. It would naturally have been a trying process to continue voting for the three candidates until the tie between the second and third ceased to exist. At the same time the interests of the three candidates demanded that some such process should have been adopted. I am, Sirs, yours faithfully,

July, 1901. A GOVERNOR.

THE DEFICIENCY OF CANDIDATES FOR THE MEDICAL SERVICES.

To the Editors of THE LANCET.

SIRS,—Amongst the various reasons accounting for the small number of candidates for the services I consider the conditions of entrance to be one of the chief causes. A candidate can go up for his entrance examination between 21 and 28 years of age, but he must be under 25 years if he wants to obtain the chief advantages of the service and to run to the higher pensions; otherwise he comes under the "age clause" and the highest pension he can obtain is that of 25 years' service. Now, on looking through the newly qualified men of any school, many, if not most, of the best men—i.e., men who have qualified well and done a year or so in the house—are 25 years of age or thereabouts, and to these men the services are practically closed, as they cannot hope to run beyond a 25 years' pension. The consequence of this is that men intending to go into the services cram through the first double that they can get, their chief object being to enter early.

If this forced retirement at 55 years of age was done away with not only would a much larger field to recruit from be open, but a better class of man would come up, and also the man who now craves to get in early at any price might be tempted to be in less of a hurry and to do a year or so in the house before entering the service. The value of going into the house (either a house surgeoncy or a house physiciancy) is well recognised in civil life as being the best thing a man can do, but for a man going into one of the services it is the worst thing possible, as he loses seriously and may run over 25 years of age. If the abolition of the "age clause" was made retrospective and every man could complete his 30 years' service, the present want of men would to a large extent be reduced, as yearly many of our best men—anyway in the Indian Medical Service—are retiring at about 50 years of age who would gladly serve on could they run for a higher pension. If the "age clause" cannot be done away with as a whole could not men who have come in late due to passing some of the higher examinations or having done a house surgeoncy, &c., be exempted and be allowed to complete their 30 years and thereby obtain a better pension? Again, should a man enter late and during the time he is in the service he passes, say, his Fellowship (F.R.C.S. Eng.), could he not be exempted? If there were some conditions of this kind it would not only tempt better men, but might tend to keep many men already in the services in better touch with their profession. I am, Sirs, yours faithfully,

July 4th, 1901. I.M.S.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

Increase in the Plague Epidemic.—The Invasion of Locusts.—The Increasing Famine and the Deficient Monsoon.—The Extinction of the Andaman Islanders.—The Crime of Poisoning in India.—The High Infantile Mortality in Bombay City.

THERE has been an increase of 138 deaths from plague throughout India during the past week. The deaths returned are 821 as against 683 for the week ending June 22nd. The development has occurred in the Bombay Presidency which records 651 deaths as against 471. There has been an increase of 17 in Bombay city, 12 in Bengal, and 20 in Mysore. Calcutta returns only 14 deaths and there are decreases in the North-west Provinces, the Punjab, Oudh, and Kashmir. Belgaum, on the borders of the Bombay Presidency, shows a distinct rise—viz., from 207 deaths to 276.

Locusts have appeared in several districts of India during the past week and have done an immense amount of damage. Indigo and other crops have been seriously affected and Makai and Cheena have been eaten up completely in places. Some of the flights are exceedingly dense and very large. The Government has warned district officers that the villagers should be organised to commence a campaign against young locusts as soon as they appear above the ground. The Cyprus screen and trap system has proved useless both in the Deccan and Konkan. Dr. Edington's method of inoculating with fungus is advised. One flight attacked an indigo ground four times on consecutive days, and in South Tirhut a flight was estimated at 14 miles broad and to have covered an area of 140 square miles. The country was red for miles—the indigo crop looking a browny red, having the appearance of being covered with red chillies. The swarms are evidently in search of a favourable breeding-ground. It takes the young locust 10 days after hatching before it can use its wings, and when in this stage it crawls about and eats up almost everything. Then is the time for its destruction.

Still another misfortune for India consists in the increasing famine. There are now over half a million persons in receipt of relief and the numbers rise higher week by week. The cost to the Government is 150 lakhs per month. The late monsoon and its great deficiency, except in the Peninsula, are a cause of still further anxiety.

The extinction of the natives in the Andaman Islands would seem to be only a work of time. The recent census tells the old story. Measles, pneumonia, and other introduced and contagious diseases have played their part, and as in the case of all diseases which find a susceptible race the percentage of mortality has been terrible. One tribe is said to have killed off every individual who was attacked by a contagious disease which had been introduced among them by a neighbouring coast tribe. Sterility seems also to have checked the population as the number of children is abnormally small. At the present rate of decrease some tribes will be extinct after three generations.

The record of a year's poisoning in the Bombay Presidency shows how extensive this practice is. Arsenic is the favourite agent, probably owing to the facility with which it can be procured and the rough similarity of the symptoms produced by it to those of disease. Major Barry records one case where two beggars were drugged with opium in order that they might be robbed of eight annas (8*d.*). The medico-legal cases referred to in the report only show the cases which are brought to light, but it is a common opinion that the crime of poisoning is excessively frequent. These remarks apply to nearly all parts of India. Copper, cerbera, dhatura, mercury, phosphorus, and ground glass are other poisons selected.

The high infant mortality in Bombay has been the subject of much recent discussion. From the census of 1891 the infant population (that is of children under one year of age) is estimated at 25,000. Before the advent of plague the birth-rate of Bombay city was fairly steady at about 18 or 19 per 1000 of the [illegible] a total of about 15,000 to 16,000 births [illegible] was an average rate of mortality of about 280 per 1000 of the infant population (about 7000 annual deaths). Since the year 1897 the birth-rate has declined to the rate of 12 or 13 per 1000, but the mortality has gone up enormously. In 1899 the rate rose to 530 per 1000. This is a frightful figure. The explanation given is that the disastrous famines cause a large inflow into the city of people in a low state of vitality. The sterilising influence of plague, as well as the exodus of people and the diminished population, may account for the diminished birth-rate, but the above reason hardly seems sufficient to account for the enormous difference in the death-rate. The health of Bombay has been in a bad state for some time quite apart from plague, but though the general mortality has been excessive it will not explain the doubling of the infant mortality. At the present time the general death-rate in Bombay is about 42 per 1000 per annum as compared with the rate of 64 for the corresponding period last year, so that the high infant mortality, coupled with a diminished birth-rate, requires further investigation.

July 6th.

THE BRITISH CONGRESS ON TUBERCULOSIS.

INAUGURATION OF THE CONGRESS: FIRST GENERAL MEETING.

THE British Congress on Tuberculosis was opened by H.R.H. the Duke of Cambridge, acting on behalf of His Majesty the King, on the afternoon of Monday, July 22nd. The inauguration ceremony was held at St. James's Hall, Piccadilly, W. The meeting was successful in regard to general attendance, while the cordiality of the welcome extended to the foreign delegates was unmistakeable.

The platform was crowded with well-known public men. Among those present may be mentioned most of the foreign Ambassadors, the Duke of Northumberland, the Marquis of Lansdowne, the Marquis of Bath, Earl Cadogan, the Earl of Derby, Earl Spencer, the Earl of Cawdor, Lord Lister, Lord Strathcona, the Bishop of London, the Lord Mayor of London, the Consul-Generals of the various colonies, and the Presidents of the great medical corporations and learned societies of the United Kingdom. The numerous official delegates to the Congress of the various foreign nations were all accommodated with prominent places on the platform.

Mr. MALCOLM MORRIS, at the request of the Duke of Cambridge, commenced the proceedings by reading his report as honorary secretary-general to the Congress. The movement, he said, originated in Berlin at the German Congress on Tuberculosis held in May, 1899, when representations were made to the British delegates as to the desirability of holding a similar congress in London. Some of these delegates were appointed by the Prince of Wales to represent the National Association for the Prevention of Consumption and Other Forms of Tuberculosis, and these reported the matter to the Council of that association. One of the objects of the association was the promotion of congresses for the dissemination of knowledge, and it was therefore resolved to take the necessary initiatory steps to hold a congress in London. The Foreign Office, the Colonial Office, and the India Office rendered every possible assistance. In Paris and in Berlin local committees had been formed to distribute information as to the objects of the Congress. At the request of the King the Duke of Cambridge had undertaken to fill the office of President of the Congress and to preside at that meeting.

The Duke of CAMBRIDGE, in rising to declare the Congress open, said that he hoped he would be forgiven by the assembly for undertaking a duty which he really felt unable to fulfil. The fact was that he was very much in the background with regard to all the interesting subjects of the Congress that had brought them together, but he felt a deep interest in them notwithstanding. He was gratified to see so large a number of delegates from foreign countries, and he appreciated the compliment that they paid to this country in attending. The Duke concluded by reading out to the meeting the following telegram which he sent to the King: "I have the honour to inform your Majesty that I have opened the Congress on Tuberculosis, which is largely attended by home and foreign delegates, in obedience to your Majesty's commands."

Lord LANSDOWNE then addressed the meeting and as one of His Majesty's servants welcomed the foreign delegates, saying on behalf of his colleagues in power that it would afford them the greatest pleasure, so far as their opportunities permitted, to give any facilities which His Majesty's Government was able to afford. The Government fully realised the immense significance of the problem which the Congress was attempting to solve.

Lord CADOGAN then spoke and claimed a *locus standi*, inasmuch as he represented Ireland, which country suffered perhaps as severely as any in Europe from the scourge they were met to consider and if possible to arrest. He was glad on behalf of the people of Ireland to add a few words of welcome to the Congress and especially to the foreign members who were to give them the benefit of their assistance on the occasion. It was generally known that the methods of dealing with tuberculosis in past years had not been successful, but it had of late been shown that methods would before long be found for dealing practically with its prevention.

The LORD MAYOR OF LONDON in a short speech welcomed the foreign delegates and the members of the Congress to the City of London and hoped that they would all come to the Mansion House on the following evening. The citizens of London, he said, regarded the objects of the Congress as second to none that could possibly be conceived in importance.

Lord STRATHCONA, who spoke for the Dominion of Canada, for the commonwealth of Australia, and for the colonies generally, said they were all united in an earnest desire that measures should be taken to grapple with a disease which had decimated the peoples of the world for centuries.

Lord LISTER pointed out that the Congress met under immeasurably happier auspices than could possibly have been the case a few years ago. They now knew, thanks to Koch, the enemy they had to deal with, while Pasteur had shown that the microbe of tuberculosis was incapable of originating *de novo* in the human body. Hence there was now the splendid prospect of the prevention of tuberculosis. Attempts were being made by the use of various specific means to deal with consumption even in its more advanced forms, and some of them at least had very promising aspects. If the prevention of tuberculosis was to be effectively carried out, the general public must aid the physician and the surgeon in their endeavours to immunise the people and so eventually to stamp out one of the greatest physical scourges of the human race.

The foreign delegates were then presented to the Duke of Cambridge by Lord Derby, and they addressed the meeting briefly.

Professor OSLER (America) thought that the Congress would educate the medical profession which needed education and the public which needed it far more.

Professor VON SCHROETTER (Austria) believed that the Congress would inaugurate a new and successful attack against man's greatest enemy.

Dr. MONTEFIORE LEVI (Belgium) attributed a large share in the success that had been attained to the active interest taken in the work by the Royal patron of the Congress.

Professor GRAM (Denmark) referred to the English people having taken the rose of Denmark for their Queen.

Professor BROUARDEL (France) said that the union of science and philanthropy marked a new phase in the contest against tuberculosis. He had been specially charged by the President of the French Republic to declare in his name that it was his earnest wish that the next Congress should be held in Paris in two years' time.

Professor VON LEYDEN (Germany) referred to the early work done by England in the prevention of tuberculosis.

Professor RUATA (Italy), after a graceful acknowledgment [illegible] concluded by expressing the [illegible] what she had done for the [illegible]

Mr. MALCOLM MORRIS then read a telegram from the King acknowledging the telegram from the Duke of Cambridge and heartily welcoming to his capital the eminent men belonging to almost every nation.

The proceedings came to a close with a hearty vote of thanks to the Duke of Cambridge for presiding, which was moved by Lord DERBY and seconded by Sir WILLIAM BROADBENT.

THE SECOND GENERAL MEETING.

Professor R. KOCH of Berlin addressed the members of the Congress assembled at the Second General Meeting in St. James's Hall, on Tuesday, July 23rd, Lord LISTER being in the chair. The title of his paper was "The Combating of Tuberculosis in the Light of the Experience that has been Gained in the Successful Combating of other Infectious Diseases." The address will be found in full at page 187.

The views expressed by Professor Koch in regard to the passing of tuberculosis from man to animals evidently attracted extraordinary attention and Lord LISTER'S speech as chairman was followed by the huge assembly with extreme interest, each point made by him being made the occasion for a burst of applause. The matter at issue, he said, was of great importance. If Professor Koch was right then preventive measures would be much simplified, but before the Congress could give its consent to the hypothesis the most complete investigations must be undertaken. Lord Lister before he resumed his seat instanced the infection of the mesenteric glands from bovine tuberculosis in support of his contention that the evidence advanced by Professor Koch was not conclusive.

Professor **Nocard** (Alfort) spoke as a member of the veterinary profession in France and described how the exaggerated fears of tuberculous infection from animals had raised a movement which they had only just begun to encounter with success, and now it would appear as if the swing of the pendulum might take them dangerously far in quite the opposite direction. Professor Nocard discussed the subject of the possibility of infection of man by bovine tuberculosis and cited cases where veterinary surgeons had become thus inoculated by accident.

Professor **Bang** (Copenhagen) in a few words warned those present that though Professor Koch had shown that there was only slight danger of infecting animals from man, nevertheless the inoculation of man from animals was a different matter, and in his opinion Professor Koch went too far in saying that there was no necessity for taking measures against bovine tuberculosis.

The meeting ended by Professor **Sims Woodhead** pouring oil on the troubled waters. He did not consider that Professor Koch's views were so violently opposed as they appeared to be to modern pathology. In the course of his remarks he described a specimen exhibited in the museum of the Congress which proved that it was possible for human beings to be infected with tuberculous disease from animals.

The Third General Meeting.

The Right Honourable **Henry Chaplin**, late President of the Local Government Board and of the Board of Agriculture, presided over the third general meeting of the Congress on Wednesday afternoon in St. James's Hall.

Mr. **Chaplin**, in introducing Professor Brouardel to the meeting as the President of the Paris Society of Medicine, said that as the leading medical adviser to the French Government he might be considered to rank among the highest living sanitary authorities. He remarked that hitherto the opposite of Professor Koch's views had been the accepted doctrine—viz., that bovine tuberculosis is transmissible to man through the flesh and milk of cattle. Professor Brouardel then delivered his address which will be found in full at page 191 of The Lancet.

THE SECTIONS.

The work of the various sections commenced on Tuesday, July 23rd, at 9.30 A.M.

SECTION I.

State and Municipal.

Tuesday, July 23rd.

The meetings of this section, in many ways the most important section of the Congress because of the vast public interests involved in the discussions, were held in St. George's Hall, Langham-place, W.

The proceedings were opened at 9.30 A.M. on July 23rd by the Right Honourable Sir **Herbert Maxwell**, Bart, P.C., M.P., F.R.S., with a short address. He said:—

No one in this room could feel more his own unfitness for discussing the matters which are to be brought under the consideration of this Congress than I, being myself wholly without previous special training. I trust, therefore, you will regard me only as a link, however weak, between scientific research and the legislative machine which it is the fashion of men of science to set in motion. We sometimes hear complaints, especially in this country, that the legislator does not keep abreast with the advance of science. I would remind you that men of science must be in a great measure pioneers. Pioneers have to retrace their steps sometimes. That is why we appear to be laggard in the advance. However unfit I am to discuss the subjects proper to the Congress there is one thing which at all events I may venture to say, and that is to bid a hearty welcome to those ladies and gentlemen who have travelled, many of them from far foreign countries, to take part in the business of the Congress. In one respect I am afraid our welcome to our foreign guests must partake of the nature of an apology. Those who were present at the great Congress in Berlin in 1899 must cherish a warm recollection of their reception there; the princely hospitality displayed to them, the liberal manner in which the great building of the Reichstag was placed at their disposal for the transaction of the business, and, above all, the warm personal interest displayed by the German Emperor, his Empress, and the Ministers of State. The circumstances of mourning under which this country lies at present owing to the death of our good Queen have rendered it impossible for King Edward VII. and his Government to impart to your reception in this country and in this metropolis that degree of warmth which, under other conditions, would have been most natural and fitting. I pray you, therefore, gentlemen from foreign countries, to bear this in mind and to make allowances for any shortcomings in your reception here on the present occasion.

I have spoken of you as foreigners, but I do not forget that in science and philanthropy there are no physical frontiers separating nation from nation. We work hand-in-hand in the common cause without jealousy, though emulating one another in the search for truth, and looking for no reward save in the common welfare of the community. It is not unfit perhaps on the threshold of your labours that I should remind you of the vast advance that has been made in the past, and of the presence of Professor Koch among us who was the first to specify the bacillus of the disease under consideration. Rapid progress as we have made, far more lies before us. If I venture to touch upon two points which will come under your notice it is not because I assign to them a higher importance than the other matters which will be considered, but it is because as an unprofessional man certain points must present themselves to me with greater distinctness than others. There is the great question of the notification of consumption on the paper for discussion to-day. Upon that point I would ask you to bear in mind how impossible it is to induce an uneducated and self-governing community to adopt restrictions and precautions unless and until they comprehend the nature of these precautions and share in the understanding that they will be effective. Our experience in this country in the matter of compulsory vaccination will I am sure make the legislators extremely shy of making any step in the direction of control of tuberculosis unless they feel that they have the weight of public opinion behind them. I need not labour that point. As far as Great Britain is concerned let the people in this country thoroughly grasp the facts (1) that the returns show that the mortality from tuberculosis has been diminished from 38 per 1000 in 1832 to, I think, 14 per 1000 of the population in 1894, and (2) that tuberculosis still remains answerable for a greater share of the mortality in this country than all the other most dreaded infectious diseases put together—let them once thoroughly comprehend that much and, speaking from a considerable knowledge of my own countrymen, I venture to say that no insuperable difficulty will be found in the way of general notification. My other point is a minor one. It is in connexion with the subject of the influence of housing and aggregation of population. There is a thing which is apt to be overlooked. Our Scripture says: "Dust thou art and unto dust shalt thou return." and in our praiseworthy efforts to delay that return as long as possible we have come inevitably to the conclusion that there is no more potent agency in the dissemination of disease than dust itself, and no such potent agency in the sterilisation of that dust as abundant sunlight. What I wish to bring out is this, that while we have spent large sums of money in bettering the houses of the working classes we are face to face with a new danger. In our great commercial centres, where land is measured and valued at so many guineas to the square foot, the tendency must be to pile up houses higher and higher and so to exclude that priceless agent the sunlight. I think it is worth the attention of municipalities and other governing bodies to deliberate whether some restriction should not be imposed upon architects and builders so that the height of the houses should be on a definite proportion to the width of the streets. I anticipate most valuable and practical results from the conclusions to which you will come. You have to consider and advise what part the State and municipality are to bear in putting into practical effect the discoveries of science.

The work of the section was arranged under five divisions—viz. (1) Statistical; (2) Notification of Tuberculosis; (3) Influence of Housing and Aggregation; (4) International Aspects on Tuberculosis; and (5) Provision of Sanatoria.

Division I., Statistical.

Dr. **John Tatham** of the General Register Office, Somerset House, opened the business of this section by communicating a

Memorandum on Mortality from Tuberculous Phthisis in England and Wales during the last 40 years.

The mortality from phthisis at all ages in the four years, from 1896 to 1899, he said, was equal to a rate of 1521 per

1,000,000 living among males, and to a rate of 1141 per 1,000,000 among females. Among male children under five years old the rate was 403 per 1,000,000, and among female children it was 334. Male children aged from five to 10 years died at the rate of 140 per 1,000,000, and female children of the same age at the rate of 201 per 1,000,000. At the ages from 10 to 15 years the male rate was 195 and the female rate 410 per 1,000,000. In both sexes the real liability to phthisis began somewhere between the fifteenth and the twentieth year. Among males the death-rate at the age-group from 15 to 20 years stood at 908 per 1,000,000, and attained its maximum at the age-group from 45 to 55 years, when it reached 3173. Among females at the age-group from 15 to 20 years the rate was 1165, and attained its *maximum* (2096) at the age-group from 35 to 45 years. In both sexes the rate rapidly declined after the attainment of its maximum. Practically the incidence of phthisis was upon the ages from 15 to 75 years, very old people and young children being comparatively exempt. According to recent experience females seemed to be rather *less liable* than males to death from phthisis at ages under five years, *more liable* at the age from five to 20 years, and again *less liable* at subsequent ages Liability to fatal phthisis appeared to commence somewhat earlier in females than in males.

TABLE A.—ENGLAND AND WALES.—TUBERCULOUS PHTHISIS.—MORTALITY IN SEVERAL PERIODS FROM 1851 TO 1899.
ANNUAL RATE PER 1,000,000 LIVING.

MALES.

Period.	Ages.											
	All ages.	Under 5 years.	5—	10—	15—	20—	25—	35—	45—	55—	65—	75—
1851-60	2579	1329	525	763	2399	4052	4031	4004	3830	3331	2389	928
1861-70	2467	990	431	605	2190	3883	4094	4166	3861	3297	2024	659
1871-80	2209	783	340	481	1675	3092	3699	4120	3860	3195	1924	603
1881-85	1927	584	274	372	1381	2467	3246	3726	3567	2937	1800	645
1886-90	1781	521	234	318	1212	2222	2842	3436	3448	2904	1845	733
1891-95	1634	467	197	260	1075	2026	2548	3268	3205	2686	1672	563
1896-99	1521	403	140	195	908	1841	2341	3110	3173	2627	1530	549

FEMALES.

Period.	Ages.											
	All ages.	Under 5 years.	5—	10—	15—	20—	25—	35—	45—	55—	65—	75—
1851-60	2774	1281	620	1293	3516	4288	4575	4178	3121	2383	1635	716
1861-70	2483	947	477	1045	3112	3967	4378	3900	2850	2065	1239	447
1871-80	2028	750	375	846	2397	3140	3543	3401	2464	1777	1093	407
1881-85	1738	653	350	749	2006	2596	3070	2927	2197	1541	995	372
1886-90	1497	483	307	658	1626	2075	2552	2563	1936	1490	966	423
1891-95	1303	421	260	561	1428	1740	2155	2305	1742	1294	800	350
1896-99	1141	334	201	410	1165	1647	1862	2096	1597	1242	787	366

Changes in Mortality from 1851 to 1899.—Table A indicated that, with a few trifling exceptions, every age-group in both sexes had experienced *a decrease* in the mortality ascribed to phthisis. In every case the mortality in 1895-99 was lower than it had been in 1851-60; but the rate of decrease had varier widely and had been much greater among females than among males. The reduction indicated by the table might not be wholly real and might be due, in part, to the vaguer statement of causes of death in the earlier period, as, for instance, by the habitual use of the terms "consumption" and "decline" to describe any lingering disease of the lungs attended by "wasting." The figures must therefore be taken for what they were worth. Comparing 1896-99 with 1851-60 it was found that mortality from phthisis in males *at all ages* had been reduced from 2579 to 1521 per 1,000,000, and in females from 2774 to 1141 per 1,000,000. At ages under five years the mortality of males had been reduced from 1329 in the earlier period to 403 in the later and that of females from 1281 to 334. At the age-group from five to 10 years the rate had fallen from 525 to 140 among males and from 620 to 201 among females. At the age-group from 10 to 15 years the male rate, which in 1851-60 had been 763 per 1,000,000, had been reduced to 195, and the female rate, which had been 1293, had been reduced to 410. From 15 years upwards the female rate had fallen more than had the male rate. From 25 years to the end of life the male rate had fallen in varying proportions. The fall in the female rate at the successive age-groups after 25 years had not differed greatly from one-half. Tracing backwards the incidence of maximum mortality from phthisis it was found that it had not always been at ages from 45 to 55 years for males and from 35 to 45 years for females as it was at present. In the decade 1851-60 the mortality from phthisis was at its highest among males at ages from 20 to 25 years and among females at ages from 25 to 35 years. Thus the age of maximum phthisis mortality had been postponed in both sexes. In other words, either the saving of life had [illegible] which were formerly most liable to [illegible] or persons [illegible] they would have done [illegible]

Dr. Tatham also submitted two other tables. One of these (Table B) compared the mortality from phthisis in 1881-90 with that in 1895-99 in each of the registration counties of England and Wales, showing the proportional decrease in the phthisis-rate of each county in the later four-year period as compared with the earlier decennium. The other showed that the mortality from phthisis was also very seriously affected by occupation. Thus among people presumably not widely different in respect of social position—such as tin miners and coal miners—a number of males living at ages from 25 to 65 years, which gave 508 deaths from phthisis among tin miners, gave only 69 deaths (or only one-seventh part) among coal miners.

Dr. JOSEPH VON KOROSY (Budapest) read a paper on

Some Observations on the Influence of Social Standing, Food and Paternal Age on the Occurrence of Phthisis,

of which the following in an abstract. He said:

"1. *Occupation.*—During the period 1874-90 I observed the connexion between occupation and causes of death of 57,910 males and 49,034 females who died at ages above 15 years. According to these observations we may state that consumption caused death most frequently amongst printers, among whom in this period of 17 years 60·6 per cent. died from consumption; thus it may be considered as an exception if any printer died from another cause of death than phthisis. The next most fatal groups, with a mortality of nearly 50 per cent, consist of butlers, 52 per cent., shoemakers, dyers, and millers, 49·4, 49·3, and 49·2 per cent.; joiners, tinkers, and locksmiths, 48·5 and 48·4 per cent.; masons, 46·7 per cent.; working men, 43·3 per cent.; tailors, 41·8 per cent.; bakers, 39·8 per cent.; journeymen, 39 8 per cent.; drivers, 37 per cent.; servants, 36 per cent.; carpenters, 33·9 per cent.; officials, 33·6 per cent.; butchers, 33·3 per cent.; merchants, 28·3 per cent.; innkeepers, 27·2 per cent.; and lawyers, 20·5 per cent. Consumption appeared most rarely amongst capitalists, 10·6 per cent. of the deceased, and amongst physicians, 11·8 per cent. Amongst females more than half (51·2 per cent.) of the deceased died from phthisis; amongst working women nearly one-third; amongst female servants, 35·3 per cent.; female day-labourers, 33·3 per cent.; washerwomen, 31·4 per cent.; but only a quarter died amongst female gardeners (26·9 per cent.), and amongst capitalists, 4·2 per cent. But in face of such observations we can hardly neglect the influence of the different distributions of age within the different occupations. We know that the appearance of consumption depends largely upon age, occurring the most frequently with and after the age of puberty, and reaching its maximum between the thirtieth and fortieth year of age. Thus it is desirable to study the appearance of this cause of death separately with the different classes of age. This I was able to do from the year 1882, but, to my regret, only for the following ages: 15–30, 30–50, and above 50 years. Amongst 100 deceased of the following occupations who died at the age of 30–50 years, the number of consumptives was: (*a*) Males—(1) physicians, 15·1; (2) lawyers, 29·4; (3) capitalists, 30·4; (4) merchants, 35·3; (5) innkeepers, 37·0; (6) officials, 37·5; (7) butchers, 41·4; (8) journeymen, 42·0; (9) drivers, 42·6; (10) workmen, 45·3, (11) bakers, 48·5; (12) butlers, 50·8; (13) carpenters, 50·9; (14) servants, 51·3; (15) tinkers and locksmiths, 53·1; (16) tailors, 53·6; (17) masons, 53·7; (18) dyers, 55·2; (19) printers, 55·9; (20) shoemakers, 56·1; (21) joiners, 57·7; and (22) millers, 59·9. (*b*) Females—(1) journeywomen, 48·0; (2) servants, 38·9; (3) capitalists, 69·3; (4) needlework women, 65·6; (5) washerwomen, and (6) gardeners, 48·1

2. *Religious profession.*—The frequency of consumption was in the average of the five years 1885–93 out of 100,000 living people: amongst Roman Catholics, 722; amongst Lutherans, 788; amongst Calvinists, 559; Protestants, 625; amongst Jews, 376.

3. *Death.*—Out of 100,000 wealthy deceased there were swept away by consumption 15,943, whilst out of 100,000 poor persons, 22,339. Thus we may say that phthisis causes amongst poor people 40 per cent, more deaths than among the wealthy.

4. *Food of children.*—During the seven years 1882–90, observations were made with regard to bringing up of 37,313 children deceased at the age of 0–2 years. The points noted were whether the children were brought up at home or not, and whether they were nourished at the breast or bottle-fed. The results of these observations are as follows:—

—	Brought up in the family.		Out of the home.		Total.	
	Number of the deceased.	Out of these died from consumption.	Number of the deceased.	Out of these died from consumption.	Number of the deceased.	Out of these died from consumption.
Fed at breast ...	29·679	1570	1038	90	30,717	1660
Artificially ...	5·461	348	1135	185	6,596	533
Total	35·140	1918	2173	275	37,313	2193

Thus we find that amongst 100 deceased children there died from consumption: if brought up in the family, 5·4 per cent.; if out of home, 8·9 per cent.; if fed at breast, 5·4 per cent.; and if nourished artificially, 9·5 per cent. Combining the two conditions we find:—

	Nourished at breast.		Nourished artificially.
At home	5·2 per cent.	....	6·4 per cent.
Out of home ...	8·7 „	....	16·3 „

Thus, the cases of phthisis amongst the children brought up artificially out of home was three times greater than amongst family children nourished at the breast.

5. *Influence of paternal age.*—The following results I quote from my paper read at the London Congress of Hygiene and Demography. "It refers to 10,385 children deceased at the age of 0–10 years and observed according to the age of father and mother. I found that amongst 100 deceased children the number of consumptives was, at the maternal age of: under 20 years, 8·45; under 20–30 years, 5·09; under 30–35 years, 2·78; above 35 years, 4·26. Thus, consumption appeared the most frequently amongst children of very young mothers, whilst the frequency of it diminished with middle-aged mothers, and rose again with mothers above 35 years. According to the father we find also that the youngest and the eldest show a greater number of tuberculous children—viz., at the paternal age of: under 25 years, 5·71; under 25–30 years, 4·74; under 30–40 years, 3·61; and under 40–50 years, 6·01."

DIVISION II., THE NOTIFICATION OF TUBERCULOSIS.

A paper by Dr. HERMANN BIGGS (New York) upon

The Voluntary Notification of Advanced Tuberculosis

was then read by Dr. Janway. The author showed how this could be best encouraged and effected and what had been the experience of compulsory notification in the cities of New York, Buffalo, and Washington.

Alderman MCDOUGALL (Manchester), Deputy-Chairman of the Sanitary Committee and Chairman of the Hospitals Sub-Committee of that city, then read a paper on

The Working of the Voluntary Notification of Phthisis in the City of Manchester.

Early in 1899, he said, a scheme for the voluntary notification of phthisis was submitted to the Sanitary Committee of the City of Manchester and was accepted by them. By that committee a statement was placed before the City Council limiting the notification of cases to public institutions in the first instance. This proposal was accepted by the City Council who also accepted the entire scheme, though not for immediate execution. A highly qualified medical man, Dr. Coates, was appointed in September, 1899, to assist the medical officer of health in administering the scheme. In March, 1900, the city council accepted the further proposal that medical practitioners should be invited to notify their cases, and a second medical assistant, Dr. G. F. McCleary, was appointed. It was understood that the objects of notification were to be: (1) that the medical assistant should visit the homes of cases and instruct the household in the precautionary measures to be adopted, leaving with them printed instructions; (2) that they should determine what measures of disinfection were required; (3) that they should make inquiries into the exposure to infection of individual cases from relatives, workmates, friends, &c., into their occupations and places of work, the various houses which they had inhabited, their physique, personal habits, and so forth—in fact, into every circumstance which might be supposed to bear on the modes of infection; (4) to sustain a supervision over infected households, to ascertain change of address, and to see that personal precautions and household cleanliness were maintained and to get necessary measures of disinfection carried out from time to time; (5) to provide for the required measures of disinfection being executed; (6) to assist in getting bacteriological examinations of sputum in suitable cases; and (7) to collect information regarding households which might serve as a basis for hospital provision. To assist the medical officer of health in carrying out the scheme, besides the two assistant medical officers, there were available the services, in part, of 28 district sanitary inspectors and of 19 health visitors belonging to the Manchester and Salford Ladies' Health Society and to the Jewish Ladies' Health Society, voluntary organizations aided by the corporation. By these the cleansing and disinfecting work had been supervised and a continuous supervision had also been exercised over cases once reported. The administrative work had also required the time of two clerks in writing letters, entering records, and so forth. The following figures would serve to give an idea of the amount of work which had been done. The number of cases notified from September, 1899, to the end of March, 1901, had been 2338. Of these, 931 had been notified from hospitals and 779 had been notified from public institutions (628 by private practitioners); total 1710. During that period the number of deaths registered from phthisis had been 1729. The total number of houses disinfected between March 31st, 1900, and March 30th, 1901, had been 2306 The methods of disinfection employed had been to disinfect articles of clothing by steam, while rooms had been disinfected by washing the floors, woodwork, &c., with soft soap and water, cleansing the walls down with dough (Esmarch's method), and limewashing the ceiling. If, however, the house was dirty, or the patient had not carried out careful personal precautions, or marks of sputum were visible on the floor or walls, the surfaces of the room were washed with a solution of chlorinated lime (one and a half ounces to the gallon). This method was adopted as the result of a special investigation by Professor Delépine. The amount of disinfection done was shown by the following figures, which, however, included disinfections after death. By corporation, with chloride of lime solution, 633; by corporation, with solution of lime, 94; chiefly by tenants, by Esmarch's method, 1579; total, 2306. He might mention that they had begun the isolation of advanced cases of tuberculosis from crowded houses, though only about a dozen were as yet actually isolated. The number of applicants for admission was large and the need for the reception in hospital of such cases was very great. With the new hospital given by Mr. Crossley the number of beds available for Manchester and district would be—sanatorium, 120; isolation, 12. To these must be added the provision made by the union hospitals and such additional provision as the corporation might make. As regards the union hospitals, he was of opinion that the taint of pauperism should be removed altogether from the sick.

Dr. M. HOLMBOE, Director of the Medical Service in Norway, then read a paper on

The Notification of Tuberculous Diseases in Norway.

He said that according to the law of May 6th, 1900, which law came into force on Jan. 1st of this year, compulsory notification of such cases of tuberculosis, which were accompanied by secretions, had been introduced in Norway. Subject to notification were: (1) new cases of such disease coming under medical treatment; (2) deaths of persons suffering from such disease; and (3) changes of residence of such persons, if it should be so agreed by the municipal council and approved by the Government. The notifications were to be given to the officer of health of the place who in Norway always was a physician; these notifications had a confidential character. The compulsory notification had been introduced in order to give the officer of health an opportunity to see that necessary cleanliness was observed in the homes of the sick, especially in the treatment of their secretions, and that a radical cleansing was made of their rooms and their garments and bedclothes before others made use of them. The law had been too short a time in force to allow anything to be said with certainty about its effects. At any rate, no complaint against inconveniences resulting from the compulsory notification had yet come to the notice of the directorate of the medical service.

Discussion on Prevention of Tuberculosis during Childhood.

Dr. S. A. KNOPF (New York) read a paper

On State and Individual Prophylaxis of Tuberculosis during Childhood and the Need of Children's Sanatoria,

of which the following is an abstract. In the first portion of the paper Dr. Knopf refuted the conception of frequent hereditary transmission of the bacillus tuberculosis and demonstrated that post-natal infection was virtually the only source of tuberculosis in infancy and childhood. He described the manner of how the child in the home of an unclean, ignorant, or careless consumptive had multiple chances of taking the disease into his system by inhalation, ingestion, and inoculation. The contraction of tuberculosis through the ingestion of milk and other food substances derived from tuberculous cows was also briefly treated. The precautions which should be taken to avoid the infection of the child from tuberculous parents and others living in the family were described in detail and so were the kind of leaflets concerning the prevention of tuberculosis which health boards should gratuitously provide to physicians, midwives, and mothers. Dr. Knopf's views concerning the so-called hereditary predisposition were set forth and may be summarised here by saying that there was inherited very often from a tuberculous mother, much more rarely from a tuberculous father, a physiological poverty which might handicap the offspring in its development and offered when occasion presented itself a suitable soil for the invasion of the bacilli of tuberculosis. Dr. Knopf was, however, convinced that many of these children, born "tuberculisable," could be protected from contracting the disease by being placed from early childhood in proper sanitary surroundings and given a prophylactic, hygienic, and dietetic treatment. Respiratory exercises for the development of the lungs were, in the opinion of Dr. Knopf, of great importance in this prophylactic treatment. The hygienic and dietetic treatment should, however, begin with the mother while the child was still in utero. The most healthful life, generous diet, comfortable garments, and breathing exercises in the open air should be prescribed for the mother during the state of pregnancy. The duties of the State and municipality in the prevention of tuberculosis in children were outlined, and the urgent need of children's sanatoria, to which schools should be attached, for tuberculous children was dwelt upon.

The French School Colonies.

M. RAOUL BOMPARD (Paris) contributed to a discussion on prevention of tuberculosis in childhood a paper on the above subject. He said that the poor child, badly nourished and overworked, was particularly liable to tuberculosis. They endeavoured in France to insure to the largest possible number of poor school-children a sojourn in the country, either at the sea or among the mountains. This project had been zealously carried out by a great number of private enterprises and by the municipalities of Bordeaux, Lyons, Marseilles, Roubaix, Lille, Agen, and Toulon Paris devoted 279,000 francs (£11,160) a year to this object, by which more than 4000 children profited. The average length of stay was three weeks. Some societies and municipalities had bought villas to insure a longer stay for the anæmic cases. The average benefit derived was estimated approximately at an increase in weight of two kilogrammes and an increase round the chest of two centimetres.

WEDNESDAY, JULY 24TH.

DIVISION III., THE INFLUENCE OF HOUSING AND AGGREGATION.

Dr. HAROLD COATES (Manchester), senior assistant to the medical officer of health of that city, communicated to the section the results of an investigation, undertaken at the suggestion and under the direction of Dr. Niven and Professor Delépine, into

The Presence of Infective Material in Dwellings occupied by Consumptive Persons.

In 1895, he said, an investigation of this kind was commenced under the direction of Professor Delépine at Owens College but was shortly after abandoned. The establishment of a scheme of voluntary notification of phthisis in 1899 presented a favourable opportunity for taking up the investigation, and, acting on the suggestion of Dr. Niven, the hospitals sub-committee of the Manchester Corporation resolved that he (Dr. Coates) should carry out the work under the direction of Professor Delépine. Although the plan of the investigation was somewhat different the methods of experimentation pursued were in the main similar to those of Cornet, although modified in some respects at the suggestion of Professor Delépine. Specimens of dust were collected from situations in which dust from the atmosphere had settled naturally and where there would be no likelihood of direct contamination with expectoration or by infected articles. The dust was taken from the floors, crevices between the boards and between the floor and skirting board, from shelves and other similar situations, by means of a metal spatula, which was sterilised immediately before use by passing it several times through the flame of a spirit lamp until red hot and then allowing it to cool. By means of this sterilised spatula the dust was placed in a glass tube plugged with cotton-wool, which had been previously sterilised in the autoclave, the cotton-wool plug being passed through the flame of the spirit lamp when opening and replugging the tube. The tube containing the dust was then carried in a sterilised metal box to the laboratory. Small pieces of sterilised sponge carried in sterilised glass tubes plugged with cotton-wool were rubbed vigorously over an area of two square feet of wall surface and then replaced in the tube and the tube replugged with cotton-wool. The cotton-wool plug was passed through the flame on opening and replugging the tube. Sometimes.

two or more pieces of sponge would be used for the same area of wall surface if this happened to be very dusty. The tube containing the sponge was then placed in a metal box and carried to the laboratory. According to Cornet's estimate the dust collected by rubbing over two square feet of wall surface would be the deposit from at least 306 cubic feet of air. On arrival at the laboratory the dust, or dust-laden sponge, as the case may be, was well rubbed up with sterilised water, and the mixture filtered through sterilised muslin, so as to remove coarse particles which might otherwise block up the needle of the hypodermic syringe used for inoculation. The emulsion thus obtained was centrifugalised and a small portion of the deposit, spread on a covered glass, stained and examined microscopically for tubercle bacilli. In only two cases out of a very large number of film preparations of the dust examined microscopically were tubercle bacilli discovered. This method was therefore practically useless for the discovery of tubercle bacilli in a specimen of dust. Cultivation methods were also useless because the dust contained many other organisms which would overgrow the slowly growing tubercle bacillus. The method employed to determine the presence or absence of tubercle bacilli in the dust was that of the inoculation of a susceptible animal—viz., the guinea-pig. The site of inoculation was on the inner aspect of the left leg, just above the level of the knee-joint, the pathological changes produced by the inoculation of tuberculous material in this situation being very definite and constant. The houses in which investigations were carried out were classified into the following groups: 1. Houses which were in a dirty condition and in which a consumptive patient was living who was taking no precautions to dispose of his expectoration so as to prevent infection of the atmosphere, but who spat freely on to the floor or into his pocket-handkerchief, &c. 2. Houses which were in a very clean condition but in which a consumptive patient was living who was not sufficiently careful as to the disposal of his sputa. 3. Very dirty houses, in which there had been no case of tuberculous disease for several years past. As a result of the inoculations many of the animals died from acute septic diseases. Those which survived were killed about one month after the inoculation and at once dissected so as to show the lymphatic ganglia and viscera. Any morbid changes were noted in a book kept for the purpose and cover-glass preparations were made from scrapings of affected glands and organs and examined for tubercle bacilli.

Of houses belonging to Class I.—infected houses in a dirty condition—23 were examined. Two of these houses had to be excluded from consideration because the results were inconclusive. All the animals died shortly after inoculation and microscopic examination of the dust was fruitless. In another house both animals died shortly after inoculation; but in this case examination of the dust revealed the presence of tubercle bacilli, and this may be accepted as evidence that the dust was infective. Therefore there are 21 houses in which definite results were arrived at. In 13 of these houses at least one animal was found to be tuberculous, and in another house tubercle bacilli were present in the dust. Therefore in 14 out of the 21 houses—i.e., in 66·6 per cent.—the presence of infective dust was proved which had at one time been suspended in the atmosphere and therefore was capable of being inhaled. In seven of the houses there was no evidence that the dust was infective. Altogether, 52 guinea-pigs were inoculated with dust from these houses; 20 of these died within a few days of inoculation, 17 were killed from four to five weeks after and found to be tuberculous, and 15 were killed from four to five weeks after and found to be healthy. Taking the conditions of lighting and ventilation in the 21 houses which gave results either negative or positive, they found that out of the 14 "positive" houses the lighting and ventilation were bad in eight houses, fair in one house, and good in only five, while of the seven negative houses the lighting and ventilation were good in six and fair in the other one. In *none* of the houses with negative results were the lighting and ventilation poor or bad. These facts pointed strongly to the beneficial effects of light and air, even in the dirtiest houses, where the conditions were certainly not favourable to their action. As was to be expected, those samples of dust taken within one or two feet of the floor produced tuberculosis oftener than samples taken at higher elevations. This greater infectivity of the dust nearest the floor was not due to direct infection with sputum, as all the samples were collected from places where this could not occur.

Of houses belonging to Class II.—clean but infected houses in which a consumptive patient was living who was not sufficiently careful as to the disposal of his expectoration—ten houses were brought under examination and two samples of dust were taken from each house. Each sample was used to inoculate one guinea-pig. Microscopical examination of the dust was not carried out in these experiments, as the results in previous experiments were so very unsatisfactory. 20 guinea-pigs were inoculated, and of these *only* three died from acute diseases shortly after inoculation. Of the remaining 17 animals, six developed tuberculosis and 11 were found free from tuberculosis at the post-mortem examination. Of the 10 rooms examined, dust capable of producing tuberculosis on inoculation into a susceptible *animal* was *found in five; in one* case both animals belonging to that room became tuberculous; in the other four rooms one animal only became affected. Thus even in the cleanest of houses infectious dust could be found in 50 per cent. of cases when the phthisical occupant was using his pocket-handkerchief or the floor as a receptacle for sputum. It was therefore evident that ordinary cleanliness alone was not sufficient to prevent the accumulation of infectious material in the rooms occupied by a consumptive. Taking the houses of Class I. and Class II. together, the influence of sunlight and fresh air in the prevention of accumulations of infective dust was shown very markedly.

Ten houses were examined of Class III.—dirty houses in which no case of tuberculosis was resident—and in no case was any tuberculous dust discovered. Twenty guinea-pigs were inoculated with dust taken from these houses, and six of these died within a few days of inoculation. The remaining 14 were killed from four to five weeks after inoculation, and all were found to be free from tuberculosis. These results, taken in conjunction with the results obtained from houses in Class I. and Class II., showed that the virulent dust found in those houses was due to the presence of a consumptive patient who was infecting the atmosphere with his expectorations. These experiments showed that living and virulent tubercle bacilli were present in the dust, which had deposited itself naturally from the atmosphere, in rooms which were occupied by phthisical patients who were in the habit of spitting upon the floor or into pocket-handkerchiefs. They also seemed to show that this infective dust was present in greatest amount or was most virulent where the access of sunlight and the free circulation of air were prevented. Such infected rooms must be a source of danger to those occupying them. Healthy persons ran the risk of being infected and the patient himself might become reinfected and his ultimate recovery be delayed or prevented.

The paper concluded with a description of the methods of disinfection in use in Manchester.

Professor von Schrotter (Vienna) said that the best method of getting rid of tuberculous sputum was by burning it. The sputum of patients walking about was collected in a modification of Dettweiller's bottle and that of those lying in bed in papier-maché spittoons containing powdered turf. The contents of the bottles and the spittoons themselves were well mixed with turf and then burnt.

Dr. J. Robertson, medical officer of health of Sheffield, then read a paper on the

Influence of Housing and Aggregation on the Prevalence of Tuberculosis.

There was at the present time, he said, ample evidence that the lighting, ventilation, and cleanliness of a large proportion of dwelling-houses, factories, and workshops were not sufficiently good to secure that degree of good health which was necessary in order to prevent the occupiers and workers being attacked by tuberculosis and other diseases. Again, there had been accumulating during past years ample evidence that, given good conditions as regards light, ventilation, and cleanliness of dwellings and work-places, the amount of tuberculosis was very much less than in places where the lighting, ventilation, and cleanliness were deficient. There was also the evidence of the mortality statistics during the last 40 or 50 years, which showed that, without any direct effort in regard to phthisis, the disease had diminished by over 45 per cent., and that in the case of all forms of tuberculosis in the human subject the decrease had been during 40 years something like 40 per cent. This diminution in the number of deaths from tuberculous disease had been coincident with a general improvement of the sanitary conditions of the people. The condition of houses in every respect was better now than it was 50 years ago; so also there had been an enormous improvement in the conditions under which a large proportion of the labouring classes worked. This improvement was not only an improvement in the sanitary condition of the work-places in its ordinary sense, but also in regard to those special processes, such as grinding, where dust or fumes had a deleterious influence on the respiratory organs. There had also been an enormous improvement in the food-supply of the working-classes. So far as the removal of refuse in towns was concerned the improvement had been steady and was continuing at the present time. It was questionable, however, whether the cleanliness inside the dwelling-houses of the people was better now than it was 50 years ago, when so much larger a proportion of the population lived in rural areas. Personally, Dr. Robertson was inclined to think that the condition of the people as regarded cleanliness of dwelling-houses was better now than it was formerly. There could be no doubt that the general cry for the abolition of slums and the adoption of women inspectors to look after the conditions inside the dwelling-houses had been productive of good, and would continue to improve their conditions in this respect. If further evidence were required, there had been accumulating during the past 10 or 15 years an enormous amount of evidence which was extremely valuable from the point of view of preventive medicine—viz., as regarded what could be done in preventing tuberculosis in the lower animals. It had been demonstrated so frequently that the proper housing of cattle to a large extent prevented tuberculosis that it had now become almost common knowledge in the medical and veterinary professions. The demonstration that tuberculosis among cattle was not in itself hereditary was also highly important. The prevention of tuberculosis divided itself roughly into two divisions: (*a*) the prevention of the spread of infecting material, and (*b*) the strengthening of the resistance of every individual, and especially of those having a hereditary tendency towards the disease. The number of persons who had some hereditary history or hereditary tendency towards tuberculosis was extremely large—so large, indeed, that it was impossible to limit one's action in strengthening resistance to any particular group of persons. While one advocated by all means the limitation of infecting material it was even more important to be able to put this large group of the community into such a condition of environment that there would be less tendency to develop the disease. The possibility of being able to do this appeared to be a very hopeful one. No one who had had to watch delicate consumptive patients undergoing the open-air treatment for tuberculosis could doubt for a moment that fresh air, sunlight, and good food had a most potent influence on the disease. Nor could any careful observer doubt that the persons who lived and worked under good conditions as regarded air and light were very much less susceptible to tuberculosis than those living and working in ill-lighted premises. The lighting of any house or work-place did not depend alone upon the area of window, and until some good means of measuring light was obtained there would probably be little improvement on the present condition. A film of tar or soot on the windows of a town house would cut off nine-tenths of the photographically active light; a dark stone or brick building adjacent to a house would absorb nearly twice as much light as a light-coloured one. Except in the centre of cities, it was advisable that there should be no building which obstructed the light from another, no cellar dwellings should exist, and no cellars should be allowed to be used as work-places. The effect of dark offices and workshops upon the young people employed was remarkable, and there seemed to be absolutely no reason why such premises should be allowed to damage the health of the occupiers. The very difficult subject of ventilation was largely neglected in this country, owing chiefly, no doubt, to the variable temperature. Yet by insisting that workers, and especially those engaged in sedentary occupations, should carry on their work in a good atmosphere they would do more in the way of increasing the resistance against tuberculosis than by any other single means. There was difficulty in quite understanding why the small increase of carbonic acid and other impurities which occurred in a badly-ventilated room should have such a powerful effect, but that it had a powerful effect no one who had observed carefully for himself could doubt. The present cubic air-space permitted by statute in the case of factories and workshops was too small for efficient ventilation. Personally, Dr. Robertson felt very strongly that the only way to ensure proper ventilation was to insist upon a high standard of purity of air, but the difficulty in the adoption of such a standard was the very varying methods used in the estimation of carbonic acid in the air. At the present time a large number of workshops and factories never had their floors and benches washed, and yet there was no more reason why this should not be done than in the case of common lodging-houses. There were, of course, a certain number of trades where earth floors were a necessity; in all others there should be a requirement that the wood-work and floors should be washed once a week. Such a condition of cleanliness in work-places would not only be of value in itself to the workers, but would be an object-lesson of considerable importance.

Discussion on Higher Standard of Lighting and Cleanliness.

Dr. A. RANSOME, F.R.S. (Bournemouth), communicated a paper on

The Need of a Standard of Efficient Ventilation,

of which the following is an abstract. He said that consumption was a "filth disease" and flourished in atmospheres polluted with organic matter, especially of respiratory origin. The influence of this pollution was manifold and was due (1) to the presence of the bacillus of tubercle; (2) to the retention of its virulence by this organism in such atmospheres; (3) to the presence of other pathogenic organisms; and (4) to the physical condition of the persons breathing such air. Their first duty in the prevention of consumption must be to get rid of this "air-sewage" which caused more mortality than water-sewage. This work could only be accomplished by copious "ventilation." The standard of ventilation hitherto fixed for dwelling-rooms was 3000 cubic feet per head per hour, in order to reduce the amount of respiratory CO_2 to two parts per 10,000. A better method of judging the efficiency of ventilation was to take the amount of CO_2 in the air as the standard. Although it was the organic matter accompanying the CO_2 which did the harm, and although in [illegible] were not always in proportion, [illegible] the organic material as a te[illegible] away both, it was a good and more readily applied standard than the mere velocity of the entering or out-going currents of air. In the year 1897 a Home Office Committee, of which Dr. Ransome was a member, proposed that the CO_2 present in humified weaving sheds should be made the standard of ventilation; and this measure was embodied in the Cotton Cloth Factories Act of 1898, with the result that a great improvement had taken place in the conditions of labour in these places. A table showing the results was exhibited. Evidence was also given showing that the health of the operatives in these weaving sheds had greatly improved and that in consequence the sickness rate had diminished. The Act of 1898 only applied to a few thousands of male and female operatives, leaving several millions of others, who now performed their labour under the old conditions of insufficient air-supply. Dr. Ransome urged that the same standard should be applied to all "work places" and anticipated that the health of the people who worked in them would benefit to at least the same extent, and that the prevalence of consumption amongst them would be greatly reduced thereby. A plea was also put in for some regulation of the ventilation of other places of public assembly, such as theatres, concert-rooms, churches, chapels, &c. The question of cost was discussed and it was shown that this objection need not be prohibitive.

Dr. T. GLOVER LYON (London), physician to the City of London Hospital for Diseases of the Chest, Victoria Park, London, communicated a paper on

The Air-supply of London.

Air-supply, he said, related to habits or conditions of life. Bad air caused deterioration of health, leading to increased susceptibility to phthisis, and in extreme cases seemed to act specifically in this direction. The respiratory apparatus of the body was capable of temporary adaptations, but pure air was required, though vitiated air might be tolerated for a short time without injurious effect by some persons. Brain work necessitated better air-supply than manual labour. He defined *pure air* as air that might be breathed by most people all through the year without deterioration in health; *fresh air*, air such as would serve continuously for some time, but not indefinitely; and *vitiated air*, such as could be breathed without injurious effect for short periods only of the day. Pure air was not necessary to prevent or even to cure phthisis, as was shown by the results at the London chest hospitals. When Queen Victoria came to the throne the general supply of air to London was perfectly good, and country air could be enjoyed within an easy journey on foot by all Londoners. The annual country health excursion was unknown. At the beginning of King Edward VII.'s reign pure air was unattainable by the majority of His Majesty's subjects dwelling in his capital. Provision of much larger spaces, within easy reach of all, was imperative, for the zones of houses built next to open country were blocked in by others one after another. For every house built or rebuilt adequate park space in near proximity to it should be provided. He considered the present regulations of air-supply to individual buildings quite inadequate, while there was no supervision of any account of the ventilation of buildings. He suggested that (1) regulations should be drawn up for the adequate provision of open spaces in the building and rebuilding of large cities; (2) in the case of schools and public assembly rooms of all kinds provision should be made to admit a standard quantity of fresh air to each person whom the schools or assembly rooms are intended to accommodate; and (3) ventilation generally should be under the supervision of the medical officer of health.

Dr. ESPINA Y CAPO (Madrid) said that the best spittoons to employ were those composed of hygienic paper to be burnt immediately after expectoration. By warning all people to use the spittoon it was possible in some degree to limit the infection. He also recommended that collecting spittoons, which must be placed everywhere, should be constructed of a material easily destructible by fire, so that they might be replaced from day to day.

Mr. C. H. GARLAND ofthe General Post-office referred to the subject of phthisis among their employés.

Dr. R. ALEXANDER. Dr. J. F. J. SYKES (London), Sir HENRY LITTLEJOHN (Edinburgh) and others also took part in the discussion.

THURSDAY, JULY 25TH.

DIVISION IV., THE INTERNATIONAL ASPECTS OF TUBERCULOSIS.

A general discussion was opened by Dr. ALFRED HILLIER (London), who was followed by delegates from various States, among whom we may mention Dr. MONTIZAMBERT, Director-General of Public Health in Ottawa; Professor F. C. ROBINSON, delegate of the State Board of Health of Maine, U.S.A.; and Dr. VAN RYN, Secretary-General of the Belgian National League against Tuberculosis.

SECTION II.

MEDICAL, INCLUDING CLIMATOLOGY AND SANATORIA.

TUESDAY, JULY 23RD.

The meetings of this section were held in the Royal Medical and Chirurgical Society's Rooms, 20, Hanover-square, W., under the presidency of Sir RICHARD DOUGLAS POWELL, Bart., K.C.V.O., who opened the proceedings with a brief introductory speech.

Dr. C. THEODORE WILLIAMS (London), consulting physician to the Brompton Hospital, then discussed

What Influence has Climate upon the Treatment of Consumption?

He said: "Climate has in all ages been considered to exercise an important influence in the treatment of pulmonary tuberculosis, though opinions have differed as to the kind of climate which is most beneficial. In South America, since early times, arrest of tuberculosis has been produced by prolonged residence in the Andes (Archibald Smith, Guilbert, and Weber) without the aid of sanatorium and other treatment, and these successes must be attributed to climate and to climate alone. Numerous authenticated instances of arrest can also be shown as the results of sea voyages, of warm and of cool marine climates, or of dry, warm climates respectively; in fact, it has been proved that the arrest of tuberculosis has occurred in a variety of climates and under very different conditions. The main object is to determine under what climatic conditions arrest of this disease most frequently takes place and what are the real causes of such improvement. In all climatic treatment care must be taken to bring the patient fully under the influence of the atmosphere and to insure a strictly open-air life, with complete hygienic measures, whether in a sanatorium or elsewhere. The climate which best fulfils these conditions need not necessarily be a warm or a cold one, but should be dry, with abundant sunshine, admitting of much exercise and producing appetite and muscular vigour. Tropical climates are excluded on account of their relaxing influence and their favouring bacillary increase.

The principal climates utilised for the treatment of pulmonary tuberculosis may be grouped as follows: (1) marine; (2) dry warm climates; and (3) mountain climates.

Of marine climates the temperate ones of the British Islands have been shown to be suitable for a large number of cases of chronic pulmonary tuberculosis, specially in its strumous form, even when accompanied by pyrexia, and for our countrymen and women the avoidance of long journeys and the certainty of abundant and good food and of home comforts are a great recommendation. The warm marine climates of Madeira, the Canaries, and the West Indies are beneficial in catarrhal tuberculosis, but not as a rule in phthisis generally. Sea voyages are probably the most successful form of marine climates, and provided (1) that the patient's cabin is well ventilated, so that he is sure of abundant fresh air by night and in stormy weather as well as by day, (2) that the food-supply be good and unfailing, and (3) that the voyage be in temperate and not in tropical seas, a sea voyage is often productive of large gain of weight and colour and leads to arrest of tuberculous disease. Sea voyages are most beneficial in (1) hæmorrhagic phthisis, (2) in strumous or scrofulous phthisis accompanied by affections of the glands or joints, and (3) in cases of chronic tuberculous cavity where the disease is limited and unilateral.

Dry warm climates include that of the Desert (especially the Egyptian) and those of the Mediterranean basin. The Desert climate is remarkable for its dryness, sunshine, and its purity and asepticity, and is especially adapted to open-air treatment. Owing to radiation the extremes of temperature are often great. General improvement in consumptives is perhaps more striking than local, but diminution in the amount of lung secretion and reduction of cough usually take place. The Desert climate appears to act more decidedly in preventing the spread of tuberculous disease than in arresting that already present. It seems to benefit most cases of chronic cavity, especially in elderly persons and patients who are incapable of much exercise. The climate of the Riviera and of the Mediterranean basin, as a whole, is cooler and more stimulating, but liable to greater vicissitudes of weather, though not of temperature, than the Desert climate. It is moister than the latter and, compared to the British climate, it is clearer and brighter with a good deal of wind, but free from fog or mist, with a winter mean temperature from 8° to 10° F. higher, with half the number of rainy days and four or five times the number of sunny ones. It can be recommended in chronic phthisis, especially when complicated with inflammatory attacks, in strumous and laryngeal phthisis, and to patients with rather extensive tuberculisation of the lungs, who from feeble circulation, short-windedness, or advancing age are unable to bear the effects of a high altitude.

Mountain or high altitude climates vary according to latitude, but are all characterised by (1) diathermancy, or the increased facility with which the sun's rays are transmitted through the attenuated air, which causes a difference between sun and shade temperatures of 1° F for every rise of 235 feet (Dennison); (2) by their asepticity, as shown by the preservation of meat for long periods; (3) by their physiological effects on the human body, as shown by the tanning of the skin, increase of both pulse and respiration rate, followed after a certain period of residence by a slowing and a deepening of the latter, and an extension of the thorax, also by an increase in the amount of urea and water excreted by the kidneys; more oxygen is absorbed and more carbonic acid is expired by the lungs. The effect on cases of early tuberculous consolidation is remarkable, local pulmonary emphysema is produced around the tuberculous nodules, and the healthy portions of the lung become hypertrophied, necessitating enlargement of the thorax, which can be proved in several ways. Expansion of the chest takes place unless opposed by extensive lung fibrosis or pleuritic adhesions.

It is suggested that the arrest of the tuberculous disease is greatly owing to the pressure on the tuberculous masses by the increasing bulk of lung tissue, which by emptying vessels prevents caseation and cretification of the tubercle. Accompanying these changes are the disappearance of cough and expectoration, improvement in digestion and assimilation, gain of weight, of colour, and of muscular, respiratory, and circulatory power. The high altitudes have produced the best climatic results of all climates in the treatment of phthisis, but they are most successful in cases of early tuberculous consolidation, where they produce complete arrest in by far the larger proportion of patients, and in hæmorrhagic phthisis, but they are not equally successful in cases of excavation which require a longer sojourn to produce arrest The high altitudes are much more beneficial to the young than to the middle aged of both sexes males over 30 years of age and females under 20 benefit least The special effects above named have been noted in the Alps, the Andes, the Rocky Mountains, and are common to all mountain ranges The period of sojourn for patients in any climate must depend on the conditions of the climate and of the individual to be treated and in many instances a change of climate after a prolonged stay has many advantages Contra indications to the various groups of climates were enumerated All climatic treatment should be carried out under as strict medical supervision as sanatorium treatment "

Professor LANNELONGUE, Dr ACHARD, and Dr GAILLARD communicated a paper on

The Comparative Influence of Climate and Individual Resistance in Experimental Tuberculosis

of which the following is an abstract The experiments which they had made in studying the effects of climate in the evolution of tuberculosis inoculated in the pleura of the guinea pig had taught them that this influence was inconsiderable and had not the importance which medical prognosis had been wont to attach to it They had enabled them in addition, to observe remarkable differences in the progress of the disease and in the nature of the lesions in various animals of the same species which had been similarly inoculated and submitted to the same conditions of climate and food Certain of these animals offered such a remarkable resistance that it would seem that in their cases the infection had not matured or had been spontaneously cured, some even increased in weight and the records showed that some died quite fat whilst at the same time exhibiting lesions of generalised tuberculosis In nearly half the number of cases the lesions remained localised in the thorax Affections of the serous membranes the pleura pericardium and peritoneum were extremely frequent and exhibited the whole series of tuberculous lesions of such membranes met with in man—dry sero-fibrinous, purulent and hæmorrhagic forms A very special feature of tuberculosis in guinea pigs, of which they had met with six examples was rupture of the spleen with profuse hæmorrhage into the peritoneum The spleen was often affected to such an extent that they had seen it weigh more than one tenth of the animal Most of the lesions met with having their counterpart in human pathology they could compare these experimental results with what was found in tuberculous human beings It was therefore internal causes which together constituted the "soil" far more than external causes and climatic influences which determined the nature of the lesions and general progress of the disease The chances of tuberculous infection were almost the same for a large number of human subjects, the onset was also very similar, but the progress of the disease was very different in individuals If the number of men who resisted it was relatively considerable and larger than was the case with their guinea pigs it was because man was less liable to tuberculosis than the guinea-pig, and he was slowly infected and in small doses, and not in wholesale doses, as in their experimental inoculations

Dr AMREIN (Arosa) then read an interesting paper upon

The Physiological Principles of High Altitude Treatment and their Importance in Tuberculosis

He presented the following table of comparison of the results of different climates —

THE RESULTS OF DIFFERENT CLIMATES COMPARED

—	No of patients	Average length of residence	First stage	Second and third stages	Bilateral affection	Results: General: Improved	Results: General: Stationary	Results: General: Worse (including deaths)	Results: Local: Arrest	Results: Local: Improved (including arrest)	Results: Local: Stationary	Results: Local: Worse
		Months	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
High altitudes	247	12 2	65	35	37	83 4	2 02	14 57	42 5	75 5	5 3	19 1
Sea voyages	65	1 6*	63	37	37	77·0	—	21 56	7 7	53 3	10 7	33 8
Riviera	210	9	59	41	36	65·0	10 0	24 8	5 9	36 6	17 8	45 6
Home counties	292	9 7	58	42	42	63 7	8 21	28 0	2 0	38 9	20·0	41 1

* *Average of voyages*

Dr P S HICHENS (Rossclare) read a paper entitled

A Query as to whether any Special Types of Pulmonary Tuberculosis and its Complications are Unsuitable for Treatment in the Climate of the British Isles

He remarked that they had heard very much hitherto about the successes of the sanatorium treatment but very little about its failures According to some writers, it might be imagined that there were no failures, but yet, even excluding the most advanced cases and the cases in which acute miliary generalisation and violent hæmorrhages intervened there were undoubtedly cases the rate of progress of which was at any rate a considerable disappointment Were these disappointing cases of any special type of the disease or its complications? So far as his own small experience had gone he had had types of disease the rate of progress of which had been a disappointment to him. In one type the disease had assumed a bronchitic form, in the others the disease of the lungs, in whatever form, was associated with persistent diarrhœa and very irregular pyrexia Two cases illustrating these types of disease were described These cases had improved but very slowly and not [illegible] forms of disease which might [illegible] much more serious With the exc[illegible] monia and cases associated with [illegible] most of the ordinary forms of tuberculous disease of the lungs and its complications under his care The ordinary rapidly spreading broncho pneumonic forms and chronic forms with excavation and associated with severe tuberculous laryngitis and tuberculous peritonitis had all done extremely well He thought that it would be of great interest to know whether others had had the same experience in other types of disease in whose progress they had been disappointed. Would these types do better in a more perfect climate or would their progress be disappointing under any circumstances? The excellent results obtained by the sanatorium treatment of consumption in the British Isles were now known to all and he thought our knowledge would now be better advanced by discussing our failures than by boasting about our successes

Dr THEM ZAMMIT (Malta) communicated a paper on

Tuberculosis in the Maltese Islands

He said that the mortality from tubercle in Malta was exceptionally low As the general death rate was not very low, and as overcrowding and the other debilitating agencies were by no means rare the comparative freedom from tubercle must be due to the sum total of telluric and atmospheric conditions which constituted climate It was a well known fact in the island that tuberculous diseases in the cattle and among the domestic animals were of rare occurrence The percentage of deaths from tubercle in relation to the general death-rate was as follows: During 1890, 9·2; during 1891, 9·3; during 1892, 8·9; during 1893, 9·2; during 1894, 6·3; during 1895, 6·8; during 1896, 8·6; during 1897, 8·1; during 1898, 10·7; and during 1899, 9·4—the average being 8·65 for 10 years. Comparing this with the proportion of deaths from tubercle to the general mortality of other countries they found that Malta stood at the bottom of the list. Detailed tables gathered from the official reports of the Public Health Department of Malta were given to demonstrate the fact.

Dr. TH. STEPHANI (Beauregard, Montana, Valais) communicated a paper on

Statistics and Results of the High Altitude Treatment in Pulmonary Tuberculosis.

He said that from observation of 150 tuberculous patients treated at Montana from 1897 to 1900 the following statistics were obtained:—1. Form of the disease: dry infiltrations, 34 per cent.; bronchial types, 30 per cent.; cases with cavitation, 17 per cent.; congestive forms, 13 per cent.; pleuritic cases, 3 per cent.; abdominal forms, 2 per cent.; and tuberculous adenitis, 1 per cent. The pulmonary lesions were more frequently bilateral (53 per cent.) and were more frequently situated on the right (27 per cent.) than on the left (20 per cent.). Laryngeal complications ranked in the proportion of 15 per cent. Heredity was present less frequently (44 per cent.) than it was absent (56 per cent.). The bacillus of Koch was present in three-quarters of the cases, or in almost all those in which it was possible to collect the expectoration. The transmission of tuberculosis from man to man was obvious in 80 per cent. of the cases—a fact which proved the significance of contagion. The inquiry made on this matter showed how many barracks, convents, and business offices were common foci for the propagation of tuberculosis. The part played by the pleura as a starting-point of the disease was sufficiently striking, for in 14 per cent. of the cases pulmonary tuberculosis commenced with a pleurisy, and in 18 per cent. injuries to the pleura were found to be described as having taken place several years previously to the development of the phthisis. 2. As regarded appetite, there was a decided improvement in 97 per cent. of the cases, which showed itself in 67 per cent. by a progressive rise in weight. 3. Extension of thoracic capacity, due above all to rarefaction of the air, was frequently noted. 4. The cardiac troubles ascribed to high altitudes had only been noticed in one out of the 150 cases; it was a case of congestive tuberculosis, with malformation of the heart that had already been diagnosed when in the plain. 5. Nervous affections had not been observed. 6. Hæmoptyses did not appear to be any more frequent at high altitudes than on the level, since 35 per cent. had manifested them when at home, and not at the sanatorium, while only 1½ per cent. of the patients had hæmoptysis for the first time at the sanatorium. 7. Fever was often combated most effectually by the Alpine climate—it had yielded, in fact, in 60 per cent. of the cases. 8. As to the results from the point of view of actual recovery, high altitude treatment gave the following figures: 12 per cent. completely cured; 50 per cent. improved and half cured; 20 per cent. with condition stationary; and 18 per cent. with condition worse, or with fatal issue. The 12 per cent. of cures might be subdivided thus: febrile cases with cavities and laryngitis 0·7 per cent., or 4 per cent. of cavities; congestive cases without fever 0·7 per cent., or 5 per cent. of congestive cases; bronchitic cases with fever 0·7 per cent., and bronchitic cases without fever 1·3 per cent. (2 per cent., or 7 per cent. of bronchitic cases); cases of dry infiltration—febrile with laryngitis 0·7 per cent., afebrile with laryngitis 0·7 per cent., and afebrile without laryngitis 0·7 per cent. (8·4 per cent., or 24 per cent. cases of dry infiltration); pleuritic afebrile cases 0·7 per cent., or 25 per cent. of pleuritic subjects; and cases of abdominal tuberculosis 0·7 per cent., or 33 per cent. of cases of abdominal tuberculosis. It was therefore the cases of dry infiltration (a group which embraced three-fourths of the incipient cases of tuberculosis) that furnished the most hopeful percentage of recovery. Afebrile forms were more favourable than were the febrile. Laryngeal complications, although troublesome, did not render cure impossible. Two-thirds of the cured cases were free from hereditary taint, which went to prove that the non-hereditary cases had a better chance of recovery. Dr. Stephani arrived at the following conclusions:—1. The high altitude treatment was indicated in all forms of tuberculosis. 2. The treatment yielded on an average 12 per cent. of complete cures, 50 per cent. of improvements, 20 per cent. of cases in which the tuberculous process was arrested, and 18 per cent. of failures. 3. The more a case conformed to the type of an incipient tuberculosis of the pleuritic or dry form, free from pyrexia or other complication and devoid of hereditary taint, the greater was the chance of recovery. 4 The treatment was only contra-indicated in cases of the asthmatic or congestive type accompanied by cardiac disease.

A paper by Dr. P. JONNART and Dr. GUETSCHEL was then read embodying the Results of the High-altitude Cure at the Sanitorium d'Hauteville, Ain, France, in which by statistics of results obtained at the sanatorium after nine months' working they arrived at the indications and contra-indications of the high-altitude cure.

WEDNESDAY, JULY 24TH.

The proceedings of the section were opened on Wednesday morning by Dr. G. A. HERON (London) who started a discussion upon

The Therapeutic and Diagnostic Value of Tuberculin in Human Tuberculosis.

Dr. HERON said that it had been laid down that the curative possibilities of tuberculin were confined to comparatively early stages of the disease. His belief was that tuberculin would be regarded as one of the most remarkable of the discoveries given to mankind by Professor Koch.

Professor R. KOCH (Berlin) said that tuberculin had a diagnostic and a therapeutic value. A single injection was sufficient to give a correct diagnosis in 97 to 98 per cent. of cattle. In the human subject it was very valuable and without danger if properly injected. When the first injection gave a faint reaction a second injection of the same quantity frequently, or indeed generally, gave a very marked reaction. From the study of over 3000 cases he had come to the conclusion that as a diagnostic test tuberculin was almost absolute. It was very valuable in cases of apical pneumonia, especially when influenza was suspected, and also in cases of pleurisy. In early uncomplicated cases it was of great value when used therapeutically and a complete cure frequently followed. To obtain the full value the temperature should be normal before the injections were begun.

Sir RICHARD DOUGLAS POWELL (London) pointed out that in the cases of mixed infection Professor Koch admitted that tuberculin was not very advantageous.

Professor W. OSLER (Baltimore) said that in the Johns Hopkins Hospital tuberculin was used as a routine diagnostic method. Tuberculin was harmless, but as a therapeutic agent it must have a limited value.

Dr. B. FRAENKEL (Berlin) pointed out that the danger of tuberculin was that the doses given were too large and increased at too short intervals, but when these errors were avoided the results were beneficial.

Dr. DENYS (Louvain) found that the injection of tuberculin subsequently to that of tubercle bacilli exercised a delaying influence; without tuberculin the animals died with disseminated tuberculosis.

Dr. CHARLES DENISON (Denver) read a paper on the Uses of Tuberculin.

Dr. C. THEODORE WILLIAMS (London) dissented from the view that tuberculin was harmless. At the Brompton Hospital for Diseases of the Chest his experience was that tuberculin in cases of early phthisis caused destruction of lung tissue and even if temporary arrest of the disease was secured cure was not certain.

Dr. MCCALL ANDERSON (Glasgow) said that for diagnosis tuberculin was invaluable, and therapeutically in external tuberculosis it was nearly always beneficial. In internal tuberculosis the relapses were caused by something else besides tuberculin

Dr. A. K. STONE (Boston) gave the history of the injection of tuberculin upon himself with uncertain results.

Dr. E FRANCE (Claybury) had inoculated 75 patients, and he concluded that the value of tuberculin in diagnosis was very great.

Dr. E. OTIS (Chicago) asked Professor Koch the reason of syphilitic patients sometimes reacting to tuberculin.

Dr. W. R. HUGGARD (Davos) related the histories of cases of phthisis which became far worse after the injection of tuberculin.

Professor W. NOLAN (Leyden) said that if patients were at work a rise of temperature was not necessarily a sign of mixed infection

Dr HERON said that he had never known a reaction to tuberculin in a syphilitic patient who was not also the subject of tuberculosis

Professor KOCH ended the discussion and stated that the tuberculin was from human tubercle bacilli Reaction occurred both in man and in cattle The two bacilli were not the same, but had a common "group" reaction. In treatment with tuberculin the patients should be in bed There should be no antagonism between treatment by tuberculin and out-door treatment, they should be carried out simultaneously

Dr S ARLOING and Dr P COURMONT (Lyons) then communicated a paper on

Technique and Results of the Serum-Diagnosis in Tuberculosis,[1]

of which the following is an abstract The employment of homogeneous cultures of the bacilli of human tuberculosis in glycerinated broth offered a means of investigating the agglutinising power of secretions and especially of the serum in tuberculous animals and men. In this sense the serum-diagnosis of tuberculosis was an easy and rapid method and one absolutely innocuous to the patient The only real difficulty consisted in obtaining cultures suitable for the purpose Their researches in the most varied cases of human tuberculosis showed that a positive serum reaction in a suspected subject would be a most valuable sign in establishing the existence of visceral uberculosis A negative reaction in a suspected case would elp in excluding a diagnosis of tubercle The serum-diagnosis of tubercle was therefore most valuable, especially in the preliminary diagnosis in cases suspected of early pulmonary lesions Many authors had verified and confirmed these facts—Ferré, Mongour, and Buard at Bordeaux, Mosny in Paris; Bendix and Romberg in Germany, and others But some others had not succeeded in keeping the homogeneous cultures or, at least, had not achieved satisfactory results in their use This was doubtless owing to the variations in the properties of the cultures in the hands of different experimenters and to the difficulty of estimating, in the cultures, the conditions favourable to agglutination To obviate these difficulties they had for some time past employed cultures, the growth of which had been arrested by the use of formol at the time when they presented the most favourable conditions Large quantities of cultures ready for use might thus be prepared, nd would retain their properties for a long period It was asy to send such cultures, specially adapted for serum reactions, long distances, and thus to make a large number of ctions with an agglutinable material of an identically similar kind By using these formolin cultures, the properties of which were standardised once for all, they had obtained still more exact results, completely confirming the conclusions set forth above Serum-diagnosis, by the use of homogeneous liquid cultures, might be of great assistance in the diagnosis of the nature of surgical lesions. The following were the statistics of the results of 66 observations

	Positive reactions	Negative reactions
Non tuberculous lesions: 11 cases	0	11
Lesions clinically tuberculous: 55 cases	41, or 74·54 per cent	14, or 25·66 per cent

These 66 patients all belonged to the surgical division The tuberculous subjects showed most diverse localisations osteo-articular, osseous, glandular, and cutaneous It had seemed to them that the serum reaction was more constant and frequent in cases which ran a favourable course, and that the graver cases gave a larger number of negative reactions So that from a practical point of view a positive serum reaction was a sign of great value in favour of the existence of surgical tuberculosis

Dr ALBERT ROBIN (Paris), Member of the Academy of Medicine, Delegate of the Academy of Medicine of Paris, read a paper on

The Nature and Diagnosis of the Habitat in Tuberculosis Therapeutic Considerations,

of which the following is an abstract He said that the prophylaxis of tuberculosis did not consist solely in the measures taken, either publicly or in private, against the infective agent A study of the respiratory exchanges enabled one to recognise predisposed subjects beforehand and consequently to submit them to a hygienic and therapeutic regimen capable of modifying the functional and nutritive fault which was the necessary antecedent condition for the development of the bacillus The respiratory exchanges were increased in 92 per cent of the subjects of confirmed tuberculosis and in 63 per cent of those with a tuberculous heredity Alcoholism and the different forms of overwork increased the respiratory exchanges and were capable of creating a soil for tuberculosis in the same way as heredity An examination of the respiratory exchanges, therefore, enabled a diagnosis of tubercle to be confirmed in doubtful cases The action of different drugs and methods of treatment on the respiratory exchanges enabled one to select those which were capable of modifying the soil and opened up a new mode of prophylaxis as well as of treatment in tuberculosis

Dr G E PAPILLON (Paris), consulting physician to the Hospital Lariboisière communicated a paper on

The Hereditary Arthritic Forms of Pre tuberculosis

In heredo-arthritic people, he said, the pre tuberculous stage might be disclosed by any arthritic manifestations, such as fits of asthma, attacks of subacute rheumatism, late appearance of "*stigmates de l'arthritisme*" These were not tuberculous localisations as the "tuberculous rheumatism" described 10 years ago by Poncet, but only effects of the bacillary toxins These fits of asthma, rheumatic attacks, arthritic deviations, &c, were the symptoms of hereditary disorder They affected the contractibility of the bronchial muscles, the secretion of the articular synovia, or the nutrition of the bone ends cartilages, and peri-articular muscles; they were manifestations of a sympathetic reaction to tuberculous intoxication.

Dr SAMUEL BERNHEIM (Paris) communicated a paper on

The Transformation of Tuberculous Soil Deficient in Acidity into an Arthritic Soil with Excess of Acid

He commenced by studying the character of the tuberculous soil, the bio chemical condition of which should be well known to everyone at the present day The measure of the mineral richness and of the chemical condition of the organism might in some degree be the measure of its resistance But they knew that the tuberculous patient possessed a soil deficient in mineral constituents, wanting in chlorides, lacking phosphates and above all deficient in acids, whilst the arthritic patient had a soil that was over-mineralised, exceedingly rich in chlorides and super-abundant in acidity That was to say, in chemical language, these two soils were in inverse proportion to one another Similarly from a clinical point of view, there existed a kind of antagonism between tuberculosis and the arthritic diathesis Phthisis was rare among arthritics and of benign manifestation in them From these first data—chemical biological, and clinical—Dr Bernheim drew numerous therapeutic deductions It was thus according to him, that the system of sanatoria the absolute rest, the abundant feeding the high altitude cure had no other end and no other effects than the transformation of the soil All these beneficent factors which had less effect on the bacillus than on the general system, tended to increase the organic acidity of the patient In fact, Dr Bernheim had submitted a certain number of patients to complete repose, and he had proved in their case, at the end of a certain period the existence of a very evident increase in urinary acidity Similarly the meat cure, so highly recommended by M Richet and M Héricourt, did not act by means of antitoxins but by a transformation of soil the acidity of which they enriched After having thus given an interpretation of facts Dr Bernheim added that it was possible to obtain this transformation of soil especially in the case of tuberculous patients who were treated early, by a hygienic and dietetic regimen and by saturating the general system with a powerful acid, such as phosphate of creosote or phosphoric acid At the Anti-Tuberculous Dispensary of Paris he had observed a large number of patients in whom he had frequently estimated the urinary acidity Now he had proved that under the influence of phosphate of creosote taken in doses of three grammes every two days the acidity rapidly increased and the general condition improved hence they were right in concluding that it was possible, by artificial methods, to transform a soil deficient in acid and favourable to tuberculous evolution into a hyperacid soil and one that was antagonistic to Koch's bacillus. This transformation, which was, according to Dr. Bernheim, the sheet-anchor of the subject of phthisis, should be sought by means of, and perhaps obtained by, a hygienic and dietetic regimen, as well as by powerful therapeutic measures.

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[1] VIIe Congrès pour l'Étude de la Tuberculose, Berlin, 1899; Zeitschrift für Tuberculose und Heilstättenwesen, 1900, Band III, and Gazette des Hôpitaux, Dec. 1st, 1900

Dr. E. MOSNY (Paris) communicated a paper on

Para-Tuberculous Hereditary Dystrophy.

Clinical study and experimental medicine, he said, demonstrated the fact that subjects of phthisis did not transmit the bacillus of tuberculosis to their offspring, and that the very rare cases of congenital tuberculosis were due to intra-uterine contamination of the fœtus by the tuberculous mother. Clinical observations, moreover, went to prove that subjects of phthisis did not transmit to their offspring either a specific predisposition to bacillary contamination or any marked degree of immunity. But they should not, however, conclude from this that tuberculosis of parents exercised no influence on the health of their offspring. Both clinical and experimental medicine, indeed, agreed in demonstrating that the tuberculosis of parents had an influence on fecundity and the products of conception similar to that which was exercised by the majority of chronic intoxications. These consequences, early or late, of the tuberculosis of parents on their future descendants might be conveniently grouped under the title "Para-Tuberculous Hereditary Dystrophy." Their frequency was a witness to the grave evil or tuberculosis from a social point of view. Generalised manifestations of hereditary dystrophy appeared at all stages of existence; from conception, or during the course of pregnancy, they were shown by sterility, death of the fœtus, abortion, and premature birth; when pregnancy arrived at its normal limit, by still-birth, weakness of the offspring, which was reared badly, pined away, and died prematurely without adequate cause, or, indeed, survived in a piteous condition, badly or incompletely developed, a fit subject for all forms of decay, and exposed without defence to all kinds of contamination. At other times the influence of the tuberculosis of parents on the health of their offspring localised itself, or showed itself under multiple forms of most varied manifestation, the consequences of arrest or perversion of normal development. Among these localised manifestations of para-tuberculous dystrophy the following appeared with a frequency that was very marked. hypoplasias of the vessels and blood, pure mitral stenosis, stenosis of the pulmonary artery, generalised stenosis of the arteries (arterial aplasia), and chlorosis. Generalised or localised manifestations of para-tuberculous hereditary dystrophy, and the functional troubles which sometimes depended on them, became apparent, either at birth or not till later at one of the important stages of growth—e.g., weaning, dentition, or puberty. Tuberculosis of the father or that of the mother, above all the latter, was the determining course of these dystrophic congenital defects. Tuberculosis of the parents no more predisposed the offspring to bacillary contamination than it conferred immunity against attack. But the offspring of phthisical subjects, organically and functionally imperfect, weak from the time of birth, and more tried than others by the vicissitudes of growth—seemed to be predisposed to bacillary infection, because the risks of contagion were multiplied infinitely by contact, immediate and continuous, with contaminated parents, and because their weakened frame offered less resistance to the infection so produced. The apparent immunity of some descendants of tuberculous subjects who carried with them certain manifestations of para-tuberculous hereditary dystrophy, was, in reality, the consequence of the very nature of the dystrophic lesion or of its localisation and not the manifestation of a real condition of resistance. Such was the relative immunity in regard to tuberculosis exhibited by the subjects of chlorosis or pure mitral stenosis

A paper by Dr. P. HAUSHALTER and Dr. A. FRUHINSHOLZ (Nancy) was communicated entitled:

The Frequency and Significance of Tuberculosis of the Tracheal and Bronchial Glands in Miliary Tuberculosis of Children and in Tuberculous Meningitis

In 78 necropsies of miliary tuberculosis in children below 12 years of age tuberculosis of the tracheal and bronchial lymphatic glands was met with 74 times (about 95 per cent.); in 67 cases there was tuberculous meningitis, and in 64 of these affection of the glands was present. This glandular affection had always the character of an old and caseous tuberculosis; in 29 cases it coincided with old tuberculous lesions of the lung, generally localised; in 44 cases it formed the only old tuberculous lesion present. [illegible] all cases, therefore, the origin of the [illegible] which ended in the miliary [illegible] caseous tracheal a[illegible] this lesion was a pr[illegible] of tuberculosis in ch[illegible] tion of glands, wh[illegible] seated in the miliary [illegible] end in the bacillary [illegible] sidered almost the sol[illegible] meningitis? In spit[illegible] form and vessels at the base of [illegible] relations of mediastinal glands—re[illegible] masses of [illegible] which were shown by drawings exhibited—they had failed to find, macroscopically or microscopically, any lesion of the walls of the vessels that could explain the direct passage of the [illegible] from the lymphatic glands into the blood. The bacillary infection of the blood took place through the [illegible] system. In the very brief time occupied by the passage of the bacillus-bearing leucocytes from the caseous lymphatic glands of the mediastinum [illegible] the blood-stream, passing as they did by efferent lymphatics, by a short section of the thoracic duct or of the lymphatic trunks—the destruction of the bacilli had time to be effected. Even in many of the cases in [illegible] pure meningitis existed without ger[illegible] and in which a person would therefore be tempted to [illegible] for the origin of the infection not in the blood-vessels but in the lymphatics, it was probable that there existed a general bacillary infection, the manifestations of which [illegible] not appreciable to the naked eye or w[illegible] This they had been able to prove [illegible] occasions [illegible]

On the Value of the Rectal Tem[illegible]

Mr. C. BRAINE-[illegible] Cotswold Sanatorium [illegible] communicate[illegible] the rectal temperature was most im[illegible] of the activity of tuber[illegible] giving a prognosis. [illegible] activity of the disease [illegible] showed no rise of te[illegible] showing how valueles[illegible] therefore misleading.

THUR[illegible]

Sanatori[illegible]

A discussion upon thi[illegible] CLIFFORD ALLBUTT (Ca[illegible] J. KINGSTON FOWLER [illegible] burgh). A report em[illegible] treatment in England wa[illegible] (Norwich), who had draw[illegible] it up. Among the papers contributed to the section may be mentioned: A Plea for Sanatoria, especially for the Prevention and Treatment of Scrofulous Complaints, by Sir HERMANN WEBER; The Open-air Treatment in Institutions and in N[illegible] Homes, by Dr. E. SYMES THOMPSON (London); The Sanatoria at Cannes, by Dr. BARADAT (Cannes); Results of Sanatorium Treatment in Poorer Patients, by Dr. JANE WALKER (London); The Alice-Fagniez Sanatorium at Hyères, by Dr. EMILE VIDAL (Hyères); The [illegible] Hospital at Havre, by Dr. FROTTIER (Havre); The [illegible] of Consumption in the Halifax Poor-law Union, by Dr. T. DOLAN (Halifax); The Gorbio Sanatorium at [illegible] Dr. MALIBRAN (Mentone); and The Responsibility of [illegible] Medical Profession with regard to Cases of Tu[illegible] by Dr. N. D BARDSWELL (Aberdeen).

SECTION III.

PATHOLOGY, INCLUDING BACTERIOLOGY.

TUESDAY, JULY 23RD.

The meetings of this section were held in the [illegible] Hall, Langham-place, under the presidency of [illegible] G. SIMS WOODHEAD, M.D. Edin., F.R.S [illegible] Pathology in Cambridge University.

Dr. ALFRED MOELLER (Berlin) and L[illegible] (bacteriologist to the London Hospital [illegible] on

The Morphological and Physiological Variatio[illegible] *Bacillus Tuberculosis and its R*[illegible] *Acid-proof Bacilli and (b)* [illegible] *and other Strept*[illegible]

Dr. Moeller's contribution will [illegible] p 204 of this issue of *THE LANCET* Dr Bulloch said that so far as was known the bacillus tuberculosis discovered by Koch was the only immediate cause of all forms of human tuberculosis In the majority of cases the micro organism was met with in the form of slender rods which frequently showed clear spaces in their interior Under certain conditions which were at present imperfectly understood the micro organism might show filaments, true dichotomous branching, and club formation and, in the tissues, especially in experimental tuberculosis, it might assume a radiate arrangement—characters which from a *taxonomic point of view brought it into close relation* with a large group of micro-organisms variously designated streptothriceæ, oospora, nocardiaceæ, and more recently actinomycetes (Lachner-Sandoval) According to all experience, the tubercle bacillus was an aerobic facultative parasite which grew extremely slowly outside the body and for its growth required a relatively high temperature, the minimal and maximal limits of which were 29° C and 42° C This [illegible] the tubercle bacillus [illegible] temperate climates [illegible] obtain and were best *prepared by growing the organism upon relatively com*plicated media such as blood serum The addition of glycerine to all media undoubtedly favoured the development and luxuriance of the cultures In the presence of this substance, however, good growths could be obtained in vegetable media, such as potato (Pawlowsky, Lubinsky, and others) It was also possible to obtain growths on media which contained no proteid material, the carbon and nitrogen demands of the organism being fulfilled respectively by ammonia salts and glycerine Hitherto in such simple media it had not been possible to replace the glycerine by other allied compounds (Proskauer and Beck) With ordinary hydro-alcoholic solutions of basic anilin colours the tubercle bacillus was stained with extreme difficulty and imperfectly If certain substances (anilin, para-toluidin' meta toluidin, benzaldehyde, carbolic acid—in practice the latter was chiefly used) were added to the basic dyes the penetrating power of the latter for the tubercle bacillus was increased in high degree, and on subsequent treatment with mineral acids (33 per cent. nitric acid, 25 per cent sulphuric acid) the colour remained in the bacilli, so that they stood out prominently from other objects in the association with which they might be. This "fastness' towards acids (Säurefestigkeit), discovered by Ehrlich, had had a great influence on the development of the study of tuberculosis and at the present day the microscopical diagnosis was made with this method alone. The acid fastness was, however not specific to the tubercle bacillus, but was also possessed by a considerable number of other bacilli, some of which were pathogenic for man (bacillus lepræ) and some for animals In recent times the number of these had been considerably increased, and although they had been found as saprophytes and capable of living at relatively low temperatures they might produce tubercle-like diseases in animals The *microscopical diagnosis alone* was not sufficient to differentiate the true tubercle parasite from other "acid fast" organisms. There was every reason to believe that the bacilli of human and bovine tuberculosis were identical. The bacillus of avian tuberculosis presented points of difference, but these were not differences of species There existed a group of acid fast, tubercle-like bacilli widely distributed in Nature. The identity or non identity of these with Koch's bacillus was not proven. In any case, a microscopical diagnosis of Koch's bacillus, especially in objects which were from their nature and source liable to contamination with other acid-fast bacilli was not decisive by itself [illegible] ohol subsequently to acid was not [illegible] the tubercle bacillus from others [illegible] bacilli might be as *säurefest* and *alcoholfest* as Koch's bacillus Contrary to former beliefs the acid fastness was not due to the presence of fat in the bacillus as after complete removal of this substance the bacilli were still acid- and alcohol-fast. The acid fastness was due to a body of the nature of a wax (Aronson) which could be extracted by acid-alcohol-ether, boiling chloroform and boiling benzene. This wax in itself was powerfully acid fast, but was unstainable by fat stains. (Sudan III and Ponceau R) *Besides* wax and fat, which were present in relatively large amount, the tubercle bacillus was composed of proteids (important among which was a variety of nucleic acid described as tuberculinic acid—Ruppel) and salts (with phosphates predominating) After the removal of all proteids, wax, and fat, a substance remained which contained a considerable quantity of nitrogen and from its reactions was probably chitin or some allied body No certain facts were known of the possession or non-possession by the tubercle bacillus or other acid fast bacilli of true endospores Although the tubercle bacillus was more resistant to injury than non sporing microbes, it was much less resistant than true endospores

Professor J G ADAMI (Montreal) thought from the study of the cultures in the museum of the Congress that the time had hardly arrived to lay down definite laws as to the identity or otherwise of the *acid* fast bacteria. Too much stress could not be laid upon the recommendation of the American committee that all bacteriologists should work with standard media and he felt sure that the solution of the problems would be found in following those lines

Dr E J MCWEENEY said that the inter relationships of the acid fast bacteria were so extremely complex that it was as yet not possible to pronounce upon the individuality of the tubercle bacillus and he agreed that the tubercle bacillus was closely allied to the streptothrices

Professor MARMOREK, director of the Institut Pasteur in Paris *drew attention to the increasing number of acid-fast* bacteria which were being discovered. The close resemblance between the external appearances of these acid fast bacteria made it necessary to be very careful in drawing distinctions between the tubercle bacilli and the para-tubercle bacilli It was the duty of every bacteriologist to endeavour to simplify the question as much as possible

Dr H KOSSEL (Berlin) quoted some experiments of Dr Weber concerning the identification of the tubercle and pseudo tubercle bacillus. According to his experience, no acid fast bacterium which was not the tubercle bacillus produced after injections into animals progressive tuberculous lesions, such as those produced by the true tubercle bacillus

Dr WILLIAM BULLOCH, in his reply, agreed with Dr Kossel in that the injection of acid fast bacteria other than tubercle bacilli injected into animals in the laboratory did not, in his experience lead to tuberculous lesions He held that it was possible to diagnose tubercle bacilli by inoculations and subsequent cultures from the inoculated animals

Infectivity of Milk

Dr LYDIA RABINOWITCH (Berlin) read an interesting paper on the Infectivity of the Milk of Tuberculous Cows, the Reliability of the Bacteriological Diagnosis, and its Practical Importance in the Extirpation of Bovine Tuberculosis. In 1899 the author, in conjunction with Dr W Kempner, showed that tubercle bacilli could occur in the milk of animals suffering from latent tuberculosis where the disease could only be detected by means of tuberculin She considered the only reliable test of the presence of tubercle bacilli in milk to be the animal experiment, and concluded by stating that the frequency of tuberculosis among calves, as well as the great increase among swine in recent years, *offered the best proof* of the assertion that the milk of tuberculous animals was the chief cause of the dissemination of tuberculosis among them

Dr J E. MCWEENEY bacteriologist to the Local Government Board of Ireland read a paper on the Infectivity of the Milk of Cows which React to the Tuberculin Test in the absence of Clinical Evidence of Tuberculosis in which he said that from his experience with herds of high-class dairy cows he came to the conclusion that tuberculous mammitis was a rare disease among cattle even although the cows suffered from other forms of tuberculosis Sixteen cows suffering from tuberculosis but without lesions of the udder were made the subjects of experiments The milk of these cows was frequently examined for tubercle bacilli but without any success The persistent negative results led him to suppose that in retailing milk tubercle bacilli found an entrance from dirty pails from sputum or from other sources

Professor NOCARD (Alfort) considered that milk produced by a cow the subject of tuberculous mammitis was free from danger for the calves but was the source of the greatest danger for pigs especially in the countries where the production of butter and cheese was considerable

Professor J G ADAMI pointed out that even if the measures adopted saved only a minute proportion of the helpless infants it was the duty both privately and publicly to take every step necessary for the salvation of that minute proportion.

Professor Hamilton (Aberdeen) raised the question as to whether a calf became tuberculous when suckled by a cow the subject of tuberculosis but with sound udders. The experience in Aberdeen was that calves fed under these circumstances did not become tuberculous.

Dr. Ravenel (Philadelphia) said that the feeling among workers in Philadelphia was that the tubercle bacilli could pass into the milk through a perfectly sound udder when the cow was suffering from tuberculosis elsewhere. In America the tuberculin test was looked upon as practically the only method of diagnosis.

Professor Sims Woodhead (Cambridge) felt strongly, despite much that had been said to the contrary, that if a cow suffered from mastitis and gave the tuberculin reaction the milk from that cow should be condemned or sterilised. He was certain that in many cases the tubercle bacilli could not withstand the action of the alimentary canal, but could find an entrance through the tonsil.

Professor B. Bang (Copenhagen) thought that it was very unfair to condemn the milk of a cow with sound udders which happened to give the tuberculin test, as he did not think that such a cow would yield tubercle bacilli in sufficient numbers to be harmful.

On Wednesday, July 24th, this section sat in conjunction with Section II.

Thursday, July 25th.

The Varieties of Tuberculosis.

Professor Benda (Berlin), Professor Delépine (Manchester), and Professor D. J. Hamilton (Aberdeen) opened a discussion on this subject.

Dr. Tatsusaburo Yabé, principal medical officer of the Japanese Navy, read a paper upon

Immunity in Tuberculosis,

in which he gave an account of his own researches in respect of the sero-therapy of tuberculosis. When, said Dr. Yabé, Professor Koch made his famous discovery in 1890 of the influence exercised by previous tuberculosis upon consecutive inoculation, and proved this influence by experiments upon guinea-pigs, he demonstrated the possibility of securing immunity from the disease. In the laboratory of Dr. Roux at the Pasteur Institute in Paris Dr. Yabé, in 1898, made certain researches into the existence and nature of this immunity. Tuberculin he saw to have no immunising action, and he sought to separate other toxins which would account for the phenomena of tuberculosis. He obtained three substances from the bacillary bodies: (1) the waxy substance discovered by Aronson; (2) a body which he called "tuberculo-mycoprotéine"; and (3) a body of undetermined chemical character, "tuberculo-bactéricidine." He found both the latter two substances to give immunity, but the "tuberculo-mycoprotéine" was not so effective as the "tuberculo-bactericidine." From his work he came to the conclusions that the disease was curable, that immunity against tuberculosis could certainly be obtained, and that protection could be secured by "vaccination," but he was not prepared as yet to practise the injection of the new substances which were very toxic. The direction of his further researches would be towards obtaining a serum which should be antitoxic as well as bactericidal.

SECTION IV.

Tuberculosis in Animals.

Tuesday, July 23rd.

The meetings of this section were held in the Marlborough Hall, Regent-street, W., under the presidency of Sir George Brown, C.B, the Governor of the Royal Veterinary College.

The Diagnosis of Tuberculosis in Animals during Life.

A discussion upon this subject was opened by Professor Dewar, Principal of the Royal (Dick) Veterinary College, Edinburgh.

Professor Dewar said that increased experience led him to believe that the number of tuberculous cows affected with tubercle of the udder was greater than that usually estimated—i.e., about 3 per cent. For the successful use of tuberculin as a diagnostic agent several things were required: first, a thoroughly reliable tuberculin; secondly, that the herd to be tested should be kept quiet and undisturbed; and thirdly, that the veterinary surgeon should be allowed freedom and facility in the application of the test. When every precaution was taken and the test carefully supplied at least 90 per cent. of the results would be correct and definite.

Wednesday, July 24th.

Tuberculosis and the Milk-supply.

Mr. John A. W. Dollar (London) opened a discussion by reading a paper on the above subject of which the following is an outline:—The relations of bovine and human tuberculosis and their intercommunicability. Transmission of bovine tuberculosis to man; necessity for a certain concentration of the bacilli in transmission by the digestive tract. Reservations in regard to accepting results of inoculation and feeding experiments in rodents as applicable to man. Intestinal tuberculosis in children; rarity of primary tuberculosis of the bowel in children and in men; possible reasons for this. Bovine tuberculosis in Europe; proportion of tuberculous cows as shown respectively by slaughter-house statistics and by tuberculin test; proportion of cows with tuberculosis of the udder. Tuberculosis common to goats, asses, and sheep, as well as to cows. Detection of tubercle bacilli in milk as sold. Methods of preventing the spread of tuberculosis by milk. Sterilisation and pasteurisation of milk, their advantages and drawbacks. Examples of commercial establishments supplying pasteurised milk. Sterilisation of milk on a commercial scale. The eradication of tuberculosis from herds of milch cows. Examples of commercial establishments supplying milk from guaranted tubercle-free herds; their success. Improved hygienic treatment of milch cows; Bang's system of stamping out tuberculosis. Experiments on Bang's system in Belgium, Canada, and the United States of America. Tuberculosis in New Zealand. Legislation in regard to milk traffic proposed by German Milk Trade Union.

Mr. Eaton Jones (Liverpool) advocated the practical measures which have to be employed to get rid of the danger to human life and health in the use of tuberculous milk. He said that whatever loss the farmer had to incur for the good of the public should be made good to him by the public purse. He had very great doubts on the propositions made by Professor Koch on the previous day, and they ought to go on protecting the public from this insidious disease as they had begun to do.

Professor McLauchlan Young said that he had long held that it was surprising that the authorities should be so strict in their inspection of meat and so lax in their inspection of milk. It would be of material aid if they had power to apply the tuberculin test to dairy animals.

Mr. James Laithwood (Cheshire) said that so far as the milk-supply was concerned it was an easy matter to prevent the disease. He recommended the establishment of a State veterinary service as had been instituted in Italy. He would include the disease in the Contagious Diseases (Animals) Act, and was of opinion that only a qualified veterinary surgeon should be permitted to use tuberculin on animals. He thought that the public ought to pay for the services of these qualified men, as they were the people who benefited by it. He pointed out that it did not follow that because a cow had no appearance of a diseased udder its milk was perfectly safe for consumption. He concluded by referring to the work of the Manchester Dairy Milk-supply Company.

Professor Stockman did not consider that sufficient provisions were made to prevent improper milk-supply. All udder disease should be notified. The inoculation of animals was not a practical measure. As regards compensation the dairymen would not accept any scheme that would not involve the expenditure of impossible sums of money.

Professor Owen Williams (Edinburgh) said that of the ox tribe the cow was undoubtedly the centre of infection of tuberculosis. He had pointed out some years ago that tuberculin was being used fraudulently, and he recommended then and now that tuberculin should be registered as a poison and should be sold only to practitioners who were going to make use of it for honourable purposes. He advised that local boards should be appointed for the purpose of paying compensation money promptly.

Mr. Montefiore (Belgium) said that a great deal depended on the quality of the tuberculin, which was not always perfect. He recommended the use of goat's milk for tuberculous patients. In a sanatorium these animals might be kept with a great saving of expense by the authorities. They had found in Belgium that it was almost impossible to inoculate tuberculosis in goats. The odour of goat's milk prejudiced people against it, but this could be easily got rid of.

Professor J WORTLEY AXE (British Dairy Farmers' Association) said that before the words of so eminent a man as Professor Koch went out to the world his statement ought to be scientifically proved and demonstrated If they were to mitigate the prevalence of the disease they must observe more the laws of nature and permit the animals to live out of doors instead of in overheated byres Of course the milk supply was a great objection, as it would undoubtedly be much less, but the gain would be more than equivalent in the health of the animals

Professor BANG said that for the past three years they had had a law in Denmark by which all cows with udder disease were ordered to be killed Great care was taken in the detection of the disease With such a law in existence it was necessary to have scientific stations where the samples of milk could be properly examined. If necessary, in a doubtful case especially, more than one sample should be examined and these at intervals sufficiently long the milk *in the meantime* of the doubtful cow being boiled before being sold He referred to the frequency of the existence of tubercle bacilli in tuberculous cows which had no disease of the udder He thought that it was best for the cows to be out in the air for the whole year

Mr E G EASTON (London County Council) said that an examination of the cows in London ordered by the London County Council showed that only half per cent was found to be suffering from tuberculous udders and that number was greatly decreasing He had grave doubts, seeing that people connected with cows were the healthiest people of the communicability of the disease from an animal to man Cows in proper sheds could be kept in a perfectly healthy condition and there was no need for them to live in the open air all the year to say nothing of the fact that the climate was too severe in the winter The boiling of milk was absurd

Professor MCFADYEAN maintained that the appearance of emaciated tuberculous cows at the markets was far too common a sight It could never be absolutely demonstrated that it was impossible to transmit the disease from animal to man because the latter would not submit to it and that was the only way in which it could be absolutely proved In spite of this there was ample reason why they should concern themselves with the milk supply and its control He thought that Mr Easton had misunderstood what Professor Koch had said and referred him to the latter s paper which he quoted Mr Easton had confused the transmissibility of bovine tuberculosis to man with the transmission of human tuberculosis to bovines

Mr CROWHURST referred to the importance of a pure water supply to the cows and of good surface drainage to the sheds Cows could not make pure milk from impure water

Professor DEWAR insisted on the necessity of further legislation in connexion with the milk trade At present by an extension of the Dairy and Cowsheds Act inspectors could put out of the shed such cows as were affected with tuberculous udders but that was all that could be done

Professor CROOKSHANK did not consider that the statement he had made some years ago had been in the least altered by the words of Professor Koch Professor Koch had based his conclusion on the negative results obtained upon inoculation of the cattle with bacilli from the human being He himself had in his experiments proved to his entire satisfaction that it was possible to infect an animal by transmission from man It was impossible to prove the reverse and therefore he took the position that there may be danger in tuberculous milk and meat and therefore they ought not to slacken their efforts to get rid of all such risk.

Mr CARLE and others also spoke, and Mr DOLLAR replied

THURSDAY JULY 25TH

Mr JAMES KING, Veterinary Inspector, City of London read a paper on

Tuberculosis and the Meat Supply

He said On being asked by your secretary to open this discussion on Tuberculosis and the Meat Supply I must say that at first I felt very reluctant to undertake it, my opinion being that it might have been placed in more able hands However having exceptional opportunities of making post mortem examinations on our food animals after duly considering the matter, I acceded to his request, in the hope that by so doing I might be able to give this Congress an idea of the prevalence of the disease and the enormous loss to the country through its ravages The subject that we have met to discuss to-day is one of great moment, not only to the meat trader but also to the profession generally Tuberculosis is the cause of great loss and dissatisfaction to the farmer and also to the meat trader, so much so that many of the latter, after endeavouring to the utmost to follow the trade of their ancestors, and to deal only in home fed meat, have found themselves compelled through losses arising from disease amongst their cattle, to abandon it The cases are rendered the more trying since neither expert nor trader can by ordinary inspection detect the malady in open market Inspection is now becoming more general and better trained and more qualified officers are appointed than was the case formerly The Health Acts, too are more stringent for the protection of the public The butcher therefore concludes that as there is no Act to protect him and as the passing of an animal by a veterinary inspector in an open market is no guarantee that what he purchased at a good price as sound and fit for human food will turn out to be so, or that money value will be realised, what is considered in his case as a trade risk is much too great and he therefore finds it necessary to protect himself by leaving live cattle alone and to obtain his supplies from the dead meat markets. Here he can select what suits his trade, without fear of confiscation and prosecution by reason of tuberculosis In our dead meat markets the home fed meat has to compete with the foreign which may be home killed or otherwise and if the supply of the former be limited or the price not suitable the butcher is tempted to purchase the latter, and invariably finds that he can do so to advantage The quality may be only slightly inferior or possibly equal to that for which he had been accustomed to take so much trouble and to run so much risk He consequently continues to purchase the foreign and his customers become educated to its flavour Thus, to the great detriment of our home supply he may be able to furnish them with apparently as good a joint at less cost for once the price of meat has been reduced it is difficult to raise it again This seriously affects the farmer and the tradesman for in the first instance the home animal has to be raised and fed at considerably greater expense than its foreign competitor and the butcher in addition to the risk of losing the carcass through its being a subject to tuberculosis, finds it harder still to make his purchase at a rate which will protect him from serious loss He knows from experience that no matter what class or breed he may buy the risks are identical His ox may cost £30, and yet after slaughter not infrequently the carcass is found to be so extensively pervaded with tuberculosis as to render it unfit for human food and it therefore has to be condemned It is common knowledge that a very large percentage of cattle in our best herds are subjects of the disease and further that it is impossible by ordinary examination to find any clinical evidence of the malady I have had occasion to make post mortem examinations of some of the best cattle our country produced which were exhibited as such at our principal shows After slaughter it has been absolutely necessary to condemn parts of them on account of tuberculosis This has been a well known fact for many years past and yet nothing of any consequence has been done to check the prevalence of this scourge although it is generally admitted to be one of the sources of infection to human beings and the means of mitigating the evil are placed in our hands A few stock holders capable of affording it have made voluntary attempts to remedy the state of things but their small efforts although demonstrating what might be done if powers were granted by Act of Parliament, do nothing to check effectually the ravages of the disease or to restore the lost confidence of our meat-traders To these agriculturists must look, for unless they can find purchasers for their cattle at remunerative prices it is of no use for them to rear and to feed stock. I have been a veterinary inspector now for over 10 years and for six of them I had the supervision of a large provincial meat market From careful observation I have come to the conclusion that there is a growing demand for foreign meat and a corresponding decrease as regards home fed The reason given by the salesman is invariably that the loss is so great through having the carcasses of home-fed cattle they buy condemned on account of their being affected with tuberculosis that they are driven to the purchase of the foreign Surely this being the case, it points to the necessity for some action being taken by the Government To realise the extent to which some of our cattle suffer from this disease it is necessary to be present when they are slaughtered. Sights are then seen which make one wonder how, large as the death roll is from this cause, the disease is not more prevalent in human beings, and the urgent need for proper and systematic inspection under definite laws relating both to live animals and carcasses, together with State aid by way of compensation, is obvious. With the object of ascertaining as near as possible the percentage of cattle affected with tuberculosis, the loss to the country, and the quantity of meat rendered valueless to all concerned in the matter I have made searching post-mortem examinations as follows:—

TABLE I.—RESULT OF THE POST-MORTEM EXAMINATION OF 1738 ANIMALS, CONSISTING OF COWS, BULLS, OXEN, HEIFERS, AND CALVES.

—	Cows.	Per cent.	Bulls.	Per cent.	Oxen.	Per cent.	Heifers.	Per cent.	Calves.	Per cent.	Total.
Number of carcasses and organs examined	500	—	113	—	131	—	53	—	941	—	1738
Number of carcasses free from disease	266	53·2	93	82·3	116	88·55	42	79·24	929	98·72	—
Number of carcasses tuberculous	234	46·8	20	17·7	15	11·45	11	20·75	12	1·27	292
Number of carcasses with lesions in abdominal and thoracic regions	129	25·8	9	7·96	9	6·87	8	15·09	—	—	155
Number of carcasses with lesions in thoracic region only	87	17·4	7	6·19	3	2·29	3	5·09	—	—	100
Number of carcasses with lesions in abdominal region only	18	3·6	4	3·0	3	2·29	—	—	—	—	25
Number of carcasses with lesions in mammary glands	11	2·2	—	—	—	—	—	—	—	—	11
Number of carcasses with lesions in testicles	—	—	1	0·87	—	—	—	—	—	—	1
Number of carcasses affected	67	13·4	5	4·42	6	4·58	5	9·43	5	0 53	88
Number of carcasses totally destroyed	35	7 0	3	2 66	1	0·76	1	1·88	2	0·21	42
Number of carcasses partially destroyed	32	6 4	2	1·77	5	3·81	4	7·54	3	0 21	46

NOTE.—All percentages calculated on the number of carcasses examined.

TABLE II.—WEIGHT AND VALUE OF MEAT AND VISCERA DESTROYED.

—	Weight of meat in pounds.	Price per pound.	—	Number of whole viscera destroyed	Price each.	—	Number of abdominal organs destroyed.	Price each.	—	Number of thoracic organs destroyed.	Price each.	—	Total Value.
		d.	£ s. d.		s. d.	£ s. d.		s. d.	£ s. d.		s. d.	£ s. d.	£ s. d.
Cows ...	16,832	4	280 10 8	129	16 6	106 8 6	18	14 0	12 12 0	87	2 6	10 17 6	410 8 8
Bulls ...	2,376	4½	44 11 0	9	16 6	7 8 6	4	14 0	2 16 0	7	2 6	0 17 6	56 13 0
Oxen ...	1,152	5½	26 8 0	9	16 6	7 8 6	3	14 0	2 2 0	3	2 6	0 7 6	36 6 0
Heifers ...	748	5½	17 2 10	8	16 6	6 12 0	—	—	—	3	2 6	0 7 6	24 2 4
Calves ...	480	4½	9 0 0	2	5 6	0 11 0	10	2 6	1 5 0	2	3 6	0 7 0	11 3 0
Total ...	21,588	—	377 12 6	157	—	128 8 6	35	—	18 15 0	102	—	12 17 0	537 13 0

The above condemnations have been made in accordance with the recommendation of the Royal Commission on Tuberculosis. What the loss would amount to if the carcasses of all animals affected with the disease were destroyed, as is recommended by some authorities, I must leave you to conjecture. With reference to the above tables I have taken great care to see that all the meat condemned was weighed, with the exception of the calves, and the figures enumerated are taken from average wholesale prices in the trade. In estimating the prices of viscera I have taken the figures from wholesale prices given by offal contractors, *plus* the price of fat. averaging four stones per beast at 1*s.* 6*d.* per stone. This is always destroyed with the viscera in cases of tuberculosis. The figures in the table relating to calves were obtained from Mr. W. F. Shaw, F.R C.V.S., who made the post-mortem examinations on behalf of the Local Government Board, in order to ascertain their freedom from tuberculosis. The whole of the carcasses were inspected by me, and although a record of those affected with the disease was kept their weight was not taken. I have therefore simply given an ordinary average weight. In addition to the loss sustained, as set out in Table II., to form a proper estimate of the cost of this disease to the country, it will be necessary to include the amounts paid by local authorities for destroying such affected meat and offal, in order to comply with the Public Health Acts. These statistics would be very difficult to obtain, but would, I may mention in passing, total up to no small amount. Taking figures from the annual returns of the Board of Agriculture for Great Britain under the Diseases of Animals Acts for the year 1899, which are the last supplied to me, I find that the estimated number of cows in Great Britain was 2,670,260, and taking the average life of a cow at seven years, it may be argued that one-seventh of that number is killed annually—viz., about 381,608 Therefore, if from the above table the percentage of those so affected with the disease as to render the carcasses, &c, partially or totally unfit for human food be taken, we find by the simple rule of three that if a loss on 500 cows be £410 8*s.* 8*d.* the annual loss on cows will amount to £305,067. For the purposes of this paper let us now take the numbers from the same returns under the heading of 'Other cattle aged two years and upwards.' This will include bulls, oxen, and heifers referred to in my table, as those were over that age. The number given by the Board of Agriculture is 1,341,310, and calculating the average life of that class to be three years, one may estimate that one-third of that number is slaughtered annually—viz., 447,103. Therefore, by taking the percentage of those affected with the disease, as shown by the table, we find by the same deduction that if a loss on 297 be £116 1*s.* 4*d.*, the annual loss on cattle under this heading will amount to £174,726, making a total annual loss through this disease of £479,793. It is not necessary to take the loss in calves, as the percentage of disease amongst that class is so small that it may be looked upon in the ordinary course as a trade risk and need hardly have any effect upon our meat-supply. Can it be wondered from the foregoing figures (although approximate) that the trade in foreign meat has made such enormous strides within the last few years? If we refer to the agricultural returns of the Board of Agriculture for 1900 we find that under the head of fresh meat imports it is reported that a quota which formed only one-fifth of a single pound per unit of the population in 1866-1870 has expanded to little short of 20 pounds per head on the average of the five years 1896–1900, and has touched 22·5 pounds per person in the single year 1900, an instance of progress quite out of all proportion to the development of other forms of imported food. On again looking at the returns of the total number of cattle in this country for the last ten years, we find that the year 1900 shows a decrease, as compared with the year 1891 of 47,821 These figures denote that although our population is steadily increasing as are also our meat-eating propensities nothing is being done to supply the increased demand, with home fed cattle In our live stock markets at present, although returns show that supplies are not so plentiful as in previous years, there seems a difficulty in salesmen realising profitable prices for beef cattle In conclusion, I am convinced from personal observation that the principal cause for this state of things is tuberculosis, and we are not improving it by our present voluntary efforts to purify some of our stock by the use of tuberculin as this undoubtedly throws a much larger number of known tuberculous animals on the market and increases the risks of the butcher thus making the purchase of home animals more of a gamble than a legitimate trade Is it then surprising that he purchases foreign meat to supply his customers instead of the home article? I have endeavoured to place before you in these few remarks as clearly as I can in the time allowed the present state of affairs, which has now been going on for years and there can be little doubt that the cause is on the increase I cannot conclude without asking how long will this be allowed to continue in our midst before any active steps are taken to eradicate or even to reduce the prevalence of this disease

THE SOCIAL SIDE.

Sir James Blyth the honorary treasurer of the Congress entertained to dinner at 33 Portland place, on Monday July 22nd the Duke of Cambridge who had presided on the afternoon of that day at the opening ceremony of the Congress Sir James Blyth invited to meet his Royal Highness the President and mem[illegible] Council of the Congress, many of the [illegible] the foreign delegates [illegible] distinguished members, British and foreign, as [illegible] Prince Edward of Saxe Weimar the Duke of Northumberland, Earl Cadogan the Earl of Derby Lord Strathcona and Mount Royal and the Lord Mayor of London Covers were laid for about 60

On the same evening the members and delegates of the British Congress on Tuberculosis were entertained at the Queen's Hall, Langham place, by the President of the Council of the Congress and the executive officers The great hall was tastefully decorated with flowers and palms and the Royal Engineers string band played during the evening a varied selection of music There was a very numerous assembly of guests and the music was in consequence drowned by the buzz of conversation. In St George's Hall which adjoins the Queen's Hall Professor G Sims Woodhead of the University of Cambridge, gave a bacteriological demonstration illustrated with lantern slides His audience would probably have been larger if some means had been devised of informing the guests the way to the lecture-hall This same want of organisation also led to much disappointment among those who were desirous of hearing Professor McFadyean of the Royal Veterinary College deliver a discourse in the same hall An interesting event in the evening was an impromptu demonstration by Professor Koch of specimens and cultures in the Congress museum at the top of the building and those who by dint of much questioning did find their way there were well rewarded for their trouble

On Tuesday afternoon the members of the Congress were invited to an At Home at Apsley House on the invitation of the Duchess of Wellington. The gathering was a great success and the magnificent pictures were thoroughly admired.

On Tuesday evening the delegates and members of the British Congress on Tuberculosis were received at the Mansion House by the Lord Mayor and Lady Mayoress The spacious reception rooms were crowded—over-crowded in fact—with guests of all nationalities Herr Wurm's string band was delightful

On Wednesday afternoon the ladies of the Reception Committee entertained the delegates and members of the British Congress on Tuberculosis at a garden party in the Royal Botanical Gardens Regent's Park. The band of the 2nd Life Guards played selections during the afternoon as did also the Blue Hungarian Band, and Clifford Essex's Pierrots gave one of their well known entertainments The rain fortunately held off, though the sky was threatening

Professor R. Koch was entertained to dinner at the Hotel Métropole on Wednesday evening by the Royal Institute of Public Health, the occasion being taken of presenting to the guest of the evening the Harben Gold Medal for 1900 Professor Koch replied in German to the toast of his health proposed by Dr W R Smith the President of the Institute. He said that he was happy to remember that the first to recognise his work in anthrax were his English colleagues

Sir James Crichton Browne in the course of a reply to the toast of The Tuberculosis Congress remarked that there would have to be an inquiry by Government into the question of tuberculous infection from animal to man to settle the accuracy of Professor Koch's views If a Government Commission were formed he had been authorised by Sir James Blyth to offer that gentleman's model farm in Essex for the investigation

COMPLIMENTARY DINNER TO SURGEON-GENERAL J JAMESON, C B

IN the Grand Hall of the Hotel Cecil on July 24th a complimentary dinner was given to Surgeon General J Jameson C B when Sir William Church Bart (President of the Royal College of Physicians of London) presided Covers were laid for some 160 hosts of Surgeon General Jameson and the gathering was a very representative one

After the Royal toasts had been duly honoured

The CHAIRMAN proposed 'Our Guest He said that they had met from a desire to do honour to one who had deserved well both of his profession and of his country Surgeon General Jameson had had an active and varied life and entered the Army Medical Service so long ago as 1857 He attained distinction in the part he took in repelling the Fenian raiders in Canada and subsequently was engaged in fighting a severe epidemic of 'yellow jack in Trinidad For these services he received promotion and special thanks He had also done splendid work in the Franco German war and had served his country well in various parts of the empire. In 1896 he was appointed Director General of the Army Medical Department. The present war which they had good hopes was now coming to a close was a perfectly unique war unprecedented in its character and difficulties Never before had they had to meet such a foe The labours and difficulties which the Director General had had to surmount in this connexion were enormous and he had practically been in the position of the Israelites of old who had to make bricks without straw The actual organisation of the hospital service had to be done in South Africa and its success was in a large measure due to the rapidity and continuity with which Surgeon General Jameson was able to supply the *matériel* and *personnel* A few weeks ago Surgeon General Jameson in that room told them of the requirement that had been made upon him and that he had been able to meet them That was strictly accurate and the highest possible credit was due to him and to his department They all recognised the value of his long life spent in the service of the country and still more the constancy with which he stuck to his post and his work. They also wished to acknowledge the exceedingly able manner in which he kept up a good relationship between his own corps and their civilian brethren They wished him long life and strength that he might long enjoy the leisure which now had befallen him

Surgeon General JAMESON said that he felt some difficulty in replying to the toast and adequately expressing his feelings of profound gratitude to the medical profession for the compliment which they had paid to him and through him to the Royal Army Medical Corps It had been his fortune to be director general through a very eventful period when a strain had been put upon his department such as it never had to bear before In the early months of the war the whole of the establishment was expended and events developed so rapidly that the army was first doubled and then increased threefold With every unit that embarked medical *materiel* and *personnel* had to be provided and the demands were made upon a department which was already impoverished Up to the present time they had received 50 000 invalids from South Africa India, and the colonies since the beginning of the war They were all received and handled by his department, and he was ably assisted by the quartermaster-general's department. None of the patients were transferred to a civil hospital, and only those who were sick while on furlough gained access to civil hospitals. From the first to the last the work was done without a single hitch. His critics had asked how all this could be done and he would tell them how the "miracle" had been performed. First of all the Army Medical Reserve were called out and wherever possible men were enlisted and trained for the work. Then every man that could be spared from colonial stations was employed and he had been enabled to send out nearly 7000 trained men. The Militia Medical Staff Corps was also called upon and supplied 500 men, while the volunteers furnished 600 men. Pensioners were also invited to return to the colours and the invitation was well responded to. Outside his own corps the most useful was the St. John Ambulance Brigade, which gave them 1900 men, who for the most part had had no previous hospital training, but who soon made very efficient nurses. There was some difficulty in getting trained men at the beginning of the war but that was not the fault of the director-general or of the officers associated with him. They had for a considerable time urged the necessity of increasing the *personnel* but for the most part without avail. Then female nurses were employed and 800 were sent out. It was to the Queen and to the Princess Christian that they were indebted for being able to send out so many female nurses. The scheme arranged in time of peace with the Commander-in-chief did not include female nurses, and hence they were not sent out earlier in the war. The army nursing reserves had been of the greatest advantage and the nurses whom the Princess Christian had selected had rendered most efficient services even at the sacrifice of their lives, and the failures can be counted on the fingers of one hand. As professional men and taxpayers they might be interested to know something of what was done with regard to medicine and *matériel*. The medical vote was, in round numbers, £300,000, but £1,000,000 had been spent. The amount of this *matériel* sent to South Africa was 4000 tons. 151 staff and regimental units had been mobilised, 19 bearer companies formed, 28 field hospitals, five stationary hospitals, and 16 general hospitals had been prepared, as well as three advance and two base depôts for medicines. In this country two hospital ships were equipped and three hospital trains. Men and *matériel* were also sent out to enable the principal medical officer to organise many more units in South Africa. At the same time a large quantity of *matériel* had to be sent out for the China field force. From a recent report it was shown that at the present time there were 21,000 beds equipped, not counting the provision made for field hospitals. The private hospitals organised in this country were of the greatest service, and the country owed those who equipped them a deep debt of gratitude. He would point out to his critics that with regard to supply the medical department was only responsible for medicine and medical and surgical appliances. Food and so-called medical comforts were supplied on requisition to the Army Service Corps. Blame should be apportioned, therefore, to those who were in fault. With respect to ambulance arrangements, in view of the fact that the post of sanitary officer had been abolished against the advice of the medical department blame should be laid elsewhere than at the door of the Army Medical Department. As to the selection of sites for hospitals in camps that was the duty of the Royal Engineers or of the Barrack Department, but, as far as he was aware, those departments had not carried out that duty and the medical department had to undertake the alteration of buildings for hospitals at a time when every officer should have been employed in his own legitimate work. If in the future war was to be carried on on humanitarian principles it would be necessary for the medical department to obtain a large increase of transport. He had received many flattering reports from general officers of the work that had been done, but the medical department was not on an equality with the other departments. The Director-General was not a member of the War Office council over which the Secretary of State presided, or of the Army Board presided over by the Commander-in-chief, and it had happened that matters relating to his department had been discussed in his absence and he had not known of the decisions till after considerable delay. During the war no general had done better than Sir Redvers Buller, and he had spoken in high praise of the work of the medical department. Taking everything into consideration he was sure that in no war had the sick and wounded been so well looked after as they had been in the present one. When the history of the war was written he was convinced that that would be the verdict.

Sir WILLIAM MAC CORMAC, Bart., K.C.B., in proposing the toast "The Public Medical Services," said it was an unfortunate state of things, if he had been rightly informed, that at the present time there was not a single candidate applying for admission to His Majesty's medical service. In the work of the Medical Department in South Africa they had had some things to criticise, but many things to commend, and he was surprised that there were not more things with which to find fault. They had heard from the Director-General how his department had overcome the difficulties, and they had not only done their best, but that best had been extremely good. No one who had not been in the country itself could know of the difficulties under which the medical department had laboured. They had been blamed for that for which those in other departments were responsible, and it was somewhat strange that the Government had allowed Surgeon-General Jameson to leave the army without the customary recognition given to every one of his predecessors and without one word of thanks or acknowledgment.

Sir JOSEPH FAYRER, Bart., K.C.S.I., responded, and the toast of "The Chairman" proposed by Sir THOMAS GALLWEY, K.C.M.G., and briefly acknowledged by Sir WILLIAM CHURCH, brought to a close a very successful and notable evening.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

The University of Birmingham.

THE first graduation ceremony of the new University was held in the Town Hall on July 7th. The Chancellor, the Right Hon. Joseph Chamberlain, took his place surrounded by a large array of graduates in full academic costume. A procession was formed from Mason College, the present seat of the University, to the Town Hall, where amid much enthusiasm the degree congregation was held. The students took a prominent part on the occasion, enlivening the proceedings by songs, observations on the candidates, and the exhibition of humour licensed for the time being. Mr. Chamberlain delivered an important speech on the attributes of an ideal university and laid down definite requirements to insure its success. An appeal for more funds accompanied the views that he expressed and he hoped that the lines laid down for future progress would be realised to the full extent. The proposal previously made that a rate should be levied for the University at one halfpenny in the pound was assented to at a subsequent meeting of the Town Council; this opens a fresh source of steady income which it is estimated will bring in £5000 a year—a valuable addition to the funds of the University. This has been adopted on the precedent of other towns and represents a certain income outside the voluntary efforts which have been so generously made by a large number of donors.

Birmingham and Midland Eye Hospital.

The annual meeting of the friends and supporters of this institution was held on July 15th, the seventy-first report being read. The subscriptions for the year amounted to £3961, an increase of £245 as compared with the previous year. The total number of patients treated were: in-patients, 1093; out-patients, 25,572. The medical report showed that 774 operations had been performed on in-patients, including 327 for the removal of cataract in its various forms, and of these only four proved unsuccessful. The operations necessitated the administration of anæsthetics in 194 cases. One patient died from the effects of chloroform, an accident which had not previously occurred in the hospital for 28 years. One difficulty had been experienced by the committee, that of obtaining a resident house surgeon—a circumstance attributed to the war in South Africa demanding the help of members of this class of the profession. The usual votes of thanks were passed.

Death under Chloroform.

A death under chloroform recently occurred at the Hospital for Women. The patient, aged 53 years, was undergoing an operation for cancer. Chloroform and ether were given. Professor J. T. J. Morrison found signs of pleurisy and said that the muscles of the heart were thin and of poor tone "Death from misadventure" was the verdict returned

July 23rd

LIVERPOOL

(FROM OUR OWN CORRESPONDENT)

Proposed West African Health and Sanitation Commission; Major Ronald Ross, F R S, late I M S, at Freetown

MR. ALFRED L. JONES presided on July 10th over a representative conference convened by the African trade section of the Liverpool Chamber of Commerce to consider the arrangements for carrying into effect the proposals of the Secretary of State for the Colonies, whether it should be recommended that the proposed West African health and sanitation commission should be appointed to proceed to each of the colonies separately or whether one commission should be appointed to proced to the whole of the colonies The following gentlemen were nominated to represent the commercial interests of the three chambers concerned —viz., Mr O. Tambacci for Liverpool, Mr Thomas Welsh for Manchester, and Mr J H Batty for London The month of October was suggested as a suitable time for the commission to leave England The nomination of a scientific expert, which had been suggested by Mr Chamberlain was next considered and it was unanimously agreed to nominate Major Ronald Ross, F R S, late I M S, to the post It was also suggested that a sanitary engineer should be appointed, and it was resolved that this suggestion should be communicated to Mr Chamberlain who should be asked to consent to this addition to the commission —A telegram was received on July 19th by the honorary secretary of the Liverpool School of Tropical Medicine from Major Ross, Freetown, Sierra Leone, to the effect that an active general crusade had been commenced by the expedition against mosquitoes at Freetown and that the progress was very rapid. Major Ross was employing 30 native assistants and would shortly depart for Lagos Major Ross gave a lecture on the "Malarial Mosquito" at Freetown on July 18th. The hall was crowded and much enthusiasm was displayed —At a meeting of the School of Tropical Medicine, held on July 22nd, a letter was read from Major Ross stating that before any practical anti mosquito measures could be taken at Bathurst, Gambier, it would be necessary to make careful inquiries there to ascertain the source of the mosquitoes, the danger of malaria among native children, and the most feasible steps for dealing with the insects He therefore recommended that someone should be sent out for this purpose The school unanimously resolved to adopt Major Ross's advice and arrangements are now being made for the despatch of another expedition to West Africa, making in all the seventh sent out by this enterprising school.

Death of the Medical Officer of Health of Warrington

The death of Mr J H Gornall, the medical officer of health of the borough of Warrington, took place on July 18th after a somewhat prolonged illness The deceased was a native of Preston and was 59 years of age. In 1857 he was apprenticed to his uncle, the late Mr. Kenyon of Wavertree, and four years later he entered as a student at [the school of medicine of the Liverpool Royal Infirmary He obtained the Membership of the Royal College of Surgeons of England and the L S A. in 1864 He retired from private practice in 1880 upon his appointment as medical officer of health of Warrington He also held the posts of public analyst and medical superintendent of the Warrington Fever Hospital and was appointed a justice of the peace in 1885 The late Mr Gornall was universally esteemed His eldest son, Dr J G Gornall, was recently appointed deputy medical officer of health of the borough of Warrington.

Distribution of the Hospital Saturday and Sunday Fund

The committee of the Hospital Saturday and Sunday Fund have allocated £13,365 among the various hospitals of the city. This is the largest amount ever distributed in the history of the Fund. The Royal Infirmary received £2943, the Royal Southern Hospital £2010, the David Lewis Northern Hospital £1742, and the Stanley Hospital £1138 Other charities received contributions in proportion to the number of beds available.

Cricket Match between Manchester and Liverpool Medical Men.

On July 16th the annual cricket match between Liverpool and Manchester medical men took place at Aigburth, in glorious summer weather, in the presence of a fashionable company Liverpool came off victorious

July 23rd

WALES AND WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS)

Important Defence in a Meat Prosecution

A BUTCHER was charged at the Swansea police court on July 9th with having in his possession a forequarter of beef which was unfit for the food of man The meat had been seized by the meat inspector who is a qualified veterinary surgeon, and the defendant's solicitor at the commencement of the hearing claimed that the medical officer of health and the inspector of nuisances were alone competent to make the seizure The presiding magistrate upheld this contention, but consented to hear the case and if desired to state a case for a superior court The proceedings occupied the greater portion of two days and on July 18th a fine of £2 with costs amounting to £20 5*s* was imposed In giving his decision the magistrate stated that he now thought that it was competent for the meat inspector to make the seizure An appeal to quarter sessions will probably be made

Gynæcologist to Cardiff Infirmary

Dr Ewen John MacLean was on July 17th elected gynæcologist to the Cardiff Infirmary in succession to the late Dr. John D Williams There were six candidates for the appointment, three of whom were medical practitioners residing in Cardiff

A Prescribing Druggist Fined

A druggist named Jenkins was fined £20 at the Carmarthen county court on July 18th for practising as an apothecary without having a licence of the Society of Apothecaries In the course of the proceedings the coroner for West Carmarthenshire stated that Jenkins had appeared before him on four different occasions when inquests had been held upon persons who had been prescribed for by the defendant The defence raised was that the medicine was alone charged for and not the advice

Swansea Convalescent Home

The anonymous donor of £500 dowards the erection of a convalescent home in connexion with the Swansea Hospital and who, as stated in THE LANCET of July 20th p 174, had raised the amount to £5000, has still further increased it to £10,000 The building, which it is estimated will cost £12,000, will be proceeded with at once

Outbreak of Diphtheria at Keynsham

Early in July an outbreak of diphtheria occurred at Keynsham, a rural district with a population at the last census of 8266 persons adjoining Bristol In a report to the district council Mr J C Heaven, the medical officer of health, states that upon visiting the school which was attended by the child who was first attacked he saw 12 pupils apparently quite well, but who were found, after bacteriological examination of material taken from their throats had been made to be suffering from the disease. Altogether 29 persons were attacked, of whom 16 were removed to the isolation hospital

July 23rd

SCOTLAND.

(FROM OUR OWN CORRESPONDENT)

The Hughes Bennett Laboratory of Physiology at Edinburgh.

ON July 20th the new physiological laboratory which has been built by Mrs Cox widow of the late Mr Robert Cox, M P, of Gorgie, in memory of her father, Professor Hughes Bennett of Edinburgh University, was opened and formally handed over to the university authorities by the donor. The inaugural ceremony took place in the new laboratory, Principal Sir William Muir presiding There was a large gathering of ladies and gentlemen, including members of the professoriate and university bodies and many eminent physiologists from various parts of the kingdom After apologies for absence had been read by Professor E. A. Schäfer, Mrs Cox, in handing over the laboratory, addressed the Vice-Chancellor as follows:—"I ask you, on behalf of the university, to accept this laboratory which I have built to the memory of my dear father and to help physiological research in the university." Sir William Muir thanked Mrs. Cox in the name of the university for the great work which she had done for the university in building the new laboratory and in dedicating it to the memory of her father, Professor Hughes Bennett. Mrs. Cox then unveiled a bronze bas-relief representation of her father which is fixed to the south wall of the largest room in the laboratory. Sir John Burdon Sanderson, Bart., F.R.S., Regius Professor of Medicine in the University of Oxford, then expressed on behalf of the students of Professor Hughes Bennett who were present their high appreciation of the exactitude of the likeness which the sculptor, Mr. Macgillivray, had given them. The bronze panel presents the figure in half-length with the face three-quarters to the left. The figure is seated, the left arm lying on the arm of a chair. The inscription below it runs as follows:—"John Hughes Bennett, M.D., F.R.S.E., Professor of the Institutes of Medicine and of Clinical Medicine in the University of Edinburgh. The first in this country to teach the use of the microscope in the clinical investigation of disease. This laboratory was erected as a memorial by his daughter in 1901." The company then adjourned to the McEwan Hall, where Sir John Burdon Sanderson delivered an address on the life and work of Professor Hughes Bennett. In this address Sir John Burdon Sanderson in the first place gave a sketch of Professor Hughes Bennett's career as a student. He then described his work as an extra-academical teacher and as a professor, and spoke of the influence which he exerted on the men who began their training as practitioners under him, referring finally to the special service which he had rendered to the science of medicine in this country in combating the use of antiphlogistics and bleeding in acute disease. Professor J. G. McKendrick proposed a vote of thanks to Sir John Burdon Sanderson, which was seconded by Sir John Batty Tuke, M.P. Sir William Muir, in closing the proceedings, again expressed the indebtedness of the university to Mrs. Cox for her munificence. The laboratory is in direct connexion with the existing laboratories. It consists of a large laboratory for practical work by individual students and a small theatre intended specially for demonstrations of experiments by the professor. This theatre will accommodate from 90 to 100 students. It will have an electric lantern. Part of the large laboratory has been partitioned off to provide, in the meantime, a room for microscopic demonstrations.

July 23rd.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Sanitary Condition of Whitehouse.

DR. C J. CLIBEORN, Local Government Board medical inspector, reports in reference to the Whitehouse districts in the neighbourhood of Belfast that there is no regular inspection of the meat- and milk-supplies and that the sewerage of Upper and Lower Whitehouse is not sufficient or satisfactory. Typhoid fever has been prevalent in the Upper Whitehouse district, and although the subject of the sewerage of Upper Whitehouse has been under consideration for years nothing has been done. It is to be hoped, the inspector writes, that the district council will without further delay perform this necessary work. The Infectious Diseases (Notification and Prevention) Acts have not been adopted, and it is recommended that the district council should adopt both these Acts.

North of Ireland Branch of the British Medical Association.

The twenty-third annual meeting of the members of the North of Ireland Branch of the British Medical Association was held in the Museum, Belfast, on July 18th, the President, Professor J. W. Byers, being in the chair. After the minutes had been read the annual report and statement of accounts were submitted and passed. There are now over 300 members and the branch is the largest in Ireland. The work during the past year was excellent and there is now a balance in hand of over £20. Dr J. S. Darling (Lurgan) was elected president for the ensuing year, Dr. John Campbell and Dr. D. P. Gaussen were chosen as vice-presidents, Dr George Gray (Newcastle) was elected treasurer, and Dr. W Calwell secretary. Professor Byers and D. Calwell were elected representatives of the branch on the central council of the British Medical Association and Dr. Alexander Dempsey was elected on the Parliamentary Bills Committee. The following scientific work was then brought before the meeting. Dr. T. S. Kirk read notes of a case of Suppurative Nephritis treated by Nephrotomy and showed two cases of Excision of the Hip; Dr. A. B. Mitchell gave a lantern demonstration illustrative of the Conditions Found and Different Operations carried out in a Series of 18 Operations on the Stomach; Dr. C. E. Shaw gave brief notes of the removal of an Ivory Exostosis from the Auditory Meatus; Professor W. Whitla showed a specimen of a Dissecting Aneurysm; Dr. R. J. Johnstone showed specimens of Charcot's Joint Disease, Endothelioma of the Ovary, Sarcoma of the Ovary invading the Myoma of the Uterus, and Healed Typhoid and Dysenteric Ulcers; and Dr. Dempsey showed a Fibroid Tumour of the Uterus removed by Retro-peritoneal Hysterectomy. After the meeting Professor Byers entertained the members at luncheon in the Prince's Restaurant. The President gave the toasts of the King and the City of Belfast, to which the Lord Mayor (Sir Daniel Dixon, D.L.) responded. Mr. G. L. St. George, J.P., in a very happy manner proposed the health of the President (Professor Byers), to which that gentleman responded, and spoke of the great services rendered to the branch by the very efficient secretary, Dr. Calwell, who, most unwillingly, owing to an assize case, was unable to be present.

The Typhoid Fever Epidemic in Belfast.

In reply to the report issued by the Public Health Committee blaming the water-supply at Stoneyford as the cause of the outbreak of typhoid fever the Water Commissioners have promptly, through their chairman, shown that there is another side to the question. Attention is drawn to the fact that, although the defective nature of the drains in many of the houses affected in the district where the present outbreak occurred and the insanitary condition of many of the dwellings and inmates are admitted yet no importance is attached to these serious elements and vital causes of typhoid fever. The reporters visited Stoneyford in June last and being informed that two cases of typhoid fever had occurred in farmhouses as far back as Feb. 5th and 28th they concluded without further inquiry that the Stoneyford water caused the outbreak in Belfast in May and June last. The Water Commissioners reply that the houses were thoroughly disinfected and all the manure and excreta from the patients were completely removed by their employés to lands outside the catchment area and that not a drop of water from this area was admitted into the Stoneyford reservoir from Dec. 23rd 1900, until March 21st of this year—that is, for a period of eight weeks prior to the occurrence of the typhoid fever in this area and some four or five weeks after. Further, no reference is made to the effect of the prolonged storage to which the water is subjected in the reservoirs or to the after-treatment of the water at the filters which have been found to reduce 99 per cent. of the bacteria. It is asked, further, why, if the Stoneyford water was the cause of the present outbreak, do Dunmurry and all the high levels of the city of Belfast from the Upper Falls to the Crumlin-road and Old Park-road, which are supplied by the same water, escape. The commissioners were uninformed of the visit to their catchment area of the gentlemen who drew up the report for the Public Health Committee; had they been informed of it they would have told them of the important precautions taken by them to prevent any pollution of the catchment area. In a word, this report of the Water Commissioners implies that it is the bad sanitary condition of the district where the typhoid fever first appeared which is the real cause of the epidemic and not the water, which had it been infected with typhoid germs would have caused an outbreak in the whole area supplied by it. It is satisfactory to know that last week the cases of typhoid fever had fallen to 79. It is thought that the corporation will demand a Local Government Board inquiry into the causes of the epidemic.

July 23rd.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Treatment of Puerperal Infection.

AT the meeting of the Academy of Medicine held on July 9th M. Budin gave a descrip the method of

treating puerperal infection as used by him since 1892. In the normal puerperium involution of the uterus takes place quickly, so that after a few days the internal os is closed. But if the uterine mucosa has been infected the underlying muscular fibres are paralysed and there is no difficulty in passing the finger into the uterine cavity. This abnormal permeability of the uterus is of great importance from a diagnostic point of view. For thorough cleansing the patient must be deeply anæsthetised and the uterus curetted with the finger. The cavity must also be mopped out with fairly large swabs. Facts go to show that the cleansing of the interior of the uterus can be very thorough. According to M. Budin if fever supervene in a woman recently confined and clots are found in the uterus they should be removed whether stinking or not, and if this is followed by washing out the uterus possibly sufficient will have been done. If, however, the uterine mucosa is infected, especially at the placental site, digital curetting and swabbing must be carried out. Recovery is generally rapid if treatment has been entered upon at an early stage. If the infection has lasted for some days recovery is very slow, for both the germs and their toxins have entered the system. Recovery has been known to occur even in apparently desperate cases, but death sometimes supervenes. Another consequence results from these facts—i.e., should a woman be confined or should she abort, if [illegible]
since th [illegible]
swabbing [illegible]
prophylactic measure (*nettoyage prophylactique*). At the Tarnier clinic there are some isolation beds into which women are taken who have become infected either outside the hospital or within its walls. During the last academic year, from Nov. 1st, 1900, to June 30th, 1901, 33 infected patients were admitted from outside. In four of these cases uterine injections after digital exploration resulted in recovery. In 13 cases *nettoyage prophylactique* was performed and in 16 digital curetting and swabbing were done. Only one woman succumbed who had come in from Choisy-le-Roi in a desperate condition eight days after her confinement. Of patients already in the hospital 59 became infected and were sent to the isolation wards. All recovered. The total number of cases for the term was 1137 confinements or abortions taking place in the clinic with no deaths from infection. M. Budin, while allowing that the death-rate for the term under review was exceptionally light, considers that his methods have a great deal to recommend them.

On a Micro-organism found in Syphilitic Plasma.

M. Jullien not long ago stated before the Academy of Medicine that in the blood and serum of syphilitic patients who had recently been infected and who had not undergone any specific treatment M. de Lisle and himself have confirmed the presence of round granular highly refracting bodies such as have been already described by other observers. M. Jullien and M. de Lisle have, however, been unsuccessful in cultivation and inoculation experiments with these granules. This is not surprising, for it is well known that syphilitic blood when once coagulated is harmless, a peculiarity which may be explained by the existence in the blood after coagulation—i.e. in the serum—of an "alexine" which is strongly bactericidal. Researches have also been undertaken into the nature of the serum from a blister, whether produced by cantharides or by the actual cautery. Such serum M. Jullien and M. de Lisle found to contain no alexine whatever. They did find, however, a polymorphic organism bacillary in shape and showing all intermediate stages between that of a slender rod (from 5 μ to 8 μ in length and from 0·15 μ to 0·30 μ in breadth) and that of a long filament. The organism was mobile, staining easily with the usual reagents but not by Gram's method. It caused bouillon to become turbid in 24 hours, forming a thick growth thereon in from four to five days. It liquefied gelatine and grew well on glycerin, also on potato, amniotic fluid, gelose, and solidified serum. It would grow under anaerobic conditions but only slowly. As the age of the culture increased the appearance of the microbe altered so that after 10 days or so nothing was seen but the granules which had been originally observed in the blood of syphilitic patients. If a re-culture was made the primitive characters reappeared. After 30 days the cultures were apparently dead, but could be revived by appropriate measures. If these organisms were injected into the peritoneal cavity of a guinea-pig there resulted paralysis, wasting, abortion, and death in from 10 to 15 days. Young animals died in 12 hours. Subcutaneous inoculation brought about an indurated area which afterwards ulcerated, while the glands in the vicinity swelled up. On post-mortem examination the blood was always found to be sterile. In syphilitic patients inoculation was unsuccessful whether through an open wound or by absorption. The specificity of this pathogenic organism appears evident from two facts—firstly, it is agglutinated by the serum of patients obviously suffering from syphilis; an agglutination which does not occur with the serum of healthy patients, and secondly, the property which it possesses of being acted on by the alexine contained in the serum of animals which have been inoculated with syphilitic poison—a fact which proves the existence of specific properties.

July 23rd.

CANADA.

(FROM OUR OWN CORRESPONDENT.)

Ontario Medical Association.

THE twenty-first annual meeting of the Ontario Medical Association was held in Toronto on June 19th and 20th under the presidency of Dr. Angus McKinnon (Guelph). Dr. William Oldright, Professor of Hygiene in the University of Toronto, reported on three recent gall-stone cases; in these cases two patients were operated on successfully and an uneventful recovery was noted. The third case was found to be complicated with malignant disease on opening the abdomen. Had the patient been operated on a few years before Dr. Oldright thought that her life might have been saved. It was impossible to locate the gall-bladder in this case. Dr. Herbert A. Bruce (Toronto) showed a woman, 34 years of age, from whom he had removed the left upper jaw for sarcoma. The disease was first noticed as a swelling, slight in character, simulating a gum-boil on the alveolus of the left upper jaw. Dr. Silverthorn presented the pathological specimen and stated that it contained spindle cells with a cartilaginous basis. It was as large as a good-sized orange. A very interesting discussion took place on Ectopic Gestation which was introduced by Dr. R. W. Garrett, Professor of Medicine in Queen's University, Kingston, Ontario. He directed attention to arrest within the tube or tubal pregnancy principally, and thought that in a fairly large proportion of these cases a diagnosis ought to be made before the occurrence of rupture; every physician should be able to make the diagnosis after the occurrence of rupture. Dr. J. F. W. Ross thought that they should now be able to make these cases out before the rupture took place. At the opening of the afternoon session the President delivered the annual address. It was practical and thoughtful and dealt with the "fakes" in medicine, or rather those which hang on to the skirts of medicine. The Dowieites, the Christian Scientists, the electric-belt men, and the pray-for-hire healers, as well as their advertisements in the daily press and also in the religious papers were condemned most freely. Dr. McKinnon further deprecated manufacturers making up pills for neuralgia, &c. There should also be better facilities for getting the subjects of acute mania into asylums, so as to avoid irritating delays. Dr. P. H. Bryce, Secretary of the Ontario Board of Health, read a practical paper on the vaccinal protection against small-pox which, in view of the fact that this disease has been, and is still, prevalent throughout the province, evoked animated discussion. He considered that there never was a time since the introduction of vaccination when there was so much carelessness in regard to it amongst the laity as well as amongst the profession. Dean Geikie of Trinity Medical College considered Jenner's discovery to be one of the grandest and most glorious in the annals of medicine. A special committee, on the suggestion of Dr. Wishart, drew up a motion, which was subsequently passed, approving of from three to five insertions in the practice of vaccination and calling upon the profession to be more diligent in the performance of this art. Mr. I. H. Cameron warned the profession against laxity in dealing with this most important subject. Empyema was another question which evoked a very interesting discussion. In a carefully prepared paper, it was introduced by Dr. R. Ferguson (London, Ontario) who confined his remarks to the medical aspect of it. Dr. J. L. Turnbull (Goderich) dealt with the surgical side of the question, stating that it was his practice when pus was present to take out a portion of a rib about one and a half inches in length. Particular attention should always be paid to the hard fibrous tissue which was always present beneath the ribs. The Open-air Treatment of Disease was the subject of a paper by Dr. George H. Carveth (Toronto), who described his method of treating diseases, firstly in rooms with wide-open windows; secondly, on verandahs; and, thirdly, in tents on the lawns. Some of the cases which he had treated in this way were iritis, cases of fracture, cases of the radical cure of hernia, rheumatoid arthritis, tuberculous disease of the spine, typhoid fever, and a case of hysterectomy. When once accustomed to open-air life there was great difficulty in getting patients to return indoors. Dr. L. Coyteux Prevost (Ottawa) read a lengthy paper on the Use of Nitrous Oxide and Ether as an anæsthetic. The Complications and Degenerations of Fibroid Tumours of the Uterus with reference to the treatment of these growths was a subject ably dealt with by Dr. Charles Noble (Philadelphia). Dr. Arthur Mayburry (Toronto) contributed a paper on the Relation of Nasal Obstruction to Obscure Cases of Asthma; while Dr. J. T. Duncan (Toronto) read a paper on the Importance of an Early Recognition of Locomotor Ataxia. He referred chiefly to the eye symptoms as aids to an early diagnosis. Dr. D. J. Gibb Wishart spoke on the use of adrenalin which he had found very useful as a hæmostatic in many cases. He considered it to be a valuable adjunct to the medical man's armamentarium. Another important discussion took place on Gastric Ulcer. Dr. R. D. Rudolf (Toronto) opened this discussion, speaking of the relation of cancer to ulcer, the value of ergot, the question of diagnosing the site of the ulcer, and whether cases of apparently "cured" gastric ulcer are "first-class lives" for insurance. Dr. H. B. Anderson, Pathologist to Trinity Medical College, dealt with the pathological aspect lucidly, while Dr. Henry Howitt contributed an exhaustive paper on the surgical aspect. In distension it was Dr. Hewitt's practice to evacuate the bowels. One or more small incisions in the prominent coils soon overcame the distension and each one was closed before another was made. "On the Relation of Hyperacidity of the Stomach to Bilious Attacks, some Forms of Eczema, Muscular Rheumatism, and Gout," was the title of a paper contributed by Dr. Graham Chambers (Toronto) and it exhibited careful observation on the part of the writer. In the medical treatment of surgical tuberculosis Dr. W. B. Thistle (Toronto) thought that in surgical tuberculosis the medical treatment was too often neglected and that cases would do better if medical treatment were added to the surgical. Dr. Walter McKeown (Toronto) dealt with the treatment of Post-operative Peritonitis. A committee was appointed to report on the propriety of establishing a medical defence union in Ontario; and a resolution was unanimously passed upholding the action of the Ontario Medical Council in enforcing payment of the annual $2.00 assessment. The following were the officers elected: President, Dr. N. A. Powell (Toronto); first vice-president, Dr. R. Ferguson (London, Ontario); second vice-president, Dr. R. W. Garrett (Kingston); third vice-president, Dr. L. C. Prevost (Ottawa); general secretary, Dr. Harold C. Parsons (Toronto); assistant secretary, Dr. George Elliott (Toronto); treasurer, Dr. A. R. Gordon (Toronto). Toronto was selected as the next place of meeting.

Toronto, July 8th.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Passengers' Rights on Electric Street Cars.

ACCIDENTS due to the haste of conductors are of almost daily occurrence on street cars. However expeditious in his movements the passenger may be he is constantly ordered by the conductor to "hurry up" or to "step lively," whether he be leaving or entering a car. The cause of the accident is generally the starting of the car before the passenger is safely on or off, as the case may be. Generally he has grasped the handle of the car lest he should fall and he clings to it, being dragged along, in his effort to recover his footing. The courts put a liberal construction upon the rights of passengers on these cars. In a recent case a man sued the Street Railway Company for injuries received while trying to board one of their cars. He had grasped the handrail and waited for other passengers to enter the car; the start was made with a jerk and he was only partially on the car, having his left foot on the step. He was thrown off, but ran along side of the car, endeavouring to board it, when he was hit by a projection in the street hiding a hole in the pavement; this blow threw him into the hole. His suit was at first dismissed, but on appeal the first decision was pronounced to be an error and the court held that the defendant was bound to give the plaintiff time to board the car, and the evidence proved that reasonable time was not allowed and that in this respect the defendant was negligent. The court held that the plaintiff was not guilty of contributory negligence; having hold of the car and being about to board it, it suddenly started, thereby presenting an emergency which required the exercise of judgment as to the best course to be followed to prevent injury. If to avoid being thrown down by the car he held on to the rail to steady himself until he could let go in safety it was certainly not negligence as a matter of law. But for the existence of this trench in the roadway alongside of the track, which he had not observed, he would probably have escaped injury by adopting the course which he did, but his falling into the trench was caused by his being dragged along by the car. It seemed to the court that the question of contributory negligence was one for the jury. If the car had not started the plaintiff could have got aboard safely. It, however, started when he had hold of the car and the sudden jerk carried him along with it, and if he, to avoid falling, kept hold of the car until he could regain his equilibrium, and in so doing was by the momentum of the car thrown into this trench, it was the sudden starting of the car and the motion contributed by the car to the plaintiff which caused him to fall into the trench from which he sustained the injury for which he sought to recover.

Foreign Relations of the American Medical Association.

It appears from the address of the President of the American Medical Association, Dr. C. A. Reed, that this society had accredited delegates during the last year to several foreign medical conventions, notably the International Medical Congress at Paris, the Dominion Medical Association of Canada, the Mexican National Association, and the Pan-American Medical Congress at Havana. With each of these organisations the American Medical Association sustains relations of peculiar intimacy. As one of the great scientific nations of the earth the United States is naturally an integral part of the International Medical Congress. This association by resolution presented by its present president, took the initiative in 1891 in organising the Pan-American Medical Congress. The first réunion of that Congress was held in Washington in 1893 under the presidency of the late lamented Dr. Pepper; the second was held in the city of Mexico in 1896 under the presidency of Dr. Carmona y Valle; and the third was convened during the last few months in the city of Havana under the distinguished president, Dr. Juan Santos Fernandez. The object of this movement is the establishment of closer relations between the medical profession of the different countries of the Western Hemisphere. Excellent fruit has already been borne in the increased patronage of our medical schools from the far South; in the improved status of American medical practitioners in Latin America; in the better understanding of quarantine questions in the different countries; and in the development of concerted action in the investigation of the medical flora of the Western Hemisphere.

A National Pharmaceutical Laboratory.

The movement for a memorial fittingly to perpetuate the name of William Proctor, jun., was started some months ago by the American Pharmaceutical Association. Its growth has been vigorous and pharmacists in various parts of the country have become identified with the plan. William Proctor, jun., was one of the best-known pharmacists of his day, and by some persons now living he has been called the "Father of Pharmacy." Something will be done in the near future in memory of the results which he obtained in his efforts to enlarge the knowledge of pharmacy and to elevate the calling of the pharmacist. The present proposition is to establish a National Pharmaceutical Research Laboratory. If this should fail of realisation, the New York State Pharmaceutical Association, with which the project originated, would urge that the name of William Proctor, jun , should be perpetuated and be made widely known to future generations by founding scholarships bearing his name at colleges of pharmacy here, or that medals for conspicuously meritorious work in any of the branches of pharmacy should be given

July 18th

AUSTRALIA

(FROM OUR OWN CORRESPONDENT)

Outbreak of Small-pox

SOME time ago Western Australia altered the quarantine regulations of that State and relieved ships carrying surgeons from medical inspection, *pratique* being granted on the certificate of the ship's surgeon that there was no infectious disease on board In South Australia the chairman of the Board of Health, Dr Ramsay Smith is an advocate of surveillance, as opposed to strict quarantine, and is supported in his views by the Premier of the State The latter has communicated with the Federal Premier of Australia, stating that if the Commonwealth Government does not propose to take over the quarantine department for some time it will be *necessary to bring in an amending Quarantine Act in the* South Australian State Parliament, with this object in view Power to assume control of quarantine is conferred by the Constitution Act, but the transfer cannot be made till a date for handing over the quarantine stations has been fixed by the Commonwealth Parliament The New South Wales, Victorian, and Queensland authorities uphold strict quarantine but under their several Acts have no power to insist on the detention in quarantine, in the State, of a patient who prefers to go on in the vessel to the next port of call, but can only quarantine those of the passengers or crew who land The way these varying regulations work out in practice has been well exemplified recently The steamer *Chingta* arrived some six weeks ago at Thursday Island and was found to have a case of small pox on board The authorities then offered to take the patient off and to isolate him, but the captain decided to go on as he said the patient could be isolated on board The steamer went on to Sydney and was quarantined there and small pox broke out among the passengers and crew while in quarantine, one patient dying In the opinion of Dr Ashburton Thompson President of the Board of Health, these patients were all infected on the voyage between Thursday Island and Sydney, and if quarantine and isolation had been enforced at Thursday Island the outbreak would not have occurred More recently the Orient steamer *Ormuz* arrived at Fremantle and was reported free from infectious disease by the ship's surgeon but, in accordance with the regulations in West Australia, was not boarded or inspected by the port medical officer Free communication took place with the shore passengers landed and other passengers embarked for the eastern ports On reaching Adelaide the port medical officer boarded and was again informed that there was no infectious disease on board, but as strict precautions were being taken with regard to plague he proceeded to inspect the passengers and crew Having completed the inspection of the passengers he allowed the mails to go ashore and visitors to come on board While inspecting the crew he found a man sick and was told by the ship's surgeon that it was not an infectious case The port officer, however thought it was small pox, went ashore and got another opinion and the advice of the President of the Board of Health, and his opinion being confirmed ordered the ship and all on board into quarantine. The Adelaide passengers and visitors were landed at the quarantine station The *Ormuz* went on to Melbourne where the Melbourne passengers were quarantined, and the original patient was isolated at the sanatorium Then the ship went on to Sydney where the remaining passengers were quarantined When the Adelaide passengers had been 11 days in quarantine Dr Ramsay Smith advised that they should be released and kept under surveillance The Melbourne and Sydney authorities, however, objected and the very next day two cases of *small pox developed among the passengers quarantined* at Adelaide Meanwhile among those quarantined at Melbourne six cases of small pox developed, and among those quarantined in Sydney 19 cases one fatal One of the cases at Adelaide occurred in a passenger from Fremantle, so that here again the disease was caught on the voyage between the first Australian port, Fremantle, and the next port of call, and the whole outbreak, involving very heavy expense indeed, could have been avoided by proper measures at Fremantle Further, at Fremantle itself the policeman on duty on the *Ormuz* while there has been attacked with small pox In Sydney two cases of small pox have occurred among the general inhabitants who had no communication whatever with the infected vessels, but were probably infected from the *Chingta* cases and in Adelaide two of the residents who boarded the *Ormuz*—a newsboy and a constable—and were quarantined with the passengers have developed small pox Yet a third muddle has occurred still more recently When the R.M S *Arcadia* arrived at Adelaide the port officer carefully inspected the crew and discovered a steward with a suspicious rash , the diagnosis of small pox having been confirmed by a second expert opinion, though disputed by the ship's surgeon, the ship was quarantined Some of the Adelaide passengers elected to go on to Melbourne in the ship, others went to the quarantine station, already crowded with the passengers of the *Ormuz* On arrival at Melbourne the three experts of the Board of Health pronounced the case not to be small-pox and granted the vessel *pratique* The 40 Adelaide passengers who came on to Melbourne were then sent back and those who had been quarantined there and mixed with the *Ormuz* passengers were also released

Prince Alfred Hospital, Sydney

The foundation stone of the Queen Victoria Memorial wing of the Prince Alfred Hospital Sydney was laid on May 31st by H R.H the Duke of Cornwall with great *éclat* The Royal party were received by Professor Anderson Stuart, President of the hospital, who read an address giving a history of the hospital and detailing the work it had accomplished After the stone had been laid the Duke of Cornwall made the following speech "It is with deep satisfaction that the Duchess and I have taken part in this interesting ceremony , for in the first place I should like to hope that possibly our presence here to day may conduce even though in the smallest degree to the advancement of the splendid work which has already been accomplished by the Prince Alfred Hospital Then I am proud to think that whether I turn to the past history of the hospital or try to look into its future I find a close association with it and my family His Majesty the King is its patron *It found its birth in the* loyal outburst of thankfulness on the part of the people of New South Wales for the recovery of my dear uncle the Duke of Edinburgh from the result of a dangerous attack upon his life In the title Queen Victoria Memorial Pavilions which you have chosen for the new buildings, the foundation stone of which I have had the honour of laying to-day, you identify them for ever with the imperishable memory of our late dearly beloved Sovereign I doubt whether under the circumstances any more fitting memorial to that great life could have been chosen for sympathy with the suffering was an all pervading element in the noble and beautiful character of her who was your first patron and with whose name the hospital will now be associated for all time Another personal connexion exists in the fact that 20 years ago my dear brother and I visited the hospital then unopened, and that to-day I have been allowed to inaugurate what will be the completion of the originally conceived scheme Since that time the hospital thanks to excellent administration combined with a zealous and able staff has achieved results which have earned commendation from a competent hospital authority who spoke *of it as one of the best managed* institutions in the world As an example I merely mention that since it has been opened *in* 1883 *some* 188 000 people have received medical treatment from it either as in door or out door patients The rapidly growing population of your city brings an ever daily increased demand to such an establishment and it is hoped that these new additions will meet the further present requirements for greater accommodation I am glad to learn that thanks to the generosity of the public, the necessary funds are now almost guaranteed I feel confident that you will gladly join with me in offering hearty congratulations to Professor Anderson Stuart and his brother directors for such liberal support may be taken as a proof of *recognition* by the Government and the community at large of the inestimable benefits which have been conferred on your suffering *fellow creatures by the institution whose* direction was fortunately left in their hands "

June 22nd.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—The following gentlemen having passed the necessary examinations have been admitted Fellows of the College in the order of their seniority as Members, and have received their diplomas:—

John Beuzeville Byles, diploma of Member dated Nov. 13th, 1891, M.B., B.C. Cantab., L.R.C.P. Lond., Westminster Hospital; Herbert William Kendall, Member, I [illegible] Hospital; James Keogh M [illegible] M.D., B.C. Cantab., L.R.C. [illegible] St. Bartholomew's Hospital; Robert Earle Newton, Member, July 29th, 1895, M.B., C.M. Glasg., L.R.C.P. Lond., Glasgow University and St. Bartholomew's Hospital; Cecil Banting, Member, Feb. 13th, 1896, M.D., B.S. Lond., L.R.C.P. Lond., University College and Guy's Hospitals; Philip Northcott Vellacott, Member, May 14th, 1896, M.B., B.S. Lond., L.R.C.P. Lond., Guy's Hospital; William Robert Gibson, Member, August 4th, 1896, L.R.C.P. Lond., St. Bartholomew's Hospital; Robert Pugh Rowlands, Member, August 4th, 1896, L.R.C.P. Lond., Guy's Hospital; Ferdinand Stanley Batchelor, Member, July 29th, 1897, L.R.C.P. Lond., Guy's Hospital; Howard Henry Congreve Dent, Member, July 29th, 1897, M.B. Durh., L.R.C.P. Lond., Durham University, Mason University College, Birmingham, and St. Bartholomew's Hospital; Joseph Faulkner Dobson, Member, July 29th, 1897, M.B., B.S. Lond., L.R.C.P. Lond., Yorkshire College and Gene [illegible] ancis Astley Cooper Tyrrell, Member, No [illegible] B.C. Cantab., L.R.C.P. Lond., Cambridge [illegible] and King's College Hospitals; Arthur Hyde Greg, Member, Feb. 10th, 1898, L.R.C.P. Lond., Cambridge University and St. Thomas's Hospital; George Ernest Gask, Member, August 2nd, 1898, L.R.C.P. Lond., St. Bartholomew's Hospital; William Halliburton McMullen, Member, Nov. 10th, 1898, M.B. Lond., L.R.C.P. Lond., King's College Hospital; William Howard Unwin, Member, Nov. 10th, 1898, M.B. Lond., L.R.C.P. Lond., University College and Charing Cross Hospital; Harold Shuttleworth Barwell, Member, Feb. 9th, 1899, L.R.C.P. Lond., St. George's Hospital; Harold Vaughan Pryce, Member, Feb. 9th, 1899, B.A. Cantab., L.R.C.P. Lond., Cambridge University and St. Bartholomew's Hospital; Harold Burrows, Member, May 11th, 1899, M.B. L.R.C.P. Lond., St. Bartholomew's Hospital; Graham Scales Simpson, Member, July 27th, 1899, L.R.C.P. Lond., L.D.S. Eng., Guy's Hospital; Herbert George Tymms, Member, Nov. 2nd, 1899, M.B., B.S. Melb., L.R.C.P. Lond., Melbourne University and St. Bartholomew's Hospital; William Henville Lowman, Member, May 10th, 1900, M.B., B.S. Lond., L.R.C.P. Lond., University College, Bristol, and King's College Hospital; Robert Young Aitken, Member, Feb. 7th, 1901, M.D. Glasg., L.R.C.P. Lond., Glasgow University; and Joseph Cunning, not a Member, M.B. Melb., Melbourne University and St. Bartholomew's Hospital.

Fifty-six candidates presented themselves for this examination, 25 of whom passed, one of whom not having attained the legal age of 25 years, will receive his diploma at a future meeting of the Council. 31 candidates were referred, 24 for six months and seven for 12 months.

UNIVERSITY OF LONDON.—At the Intermediate Examination in Medicine, held in July, the following candidates were successful:—

EXAMINATION FOR HONOURS.

Anatomy.—First Class: Seymour Gilbert Barling* (Deserving of Medal), Birmingham University; Ernest Edgar Maples (Gold Medal), St. Bartholomew's Hospital; William Gordon Taylor (Exhibition and Medal), Middlesex Hospital; and Edwin Robert Wheeler, King's College. *Second Class:* William Fraser Annand, University College; Elizabeth Bolton, London School of Medicine for Women; Alexander George Gibson, B.Sc., Oxford University; and Frederick William Weeks Smith, St. Thomas's Hospital. *Third Class:* Frank Alcock, Owens College; Frederic Wood Jones, London Hospital; and Alexander Moxon Webber, Guy's Hospital.

P [illegible] *—First Class:* George Hall (Exhibition and [illegible] ollege; Thomas de Smith (Gold Medal), [illegible] and London Hospital; and Alexander [illegible] Hospital. *Second Class:* Joseph Anthony Terrière, University College; Alexander George Gibson, Oxford University; Frederic Wood Jones, London Hospital; Gerald Warren Russell, Guy's Hospital; and Kenrick Stanton Wise, St. Bartholomew's Hospital. *Third Class:* Seymour Gilbert Barling, Birmingham University; Neville Samuel Finzi, University College, and Maurice George Louisson and Henry Francis Bell Walker, Guy's Hospital.

Organic Chemistry.—Second Class: Ernest Edgar Maples, St. Bartholomew's Hospital. *Third Class:* Kenrick Stanton Wise, St. Bartholomew's Hospital.

Materia Medica and Pharmaceutical Chemistry.—First Class: Ernest Edgar Maples, St. Bartholomew's Hospital, and Arthur Campbell Stark (Exhibition and Medal), Westminster Hospital. *Second Class:* Sophie Grace Hacking, B.Sc. London School of Medicine and Bedford College. *Third Class:* Joseph Anthony Terrière, Neville Samuel Finzi, and George Hall, University College; Philip Rees, B.Sc., Charing Cross Hospital; and Gerald Warren Russell, Guy's Hospital.

* Obtained number of marks qualifying for the Medal.

The foregoing list, published for the convenience of candidates, is provisional only, and is not final until the reports of the examiners shall have been confirmed by the Senate.

SOCIETY OF APOTHECARIES OF LONDON.—In July the following candidates passed in the subjects indicated:—

Surgery.—C. H. Allan (Sections I. and II.), London Hospital; A. G. H. Anthonisz (Section I.), University College Hospital; F. A. Beattie (Sections I. and II.), Guy's Hospital; P. C. Burgess (Sect [illegible]). Child (Section I.), Charing-cross [illegible] (Sections I. and II.), King's [illegible] Section II.), Royal Free Hospita [illegible] 's Hospital; H. C. Hocken (Section II.), Cambridge and Westminster Hospital; C. E. A. Huddart (Sections I. and II.), London Hospital; R. L. Jones (Sections I. and II.), Middlesex Hospital; F. P. Joscelyne (Section II.), Leeds; C. C. Morgan (Section I.), St. Bartholomew's Hospital; B. E. Sansom (Section II.), St. Thomas's Hospital; C. V. Smith, University College Hospital; P. P. Tobit (Section I.), King's College Hospital; F. I. Trimmer (Sections I. and II.), London Hospital; A. G. Wilson (Sections I. and II.), Manchester; and E. Yoxall (Section I.), Birmingham.

Medicine.—F. A. Beattie (Sections I. and II.), Guy's Hospital; J. E. Bolton (Section I.), Leeds; G. M. Crockett (Section I.), K. A. Dawson (Section I.), and E. A. Dunn (Section II.), Royal Free Hospital; H. C. Hocken (Sections I. and II.), Cambridge and Westminster Hospital; F. P. Joscelyne (Section II.), Leeds; A. E. Malaher, St. Thomas's Hospital; M. E. Martin (Section I.), Royal Free Hospital; E. S. Perkins, Leeds and Guy's Hospital; H. Richardson (Sections I. and II.), Leeds; P. G. Sheppard (Sections I. and II.), Cambridge and Liverpool; J. E. Skey (Section I.), Westminster Hospital; and A. G. Wilson (Sections I. and II.), Manchester.

Forensic Medicine.—F. A. Beattie, Guy's Hospital; J. E. Bolton, Leeds; G. M. Crockett and K. A. Dawson, Royal Free Hospital; E. H. Forjett, Edinburgh; C. J. Francis, Guy's Hospital; H. C. Hocken, Cambridge and Westminster Hospital; M. E. Martin, Royal Free Hospital; E. S. Perkins, Leeds and Guy's Hospital; F. P. Rose, London Hospital; J. E. Skey, Westminster Hospital; and A. G. Wilson, Manchester.

Midwifery.—F. A. Beattie, Guy's Hospital; F. G. Bennett, University College Hospital; F. J. Birks, Sheffield; P. J. R. Bucknill, Manchester and Dublin; W. V. Braddon, Cambridge and Manchester; A. N. Collier, Manchester; W. H. Crossley, St. Bartholomew's Hospital; W. R. Davies and C. W. Gibson, Guy's Hospital; J. M. King, University College Hospital; E. A. Le Maistre, London Hospital; D. E. Lockwood, Royal Free Hospital; M. B. Oliver, University College Hospital; J. A. W. Webster, St. Mary's Hospital; and A. G. Wilson, Manchester.

The diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery;—F. A. Beattie, F. J. Birks, P. J. R. Bucknill, E. A. Dunn, H. C. Hocken, F. P. Joscelyne, A. E. Malaher, C. V. Smith, and A. G. Wilson.

DEPUTY CORONER FOR NORTH SOMERSET.—Mr. R. Whiteside Statham, M.R.C.S. Eng., L.S.A., of Cheddar, has been appointed deputy coroner for North Somerset owing to the resignation of Dr. J. Wallace of Weston-super-Mare.

UNIVERSITY COLLEGE, CARDIFF.—The registrar of Cardiff University College has received an intimation from Dr. Isambard Owen stating that he is unable to accept the appointment of principal of the college.

A NEW MEDICAL JOURNAL.—An adjourned meeting of members of the medical profession practising obstetrics and gynæcology was held in London on July 24th under the presidency of Sir John Williams, at which it was unanimously resolved to establish a new journal to be called *The British and Colonial Journal of Obstetrics and Gynæcology*, and to raise the funds required for its publication by the formation of a limited liability company.

PRESENTATION TO A MEDICAL PRACTITIONER.—Dr. A. Davidson, for over five years senior assistant medical officer at the Dorset County Asylum, has, on the occasion of his leaving to take up work in the colonial service, received from the officers and staff a silver tea service, consisting of four pieces. The inscription on the teapot is:—"Presented to A. Davidson, M.D., by the officers and staff of the Dorset County Asylum in appreciation of his zealous work and kind attention."

NEWPORT (MON.) HOSPITAL.—The new hospital at Newport, which has been erected at a cost of over £30,000, is now completed, and the patients have been removed from the old building which was recently sold for £3900. The new structure stands on four and a half acres of land and will provide accommodation for 84 in-patients. The medical staff invited the local members of the profession to pay a visit of inspection on July 25th, and the formal opening by Lord Tredegar has been arranged for August 5th.

FREEMASONRY.—Medical Freemasons may be glad to hear of a new song entitled "The Freemason," written and composed by Dr. T. Wilson Parry and dedicated by permission to the Most Worshipful Grand Master of England, H.R.H. the Duke of Connaught, the proceeds of the sale of which will be given to the Royal Masonic Institution for Girls. Copies may be obtained from the author, Youlgreave, Bakewell, Derbyshire, or from Messrs. Kenning and Son, Great Queen-street, London, W.C., price 1s. 6d.

Parliamentary Intelligence.

HOUSE OF COMMONS.

THURSDAY, JULY 18TH.

The Army Medical Service.

Service; was he aware that in sever
proportion, of the men joining the
qualifications; and, seeing that five of the members of the committee represent London schools, could he explain why only one had been allotted to Ireland and one to Scotland; and would he give a return of the medical men in the Indian, British, and naval services, distinguishing those holding English, Irish, and Scotch qualifications for the years 1890, 1895, and 1900; and would anything be done to increase the representation of Ireland in the composition of the committee.—Mr. BALFOUR replied: The members of this committee were chosen not with a view of representing various nationalities but to render the Secretary of State practical assistance in the task of my right hon. he some time ce, and he has

The Nursing Question in Ireland.

Mr. WILLIAM JOHNSTON asked the Chief Secretary to the Lord Lieutenant of Ireland (1) whether he was aware that an inquiry had been held in Downpatrick by a medical inspector of the Local Government Board as to the necessity of providing a qualified midwife for Strangford Dispensary District, and that it was proved that there had been from time to time deaths from puerperal fever, from improper nursing, before a regularly qualified midwife was appointed; and (2) seeing that since the resignation of the last holder of the position, on May 1st, 1900, the guardians had persistently refused to appoint a successor, could he say whether there was any power in the Local Government Board to compel the Downpatrick guardians to make the appointment.—Mr. WYNDHAM replied: The facts are as stated in the first paragraph. The Board has frequently exhorted the guardians to appoint a midwife for this dispensary district since the occurrence of the present vacancy in May, 1900. The reply to the second paragraph is in the affirmative. The Board will again communicate with the guardians, insisting on the necessity for such an appointment.

Sanitary Defects in Post-offices.

Mr. SCHWANN asked the Secretary to the Treasury, (as representing the Postmaster-General, whether he was aware that the British Postal

Mr. YOUNG he could state how n Department, and in what proportion they were to the English and Scotch graduates.—Mr. BRODRICK replied that the number of Irish graduates was 334, being 37 per cent., as compared with English 35 per cent. and Scotch 28 per cent.

Medical Professorships in Ireland.

Mr. MACARTNEY asked the Chief Secretary to the Lord Lieutenant of Ireland if he could state why the appointments to certain medical professorships in the Queen's College, Belfast, had been limited to a term of seven years, whereas in the Queen's College, Cork, similar appointments had been recently made for life.—Mr. WYNDHAM replied: ars, dies ses the

MONDAY, JULY 22ND.

The Condition of the Concentration Camps.

The Increasing Use of Cocaine.

Mr. MACDONA asked the Home Secretary whether his attention had been called to the death of two actresses caused by taking poisonous

Drunkards Bill.

This Bill, introduced in the House of Lords by the Bishop of Winchester and very much amended in that chamber at the instance of the Government, was withdrawn at this sitting from the House of Commons and consequently abandoned for the session.

TUESDAY, JULY 23RD.

The Dysentery Commission.

Sir WALTER FOSTER asked the Secretary of State for War whether

received from the Dysentery Commission.

Dental Provision at the Duke of York's School.

Mr. CATHCART WASON asked the Secretary of State for War whether his attention had been called to the fact that there was no dental

the boys have been sent to a dental surgeon or to the dental hospital. This would appear to be sufficient.

The London Water Question.

On the
formally
companie
Bill introduced by a private member can be passed or even substantially advanced during the present session.

THE NEW FACTORY AND WORKSHOP LEGISLATION.

PROCEEDINGS IN THE GRAND COMMITTEE.

At the meeting of the Grand Committee on Thursday, July 18th, very few points of interest to medical men were raised. In connexion *registers to be kept in every factory moved an amendment to have* among the workers inserted l so, he said, in order that married women might not be compelled or allowed to work in factories or workshops immediately before or after confinement. Mr. RITCHIE refused to accept the amendment, saying that no case had been made out for it and that it would be a

the law as it stood were literally carried out the medical officer of health would have to report every workshop in which he found a child or young person employed, even though it was regularly inspected. Clause 40—where there is no certifying surgeon for a factory or workshop the poor-law medical officer for the district in which the factory or workshop is situated shall act for the time being as the certifying surgeon for the factory or workshop—was passed by the committee without a word of comment. When a proposal was made to bring post-offices under the Factory

would be entirely upset but he assured the committee that he would do everything in his power to see that post offices were maintained in a sanitary condition.—Mr. STRACHEY suggested that his amendment might be altered so as to cover only inspection as to sanitation, but Mr. RITCHIE said that he could not accept it even in this modified form.—The committee rejected the amendment by 23 to 13 votes.—The question which occupied most time at this sitting was the question of the regulation of laundries. In the Bill as introduced it was proposed to place all laundries under the Factory Acts, but in the case of laundries in religious and charitable institutions to modify the ordinary factory inspection by entrusting it to a visitor to be agreed upon by the chief factory inspector and the managers of the particular institution. *The Irish members objected to any alteration in the existing state of the law and threatened opposition to the Bill as a whole* on the provision with regard to laundries in religious and charitable institutions. In these circumstances Mr. RITCHIE announced that rather than lose the Bill he would agree to the withdrawal of the provision and the insertion in the clause of words declaring that nothing in the clause should refer to institutions conducted in good faith for religious or charitable purposes. While he said this he intimated that he was still convinced that these institutions should be dealt with, and he would not commit himself or the Government in any way to non-dealing with the question on some other occasion. After a long and somewhat heated debate the Committee agreed to the demands of the Irish Members by 30 to 24 votes. No doubt the subject will be discussed again when the report stage of the Bill is reached in the House of Commons.

Another meeting of the committee was held on Tuesday, July 23rd.—On the motion of Mr. RITCHIE the following new clause was inserted in the Bill—viz.: (1) If the Secretary of State is satisfied that the provisions of the Factory Acts as amended by this Act, or of the law relating to public health in so far as it affects factories, workshops, and workplaces, have not been carried out by any district council, he may, by order, authorise an inspector to take, during such period as may be mentioned in the order, such steps as appear necessary or proper for enforcing those provisions; (2) an inspector authorised in pursuance of this section shall, for the purpose of his duties thereunder, have the same powers with respect to workshops and workplaces as he has with respect to factories; and he may for that purpose take the [illegible] the provisions of the Factory Acts or o[illegible] or for punishing or remedying any [illegible] the district council; and he shall be [illegible]ict council all such expenses in and about any proceedings as he may incur and as are not recovered from any other person; (3) Section 1 of the Act of 1891 is hereby repealed."—Sir CHARLES DILKE moved to insert a clause giving the Secretary of State power to make orders prescribing for any class of factories or workshops where children, young persons, or women are required in the course of their employment to lift heavy weights, the highest limits of weights that may be lifted by these children, young persons, or women. He explained that while legislation of this kind was novel in this country it was not unknown on the continent, and was found to work well there.—Mr. RITCHIE, while declining to accept the clause, said that whatever powers might exist in the hands of the certifying surgeon in the direction indicated would be exercised. In the case of children the certifying surgeon might make it a condition in granting a certificate of fitness that the child should not be employed in lifting heavy weights, or he might fix a limit of weight to be lifted.—After some discussion Sir CHARLES DILKE agreed to withdraw the clause.—A proposal made by Captain JESSEL to have the notices with regard to anthrax and lead and arsenical poisoning sent in the first instance to the medical officer of health for the district instead of the chief inspector of factories was not pressed, Mr. RITCHIE pointing out that it would interfere with the administration of the law and lead to delay. Sir FORTESCUE FLANNERY moved to insert in the Bill this clause—viz.: "Upon every notification by a medical man of a case which he believes to be anthrax poisoning the medical practitioner attending the patient shall, if no injury to the patient would, in the opinion of the medical practitioner, arise therefrom, immediately forward a specimen of the serum to a bacteriological expert approved by the Secretary of State for bacteriological examination, and in each fatal case of anthrax a specimen of the serum taken as soon after death as possible shall be forwarded in like manner by the practitioner who certifies the death." The hon. member having explained that anthrax was communicated with great facility to workers in wool, skin, and hair, said that during the last 10 or 15 years the disease had very much increased in this country. In 1899 there were 55 cases and in 1900 there were 37 cases. Unfortunately most of the cases were fatal. The disease was not very well understood by medical men. They themselves admitted that great necessity existed for further examination and research with regard to it. The Home Office had very properly given the greatest facilities in their power for research in the hope of checking the disease and there had been issued to certifying surgeons a memorandum of invitation and facilities had also been given for the bacteriological examination of specimens taken from infected persons. The clause he proposed had been approved by employers and employed in the West Riding of Yorkshire, but serious difficulties had been pointed out by the medical profession, and therefore he proposed to alter his clause so as simply to state that the Home Secretary might by order make regulations for the better bacteriological investigation of anthrax.—The CHAIRMAN of the committee said that if the hon. Member desired to make his proposal in this form he would have to do so at a later stage in the proceedings. The consideration of the subject was consequently postponed. The committee shortly afterwards adjourned.

BOOKS, ETC., RECEIVED.

BALE AND SONS, Great Titchfield-street, London.

The Association of Inguinal Hernia with the Descent of the Testis. The Bradshaw Lecture for 1900. By John Langton. Price 5s.

BAILLIÈRE ET FILS, Paris.

Traité de Chirurgie. By A. Le Dentu and Pierre Delbet. Price 17 francs.

BAILLIÈRE, TINDALL, AND COX, Henrietta-street, London.

The Theory and Practice of Military Hygiene. By E. L. Munson, A.M., M.D. Price 32s.

BERGMANN, J. F., Wiesbaden.

Mnemotechnik der Receptologie. By Dr. C. Th. Huetlin. Price 1s. 3d.

Verhandlungen der Siebzehnten Versammlung der Gesellschaft fur Kinderheilkunde in Achen. 1900. By Dr. Emil Pfeiffer. Price 8s.

Grundzüge der Allgemeinen Anatomie. By Dr. Friedrich Reinke. Price 7s. 9d.

Die Anorganischen Salze im Menschlichen Organismus. Price 5s.

Der Farbensinn der Tiere. By Dr. W. A. Nagel. Price 1s.

Der Ausbau im Diagnostichen Apparat der Klinischen Medizin. Price 5s.

Bericht übe[illegible]mmlung der Ophtalmologischen [illegible] Price 8s.

Der Hypnot[illegible] Price 9s.

Pathologie [illegible] By Dr. A. Hoffmann. Price 7s. 9d.

Das Selbstbewusstsein; Empfindung und Gefühl. By Theodor Lipps. Price 1s.

Vorlesungen über die [illegible] By Dr. S. Sacki and I[illegible]

Das Asthma, sein W[illegible] Brugelmann. Price 4s.

Die Therapeutischen Leistungen des Jahres 1900. Price 8s.

CASSELL AND CO., London.

Tumours; Innocent and Malignant. By J. Bland-Sutton. New edition. Price 21s.

CHURCHILL, J. AND A., Great Marlborough-street, London.

The Ophthalmoscope; a Manual for Students. By G. Hartridge, F.R.C.S. Fourth edition. Price 4s. 6d.

DAVIS AND CO., Philadelphia, New York, and Chicago.

Annual and Analytical Cyclopædia of Practical Medicine. By Charles E. de M. Sajous, M.D. Vol. vi. Price not stated.

DOIN, OCTAVE, Paris.

Bibliographia Lactaria. By Dr. Henri de Rothschild. Price not stated.

ENKE, FERDINAND, Stuttgart.

Atlas der Nasenkrankheiten. Parts 5, 6, and 7. Price 6 marks each.

FISCHER, GUSTAV, Jena.

Klinisches Jahrbuch. Vol. viii., Part I. Price 5 marks.

Die Protozoen. By Dr. F. Doflein. Price 7 marks.

GREEN AND SONS, Edinburgh.

Encyclopædia Medica. Vol. viii. Menstruation to Orbit. Price not stated.

LONGMANS, GREEN, AND CO., Paternoster-row, London.

History of Intellectual Development. Vol. iii. By John Beattie Crozier. Price 10s. 6d.

MACMILLAN AND CO., London.

Optics; a Manual for Students. By A. S. Percival, M.A., M.B. Price 10s.

MALOINE, A., Paris.

Le Diagnostic Précoce de la Tuberculose Pulmonaire. By Drs. Jourdin and Fischer. Price 2 francs 50 cents.

REBMAN, LIMITED, Shaftesbury-avenue, London.

A System of Physiologic Therapeutics. Vol. ii. Electrotherapy. By George W. Jacoby, M.D. Price 10s. 6d.

SMITH, ELDER, AND CO., Waterloo-place, London.

A Retrospect of Surgery during the Past Century. The Hunterian Oration for 1901. By John Poland, F.R.C.S. Price 5s.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.*

BYHAM, W. L., L.R.C.S., L.R.C.P. Edin., has been appointed Medical Officer for the Sunbury District of the Staines Union, Middlesex.

COLLINSON, HAROLD, M.B. Lond., M.R.C.S., L.R.C.P., has been appointed Resident Casualty Officer to the General Infirmary, Leeds.

CRAWSHAW, E. E., M.R.C.S., L.R.C.P., has been appointed Resident Obstetric Officer to the General Infirmary, Leeds.

DAVIDSON, A., M.D., has been appointed, by the Colonial Secretary Port Medical Officer, Singapore.

FLEMING, A. D., M.B., M.S. Edin., has been appointed Certifying Surgeon under the Factory Acts for the Kelso District of the County of Roxburgh.

FOWLER, H. W., M.B. Edin., has been appointed Assistant Medical Electrician to the Royal Infirmary, Edinburgh.

MACLEAN, E. J., [illegible] has been appointed Gynæcologist to the [illegible]

MACMURCHY, HELEN, M.D. Toronto, has been appointed a Resident Medical Assistant to the General Hospital, Toronto, Canada.

NASH, J. T. C., M.D. Edin., D.P.H. Cantab., has been appointed Medical Officer of Health for the Borough of Southend-on-Sea.

ORFORD, T. C., M.R.C.S., L.R.C.P., has been appointed Resident Medical Officer to the Salford Union Infirmary.

PAGET, O., M.B., B.S. Cantab., has been appointed Medical Officer of Health of Fremantle, Western Australia.

PERCIVAL, G. H., M.B. Lond., has been re-appointed Medical Officer of Health of Northampton Rural Sanitary District.

PRINGLE, A. M. N., M.B. Edin., has been appointed Medical Officer of Health of Manchester Port.

RORIE, GEO., M.B., M.Ch. Edin., has been appointed Senior Assistant Medical Officer to the Dorset County Asylum, vice A. Davidson, M.D., resigned.

RUTHERFORD, R. A., L.R.C.P., L.R.C.S. Edin., has been appointed Certifying Surgeon under the Factory Acts for the Kinlough Dispensary District of the Ballyshannon Union.

SCOTT, J. G. O., M.B. Edin., has been appointed Medical Officer of [illegible]

SPA[illegible] cer of [illegible]

[illegible]

Borough.

WILKINS, A. G., M.B., Ch.B., has been appointed Resident Medical Officer to the Salford Union Infirmary.

WILKINSON, J. HOWARD, M.R.C.S. Eng., L.R.C.P. Lond., D.P.H. Oxon., has been appointed an Honorary Surgeon to the Guest Hospital, Dudley.

WO[illegible]

YO[illegible]

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

[illegible] **ARY HOSPITAL**, John [illegible] months, renewable [illegible]

[illegible] ant Resident Medical [illegible] furnished apartments, rations, &c.

BRADFORD HOSPITAL AND WORKHOUSE.—Second Resident Assistant Medical Officer. Salary £100, with rations, apartments, and washing.

BRECON INFIRMARY.—Resident House Surgeon, unmarried. Salary £100 per annum, with furnished apartments, board, and attendance. [illegible] £80 per annum, [illegible] t House Surgeon [illegible]

CHELTENHAM GENERAL HOSPITAL.—Junior House Surgeon. Salary £70 per annum, [illegible]

CITY OF LONDON H[illegible] Victoria Park, E.—Secon[illegible] at rate of £30 per annum [illegible]

CLAYTON HOSPITAL [illegible] —Junior House Surgeon, [illegible] board, lodging, and washing.

CRAIGLEITH POORHOUSE AND HOSPITAL, Edinburgh.—Resident Medical Officer. Salary at rate of £100 per annum, with board and apartments.

DEN[illegible] —House Surgeon. Salary £100, [illegible]

DER[illegible] Derbyshire.—Assistant House [illegible], with furnished apartments, board, and washing.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—House Surgeon. Salary £50 per annum, with board and washing. Also Assistant House Surgeon. Salary £25 per annum, with board and washing.

EAST SUFFOLK AND IPSWICH HOSPITAL.—Second House Surgeon, unmarried. Salary £80 per annum, with board, lodging, and washing.

GENERAL INFIRMARY, Leeds.—Three House Ph[illegible]

GUY[illegible]

HAL[illegible]

HORTON INFIRMARY, [illegible] lary £80 per annum, [illegible]

HOSPITAL FOR SICK [illegible] ical Officer. Salary £[illegible]

HULL ROYAL INFIRM[illegible] um, with board and lodging.

LAWN HOSPITAL FOR INSANE, Lincoln.—Assistant Medical Officer. Salary £100.

LINCOLN COUNTY HOSPITAL.—Assistant House Surgeon for six months, eligible for re-election. Honorarium of £25 for each period of six months, with board, residence, and washing.

LIVERPOOL EYE AND EAR INFIRMARY.—Out-patient Assistant and Pathologist.

LONDON HOSPITAL, Whitechapel, E.—Assistant Director of the Pathological Institute. Salary £200 per annum.

NORTH LONDON HOSPITAL FOR CONSUMPTION, Hampstead.—Junior Resident Medical Officer for six months. Honorarium at rate of £60 per annum.

NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL, Hartshill, Stoke-upon-Trent.—Assistant House Surgeon for six months. Board, apartments, and washing, and at least £10 at the end of six months.

NORTH WALES COUNTIES LUNATIC ASYLUM, Denbigh.—Second Assistant Medical Officer. £120 per annum, increasing to £160, with board, residence, and washing.

NOTTINGHAM GENERAL DISPENSARY.—Assistant Resident Surgeon, unmarried. Salary £160 per annum, increasing £10 every year, with furnished apartments, attendance, light, and fuel.

OLDHAM INFIRMARY.—Senior House Surgeon. Salary £100 per annum, with board, washing, and residence.

OXFORD, COMBINED RURAL AND URBAN DISTRICT COUNCILS OF.—[illegible] lary £750 per annum.

[illegible] **DIVISION.**—Medical Officer. Salary [illegible] —Dentist. Salary £20 per annum. [illegible] sistant House Surgeon. Salary £60 [illegible]

ROYA[illegible] House Surgeon for [illegible], with board, lodging, and washing.

ROYAL CORNWALL INFIRMARY.—House Surgeon, unmarried. Salary £100, increasing by £10 a year, with board (excluding stimulants) and apartments.

ROYAL EYE HOSPITAL, Southwark, S.E.—House Surgeon for six months, renewable. Fifty guineas per annum, with board and residence. Also unsalaried Clinical Assistants.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C.—House Physician for six months. Salary at rate of £60 per annum, [illegible] washing.

[illegible] —Two Resident Surgeons, a[illegible] £80 per annum respectively, [illegible]

[illegible] **HOSPITAL.**—Junior House [illegible] ate of £50 per annum, with rooms, board, and washing. Also Locum Tenens for Junior House Surgeon.

RUBERY HILL ASYLUM, Barnt Green, Worcestershire.—Junior Assistant Medical Officer. Salary £130 per annum, with board, furnished [illegible]

ST[illegible] Cambridge-road, N.E.—[illegible] Salary £150 per annum, [illegible]

SAL[illegible] rgeon. Salary £100 per annum, with board, washing, and residence.

SOMERSET AND BATH LUNATIC ASYLUM, Wells, Somerset.—Medical Superintendent. Salary £600 per annum, with furnished house and allowances.

TOTTENHAM HOSPITAL.—Senior Resident Medical Officer. Salary £90 per annum, with board, residence, and laundry.

TOXTETH PARK WORKHOUSE AND INFIRMARY.—Assistant Medical Officer. Salary £100 per annum, with board, washing, and apartments.

UNIVERSITY OF SYDNEY, New South Wales.—Professor of Pathology. Salary £900 per annum. Pension £400 per annum after twenty years' service. £100 allowed for passage.

VICTORIA HOSPITAL, Folkestone.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.

WEST BROMWICH UNION INFIRMARY.—Assistant Medical Officer. Salary £125 per annum, and £100 per annum in lieu of apartments, board, &c.

WEST HAM HOSPITAL, Stratford, E.—Junior House Surgeon. Salary £75 per annum, with board, residence, &c.

WHITEHAVEN AND WEST CUMBERLAND INFIRMARY.—House Surgeon. Salary £120 per year, and £30 per year for Dispensing, with furnished apartments and attendance.

WORCESTER GENERAL INFIRMARY.—Assistant House Surgeon. Salary £70 per annum, with board, residence, and washing.

WORKSOP DISPENSARY AND VICTORIA HOSPITAL.—House Surgeon. Salary £150 per annum, with furnished rooms, coals, gas, and attendance.

The Chief Inspector of Factories gives notice of a vacancy as Certifying Surgeon under the Factory Acts at Flaxton, York.

Births, Marriages, and Deaths.

BIRTHS.

BENNETT.—On July 19th, at Vancouver-road, Forest-hill, S.E., the wife of Colin E. W. Bennett, L.R.C.P., M.R.C.S., of a son.

DUNLOP.—On July 18th, at Levenwick, Shetland, the wife of Alexander [illegible] W.C., the wife of [illegible] ster [illegible] thourne, the wife of [illegible]

MARRIAGES.

FINCH—LOWE.—On the 17th, at the Ecclesfield parish church, by the Rev. G. P. Proctor, M.A., W. Stanley Finch, M.R.C.S., [illegible]

GIB[illegible] church, Eltham, Kent, [illegible] .P., to Mabel Caroline, [illegible] Yard House, Eltham, Kent.

DEATHS.

BLAMPIED.—On June 29th, at Sandy Brooke, St. Peter's, Jersey, John William Blampied, L.S.A., M.R.C.S. Eng., L.M. Dubl.

GORNALL.—On Thursday, July 18th, after a long and painful illness, John Hankinson Gornall, M.R.C.S., L.S.A., J.P., during 21 years Medical Officer of Health of the Borough of Warrington.

SHETTLE.—On July 21st, at Nailsworth, Gloucestershire, Richard Charles Shettle, M.D., aged 70, for 23 years Physician to the Royal Berkshire Hospital.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

MEDICAL REFEREES AND THEIR REPORTS: IMPORTANT DECISION OF THE HOME OFFICE.

AT the Southwark County Court on July 23rd, his Honour Judge Addison, K.C., said he desired to make public a matter which affected the practice of all county courts in regard to the Workmen's Compensation Act. A short time since Messrs. Barrow Bros. applied to terminate an award to an old man named Bowden under the Workmen's Compensation Act, alleging that he had quite recovered from the effects of the injury and was then suffering only from old age. The old man's medical attendant, however, gave it as his opinion that he was still suffering from the effects of the injury, and as there was this contradiction between the two medical men he (his Honour) referred the man and both reports to the medical referee appointed under the Act by the Home Office. Upon the medical referee's report he decided that the award should continue. After he had referred the case an application was made to him that the examination should be conducted in the presence of the solicitor to each party, but he refused it on the ground that the examination should be conducted privately and that if lawyers were allowed to attend the costs of the case would be piled up and the object of the Act would be defeated. Subsequently application was made by one of the parties for a copy of the medical referee's report, but he refused to grant it, merely stating that the substance of the report was in favour of the workman. It was then stated that a contrary practice prevailed at a county court for the proceedings and judge of which he had the greatest respect, but he refused to be guided by this because he thought that perhaps in the case quoted the judge in question had not considered the matter or had acted with the consent of each party. He, however, communicated with the Home Office in regard to the matter and he had now received a reply from that quarter stating that the authorities altogether approved of his decision that a medical referee was not to be attended by lawyers at all, but was to make his examination privately with the contradictory reports of the medical gentlemen in the case before him. As regarded the supplying of a copy of the report to the parties, the Home Office held that the report was primarily for the judge and he ought not to show it to anybody, but that he could use his discretion as to whether it would be right to show it to the parties should they ask to see it. He would use his discretion in the matter and would never reveal a report except under very exceptional circumstances, because he felt that a medical men who had to decide impartially between two other practitioners should not be exposed to the sort of controversy or contradiction that would result if those against whom he decided were allowed to criticise his report and to pull it to pieces. Further, he was of opinion that a medical referee would not report with the same fulness and confidence if his report was to be made a public document. Therefore he would follow the course which he had adopted and would refuse to allow any lawyers to attend the examination or to grant them copies of the referee's reports.

"ACME" PURE WOOL UNDERCLOTHING.

WE have received from Messrs. Charles Bayer and Co., of Victoria-buildings, Golden-lane, London, E.C., a specimen undergarment made of the above material. Both microscopical and chemical examination proved the fabric to be all pure wool, and macroscopical investigation showed the wool to be of a specially fine, soft, and elastic variety, of a net-like texture, permitting the free performance of the excretory function and at the same time protecting the body from cold. Owing to its extreme softness and lightness it is not oppressive or irritating to the skin. This material is particularly well adapted for clothing in cold, damp, and changeable climates.

THE TWO SIR MICHAEL FOSTERS.

SOME readers of the leading article on the Russell trial in the *Times* of Friday last, July 19th, may have confounded the Sir Michael Foster there referred to as an authority on State trials with the eminent member of our own profession of the same name. It may be well to explain that the authority referred to was Sir Michael Foster, a judge of the King's Bench, who lived in the latter part of the Stuart and early part of the Hanoverian periods, "a very great master of Crown law," according to Sir William Blackstone.

THE DUST NUISANCE.

PUBLIC attention is once more being directed to the intense nuisance caused by the conveyance of dust refuse through the streets in carts. The nuisance is only in part mitigated by the use of covered-in carts, for the dustman generally manages to shoot a load into the cart in such a way as to raise as big a cloud of dust as possible, and this is generally done at a time when the streets are most crowded. The bacteriology of dust is appalling and there is not the smallest doubt that dust is responsible not only for certain respiratory affections, inflamed eyes, but for other disturbances also such as, for example, headache. [illegible] probable, moreover, that wood pavements contribute their quota of dust in the streets owing to the ease with which wood disintegrates. It is clear, however, that some people enjoy a special immunity from the mischievous and offensive properties of dust, and a better example of this class of person could not be found than in the innocent dustman himself. He will be found [illegible] roadside between his jobs [illegible] his 'bread-and-butter' [illegible] and he can even be caught [illegible] his mouth, in spite of which dustmen appear to be by no means an unhealthy class. But the fact that he is "used to it," or immunised, so to speak, is no reason why others should be exposed to such possibilities as we have pointed out and that there be no complaining in our streets our authorities should give more attention to this matter. The nuisance is a very real one.

A POINT IN PUBLIC HEALTH.

To the Editors of THE LANCET.

SIRS,—I should be glad of a reply to the following. The occupants of the dwelling-house in connexion with railway-station refreshment-rooms are suffering from the effects of defective drainage. Has the sanitary authority of the urban council the same power to deal with this as they would with any other insanitary property?

I am, Sirs, yours faithfully,

July 23rd, 1901. VERITAS.

⁂ We know of no provision which in this case would bar a district council from adopting the ordinary procedure to abate nuisances, such as defective drains, in connexion with a dwelling. Our correspondent probably has in mind the exemptions from the operations of by-laws which have been allowed to railway companies in the case of buildings used for the purposes of the railway (Public Health Act, 1875, Sec. 157).—ED. L.

LOCUM-TENENTS.

To the Editors of THE LANCET.

SIRS,—Will you allow me through THE LANCET to give those requiring the services of a locum-tenent a profitable hint? I at one time never made arrangements with the agents except by wire, giving only very short notice when I required a man, &c. I have lately found that good and reliable men will not accept engagements at short notice—i.e., by wire. They like to know where they are going and to have some knowledge of the practice and principal. By giving an agent sufficient notice I have had first-rate men. Of course the ne'er-do-well who spends his money as soon as, or perhaps before, he earns it, does not care where he goes or how he does his work, but the better class of men like a few days' rest between each post. My last locum, an F.R.C.S. Eng., said he never took any notice of the agent's wires and preferred to enter into an arrangement by advertisement. Trusting this hint may be of use, I am, Sirs, yours faithfully,

July 22nd, 1901. M.D. BRUX.

A WARNING.

To the Editors of THE LANCET.

SIRS,—A large number of members of our profession have been r ceiving begging letters from a man signing himself "W. Dyer Frazer pleading want of means consequent on illness and loss of income owin to the situation in South Africa. The only W. Dyer Frazer in the pr fession is at the present moment in South Africa and is not in need o pecuniary assistance. The police have been communicated with and warrant has been issued. The writer has at present disappeared, but th police consider that he is probably writing more letters from a differen address and over a different signature. Would, therefore, anyone wh receives a begging letter, however signed, the *bona fides* of which is i question, kindly forward it to me or to Detective-Sergeant Harri Marylebone Police-station, W.

I am, Sirs, yours faithfully,

31, Welbeck-street, W., July 22nd, 1901. HERBERT C. CROUCH.

"EXPENSES AT CARLSBAD AND HOMBURG."

To the Editors of THE LANCET.

SIRS,—In reply to the inquiry in THE LANCET of July 13th, p. 116 the following facts may be useful. I lived at Homburg in 1894 from August 15th to Sept. 3rd, as a bachelor, and paid for lodging from 11*s*. 6*d*. to 12*s*. 6*d*. per week, which included a meagre breakfast, and I got a good dinner every day at a restaurant for 2*s*. 2*d*. per day. As a stranger I had also to pay a tax of 16*s*. I do not know whether this inhospitable law is still in force. The tax admits you to the use of the Kurhaus, with its reading-rooms, newspapers, and gardens, and good music two or three times a day, all gratis.

I am, Sirs, yours faithfully,

July 22nd, 1901. G.

⁂ A medical man is, we believe, exempt from the Kurtax.—ED. L.

THE HOT-AIR BATH.

To the Editors of THE LANCET.

SIRS,—There is much talk about cooling drinks, light clothing, &c., but the one real "cooler" is seldom mentioned. Every year I live I am more and more astounded at the attitude shown by the profession—teachers of healthy living—towards the hot-air, or so-called Turkish, bath. As far as I can judge not more than 10 per cent. of the profession are regular bathers; about 40 per cent. may have once had a bath, and 50 per cent. take a positively hostile attitude—fear "catching cold" after, or being "weakened" by the process—simple delusions.

I am not referring to the hot-air bath as a remedy but as a luxury in health or as a preserver of health. As an old bather I have for years debated in my own mind whether the thorough "cooler" one gets by the process in weather like the present, or the real lasting "warm through" in bitterly cold weather is the more enjoyable, and I cannot make up my mind. "But I can't spare the time," most people say. One hour in winter time and one and a quarter hours in summer is ample if you know how to bathe. Expense—well, at one of the most capacious and well-ventilated baths in London—Caledonian-road, close to King's Cross Metropolitan Station—10 tickets can be got for 10s., and "number one" shampooer is one of the best I have ever met with. As a "nerve tonic"—but there, the subject is an immense one, and it is [illegible] just now to [illegible]

M.D. Dub.

◆

W.—1. We cannot attempt to answer the first part of our correspondent's question. 2. Either the Berkefeld or the Pasteur Chamberland filters may be used.

Tabloid.—So far as we know there is nothing illegal in the custom, but it is unnecessary. The examinations for the triple qualification include one in midwifery.

Dr. W. E. F. Tinley.—1. The London Hospital has an installation for the purpose. 2. Our correspondent should write to Mr. Malcolm Morris.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, July 25th, 1901.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain-fall.	Solar Radia in Vacuo	Maximum Temp. Shade	Min. Temp	Wet Bulb	Dry Bulb	Remarks at 8.30 A.M.
July 19	30·10	ENE	...	122	90	63	67	73	Hazy
" 20	30 03	E.	...	127	83	65	66	74	Fine
" 21	29 97	E.	...	125	87	63	61	69	Fine
" 22	29·83	N.W.	...	124	77	65	64	68	Cloudy
" 23	29 81	N.W.	...	89	67	58	58	60	Raining
" 24	29·56	S.	0 04	107	68	58	59	62	Overcast
" 25	29·52	S.E.	0 37	107	72	58	59	63	Cloudy

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (29th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St [illegible] (2.30 P.M.), Middlesex (1.30 P.M.), [illegible] (2 P.M.), Samaritan (Gynæcologic [illegible] oho-square (2 P.M.), Royal Orthopædic [illegible] Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M.).

TUESDAY (30th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden square (9 30 A.M.).

WEDNESDAY (31st).—S[illegible] (2 P.M.), Royal Free [illegible] (3 P.M.), St. Thoma[illegible] (9.30 A.M.).

THURSDAY [illegible]

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

BRITISH MEDICAL ASSOCIATION MEETING AT CHELTENHAM.

DURING the forthcoming meeting of the British Medical *Association at Cheltenham the representatives of* THE LANCET can be consulted at the Queen's Hotel with regard to our reports of papers and proceedings.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1901, which was completed with *the issue of June 29th, and the Title-page to the Volume,* were given in THE LANCET of July 6th

VOLUMES AND CASES

VOLUMES for the first half of the year 1901 are now ready. Bound in cloth, gilt lettered, price 18s., carriage extra.

Cases for binding the half-year's numbers are now ready. *Cloth, gilt lettered, price 2s., by post 2s. 3d.*

To be obtained on application to the Manager, accompanied by remittance.

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WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET *at their Offices, 423, Strand, W.C., are dealt with by them!* Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid and *not* to THE LANCET Offices.

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During the week marked copies of the following newspapers have been received:—*Liverpool Daily Post, Leeds Mercury, Yorkshire Post, Hertfordshire Mercury and County Press, Mining Journal, Local Government Chronicle, Reading Mercury, Windsor and Eton Express, South African News, Surrey Advertiser, Local Government Journal, Bristol Mercury, Aberdeen Journal, Aberdeen Weekly Free Press, &c.*

Communications, Letters, &c., have been received from—

A.—Mr. J. Adams, Rye; Messrs. Allen and Hanburys, Lond.; Messrs. Arnold and Sons, Lond.; Messrs. Armour and Co., Lond.; Messrs. Andrew and Suter, Lond.; Dr. J. F. Armstrong, South Shields; Autochrome Co. Lond.; Mr. T. B. Adam, Lond.

B.—Mr. C. A. M. Bailey, Lond.; Messrs. Boot and Son, Lond.; Mr. W. H. Brooks, Leicester; Birmingham Gazette Co.; Bristol General Hospital, Secretary of; Messrs. C. Birchall, Liverpool; Birmingham Hospital for Skin Diseases, Secretary of; Messrs. W. H. Bailey and Son, Lond.; Lieutenant-Colonel David Bruce-Maitland, R.A.M.C., Cape Town; Mr. W. G. Burcombe, Lincoln; Dr. C. W. Buckley, Buxton; Mr. E. Brady, Haydock; Dr. Clark Bell, New York; Mr. Thos. Bayley, Lond.

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G.—Dr. R. Galloway, Aberdeen; Mr. T. H. Gough, Dudley; Messrs. H. Gilbertson and Son, Lond.; G.P.O., Secretary of, Great Eastern Railway Co., Continental Traffic Manager of; Mr. C. H. Garland, Lond.; Dr. J. G. Gornall, Warrington; Messrs. Gordon and Gotch, Lond.; General Infirmary, Leeds, General Manager of; Mr. J. Gay, Lond.

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I.—Dr. W. A. Illingworth, Leamington Spa; Dr. J. Ince (I.M.S. ret.), Swanley; Imperial Argus, Lond., Manager of; Messrs. Ingram and Royle, Lond.

J.—Mr. W. E. Joliffe, Rathgar, Dublin.

K.—Dr. A. Kinsey-Morgan, Bournemouth; Mr. B. Kuhn, Lond.; Lieutenant-Colonel Kirwan, Lond.; Messrs. R. A. Knight and Co., Lond.

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M.—Mr. J. A. Maguire, Carmarthen; Mr. R. W. Marston, Lond.; Mendip Hills Sanatorium, Hill Grove, Secretary of; Dr. P. W. Macdonald. Dorchester; Mr. R. C. B. Maunsell, Dublin; M.R.C.S.; Dr. H. MacMurchy, Toronto; Mr. R. de Martini, Laughton.

N.—Mr. H. Norman, Catford; New York Life Insurance Co., Lond.; Northern Press Agency, Sunderland; Mr. H. Needles, Lond.

O.—Dr. G. W. Ord, Richmond; Dr. F. Orton, Lond.

P.—Mr. Y. J. Pentland, Edinburgh; Prideaux's Food Co., Motcombe; Preston Royal Infirmary, Secretary of; Parish of St. Mary Islington, Clerk of; Messrs. Parke, Davis and Co., Lond.; Dr. J. E. Prowse, Liverpool; Mr. F. E. Potter, Lond.; Messrs. Peacock and Hadley, Lond.; Major J. E. Pilcher, Carlisle, Pa.

R.—Mr. F. Rogers, Cheltenham; Messieurs Roger and Chernoviz, Paris.

S.—Dr. E. S. Sladen, Lond.; Messrs. G. Street and Co., Lond.; St. Mungo's College, Glasgow, Secretary of; Messrs. H. Sell, Lond.; Dr. S. H. Snell, Lond.; Dr. Howard Sinclair, Rostrevor, Ireland; Dr. J. L. Steven, Glasgow; Professor W. J. Simpson, Cape Town; Scholastic, Clerical, &c., Association, Lond.

T.—Dr. Bezly Thorne, Lond.; Tabloid; Dr. B. Tyrie, Keighley; Tottenham Hospital, Clerk of; T. H. M.

V.—Victoria Hospital, Folkestone, Secretary of; Veritas; Mr. J. W. Vickers, Lond.

W.—Mr. C. Williams, Woodhall; Worksop Dispensary, Hon. Secretary of; Mr. J. Williamson, Lincoln; Woodstock Rural District Council, Clerk of; West Bromwich Union, Clerk of; Messrs. Wallach Bros., Lond.; Miss E. Wright, Croydon; Messrs. J. Wright and Co., Bristol; Willings, Ltd., Lond.; W. T.; W. G.

Z.—Dr. Zabludowski, Berlin.

Letters, each with enclosure, are also acknowledged from—

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Address in Medicine:

FRIENDS IN COUNCIL.

Delivered at the Annual Meeting of the British Medical Association held at Cheltenham on July 31st, 1901,

BY JAMES F. GOODHART, M.D., LL.D. ABERD., F.R.C.P. LOND.,
CONSULTING PHYSICIAN TO GUY'S HOSPITAL.

DR. GOODHART, after the usual complimentary introduction, gave the keynote of his address as follows:

"The position of medicine, then, to-day, as I see it, is this: the living body, the clay between the potter (the doctor's), on the one hand, and the wheel (the blind guidance of animal life), on the other."

He then discoursed upon vitality, the living energy of the body. "Take these two points, the intricacy of the mechanism of the animal body and the indomitable animal spirit of life which innervates it. How do these react upon the practice of medicine and do we acknowledge the reaction as it exists?" From these two points Dr. Goodhart proceeded to discuss "the difficulties of medicine."

PATIENTS.

We must for a moment consider each of the two parties, their influence upon each other and thus upon the progress or otherwise of scientific medicine. Are we gradually surging on by a natural process of evolution to a perfect system of the treatment of disease? Is the management of the sick man and the ailing man in the present day as perfect as it might be? On the larger side of the subject—that of preventive medicine and the scientific knowledge of disease—it is obvious that great discoveries have been made in the recent past, and the dawn is surely breaking of a still more brilliant day. So far as this side is concerned I think it may be said that we are steadily working upwards to that time when much of the present gross disease—tuberculosis, microbic fevers, &c.—shall be no longer; though even here, if there were time, I might pause to show how a weak sentimentalism sometimes steps in to delay the promise of the future; but in the aspect with which we as physicians are concerned, the daily treatment of disease, with all the manifold details of the aches and pains that flesh is said to be heir to, one cannot but feel that there is room for improvement, both on the side of the patient as on that of the practitioner. Now on looking [illegible]d of disease, although [illegible] life is longer than it [illegible] often in request nor t[illegible]. I am here to cont[illegible]wing more and more sensitive about our health, more impatient when the flies of ill-health worry us, that we are crying more loudly for a cure for every disease, whether it be one that is commencing and curable or so advanced that—as, say, in a bad case of phthisis—the greater part of an organ is practically destroyed, and a restoration of its health impossible.

This is shown in several ways. In the first place the sick man wants to know too much. He wants to know what is the matter with him when it is not possible to tell him; moreover, he will have an answer, and if not he thinks the doctor an ignoramus, and calls in someone else. How blind he is not to see—it seems so obvious—that in this complex body of ours there must be hundreds of little accommodations between the various organs and parts that it is impossible to explain or be sure about, that there must be numberless [illegible] le[illegible] le[illegible] that look grave, and yet if we could only peer a little into the future, get just one glimpse behind the veil, we should see were just on the turn towards health, and no matter what drug was given would do well—the cradle these of many an ignorant man's reputation; and numberless cases that seem to be doing well that are just on the verge of a catastrophe, and these the grave of many a competent man's success. Oh if men would only think a little more, it seems so obvious that they must then see that even the best of us are but gropers in the dark, and that ignorance acknowledged is no proof of want of skill, rather is it a proof of thought and of the highest devotion to the advancement of our calling. Any fool can give a name to a disease if, as is too often the case, the letter satisfieth. But what if the name is wrong, and the name determines an important line of treatment, what if the letter killeth?

It is because the public will have a disease ticketed when there are no means of identification that these difficulties arise, and because it still sets such store by the man who plunges. How much better would it be if the obvious were better recognised, that the practitioner is but mortal, and if others than ourselves could take part intelligently in our doubts and difficulties. And having got a name for his complaint, from either wisdom or ignorance, the patient thinks his physic tumbles out of the same slot, and that between the two he will be cured offhand. Someone comes into your room and says "I have got to do this or that on a particular date and you must get me well by that time." It is the medical man or his medicine that has got to do it; there is no thought behind, as there should be, of "Will my tissues or the disease allow of this being done?" There is no idea of doubt, none of the necessity of waiting to see which way the cat jumps, none that the powers of medicine are limited in all sorts of ways and that there are numbers and numbers of instances where there is no indication whatever that medicine will do any good whatever: that waiting *for developments or subsidencies is the only skilful course.* Waiting is described as "nothing is being done for me," and someone else is called in with a "Can't you do something?" "Doctor, I'm just stuck," said a poor fellow to me the other day when all hope had left us, though keeping him radiant still.

And it is because life understands so little the common sense of this waiting, this doing nothing, this length of illness, and so on, that it understands so little the true value of consultations. The sick man or his friend has a rooted idea that when a second opinion is sought it is to set the first opinion right. Now the wise man is he who makes fewest—there is no man who never makes any—mistakes, and least of all in medicine. Our uncertainties are so thickly strewed on all sides that it is seldom that one is in a position to give a very positive opinion; but I think I may say, with an approach to certainty, that I am in accord with those who are in a similar position to myself, that the education of every member of the medical profession at the present day is so high, that it is seldom indeed that a consultation does not produce a well-thought-out and probable diagnosis from the practitioner in charge. It is not a case of right or wrong; it is not altogether a question of less or more experience: it is a meeting to discuss doubtful and difficult points to which each party contributes an equal share. But so little is this the light in which consultations are regarded that it has become a saying that "doctors in consultation always agree; doctors apart will always differ." I am constantly being annoyed, in all innocence, by being told that "I want a perfectly independent opinion," as if that were the last thing the applicant considered himself likely to get. An independent opinion too often means an opinion more in accord with the wishes of the patient than is the one which has been originally given. Medical men would be only too glad to discuss the doubtful points of a case with the patient or his friends, if those could be found who could appreciate them intelligently; but it is hardly to be expected that differences of opinion should be made much of when the sick man is unable to appraise them at their true value and puts trivial and important matters equally into the same scales of right and wrong, and when wrong always implies with them discredit. And discredit may come from the most worthless sources. For instance, one man may have ordered hot water for drinking, and No 2 says, "Drink cold water." It does not matter a mote in the sunbeam which of the two is drunk, but the symptoms change within a measurable distance of the alteration, and the undiscerning man puts it all down to "the new treatment." A change in the medicine is made, say more to ease the patient's mind than with any real expectation of influencing the course of the disease; and while one man reaps the credit the other has the blame, and each alike may be entirely innocent of the result. Then this morbid sensitiveness of people in the present day is well shown by the rapidity with which they fly to medicine. This fact is, I think, patent enough—it is to the practitioner, at any rate—for the number of new drugs for all sorts of maladies, imaginary and real, that are being daily launched upon us is bewildering in the extreme. A woman with migraine has gone the round of all the coal-tar products that were ever invented, as well as caffeine and other things, before she thinks of applying to our calling. Most people know all about lithia and piperazine and the respective merits of the various preparations of Carlsbad salts; they all have their own form of blue pill, which generally from the look of the prescription seems to date from before the flood. They have their own special dinner pill and an aperient pill as well; they know all about podophyllin, and euonymin, and cascara. They take their bismuth and soda for indigestion, mindererus spirit and Dover's powder for colds, camphor for cholera, chlorodyne for the stomach-ache; and one old gentleman that I have known, though he had been bred amongst medical men and was old enough to know better, was so enamoured of drugs that he took a daily dose of gentian and ammonia as his lunch.

Then, too, with what impatience do men and women in the present day rush into the not always sufficiently repellent arms of surgery. A little pain unnerves them and all they know of surgery is its successful side. It is a day of great things, and why should they not have the benefit of these advances? And so with an ache here or a pain there they undergo an operation. The energy of life that I have so often spoken of knows nothing of risks, knows nothing of shock, will hear nothing of waiting and rest in bed, and the disappointment in consequence is often considerable, although the operation was a great success.

DOCTORS.

And now for the potter who has more or less to fashion this clay as it somewhat impulsively rolls along under the momentum of the wheel of life. The simile is not a good one, for the practitioner is never a fashioner, although sometimes in the plenitude of his pride he conceives himself to be and then o'erleaps himself, not he, but his patient, unfortunately, falling on the other side.

What are we doing in this impatient, restless age to stem the tide, to stay the panic, to bid the people keep its head? I do not mean in the immediate present—for we always do our best for the patient according to our lights—but with our eye on the future and that continuous progress as individuals for which the Goddess of Medicine is marking time, and surely points us to. I do not doubt, I say, that everyone of us does his best for the man who consults him, but I am not sure that in attending to the exigencies of the immediate present we do sufficiently take heed of the future. And our failings in this respect are closely bound up with those of our patients, for we in our place are so anxious to overlook nothing and to cure disease, so enthusiastic in our belief in our power to accomplish what we wish. First may be put a morbid readiness on our part to detect disease. Engaged as we are in this pursuit there comes a risk that we too little appreciate the wide range of health—that is, how good a state of health is compatible with numberless slight and even sometimes considerable departures from normal. We tend to make our standard too severe for practical purposes. I will take an illustration from the heart. Here is an organ in which there are numberless slight departures from a rigid normal, both as regards its muscular action and functions, which mean nothing as regards the longevity of the patient, but to which a morbidly tender medical conscience refuses the title of health. Over and over again in the present day a heart is said to be strained, or weak, or dilated, or even diseased as to its valves from a want of sound appreciation of what is to be considered health, not for the general, but for the particular. One would almost think from all the talk one hears about dilatation of the heart, strains in healthy young people from trivial causes, the grave conclusions that are based upon, perhaps, some slight displacement of the impulse, &c., that the heart is so fragile an organ that it needs to be coddled from the cradle to the grave. It is the fountain of life certainly and therefore a very indispensable organ, but Nature gives to our comely as to our uncomely parts a strength sufficient for their day, and there is a large margin for emergencies in every part. It is for this reason that I hate the term "weak heart." It coffins, or, worse, throws useless upon society, many an otherwise useful life. Hearts are either diseased or healthy and, within its margin, it is a robust organ that is all the better for plenty of work. I tell you what it does not like and that is luxurious ease and one may well have a shrewd suspicion that many a one who coddles a weak heart dies of real disease which an indolent habit has produced.

Let me take another organ popular at the present day both with the medical man and his patient, and upon which both parties have, I fear, gone a trifle adrift. It shall be the stomach. Catarrh of the stomach is a term that is in most people's mouths, and it is a word that appears to have a strange satisfaction in the utterance. Catarrh is quite a sufficient disease, wherever it may be, to silence the anxious inquirer and no more questions are asked. But, as I have said before, the stomach does not catarrh—at any rate readily. It is a good, strong, healthy servant, with possibly a prejudice or two, and if you treat it fairly is really, quite unlike most servants of the present day, most obliging and thorough. And even if upon occasion you do not treat it with quite that sensitive regard that it is entitled to expect, you may hurt its feelings, as any want of consideration is likely to do to a faithful handmaid who has done her best; yet it is only a momentary estrangement, a little domestic concern that wants no third party such as rhubarb, or creasote, or salol may be, to rub the injustice in. A little carbonic acid to soothe its ruffled feelings and a kindly sorrow and repentance on the part of the master, with a penitential fast, and things will soon come right.

And while on stomachs I hear a good deal of a so-called dilatation of the stomach. Now a true dilatation of this organ is a comparatively rare thing, and when it occurs it often needs, and is benefited by, rather heroic measures. But the great part of these so-called dilatations are due to a passive relaxation of our inward parts, and this is due to the bankrupt condition of our abdominal brains. These and quite a number of other abdominal displacements are so common without any symptoms of any kind, that it is certain the condition is only a disease under special circumstances, and those special circumstances have more to do with the individual than with his displacement, and their best treatment is to let them severely alone. But the public won't have it. Who does not know the difficulty there is in preventing people from undergoing a serious operation for the purpose of stitching these harmless mobilities—for it is only quite exceptional that it is otherwise—into their places. It is the same in many another region—throats and noses suffer terribly from this lust of operation that has beset the public. Ears are now being swept into the panic, and I incline to think that the only region of our art that preserves its proper decorum is that of ophthalmic surgery, and it, I believe, reaps the reward of well-doing that is usual in this topsy-turvy world in being regarded by the *élite* as somewhat old-fashioned, and so it is supposed to be the thing to go abroad to skim the cream of skill.

But let me quit the domain of medical surgery to take up the question of our administration of drugs. It is told, as many of you know, of the late Sir William Gull that upon a medical man excusing himself for not having discovered the existence of a particular disease he remarked that it was as well that he had not done so, for that if he had he might have treated it.

DRUGS.

Now, why do we give drugs? To cure disease, you answer at once, and think the question unnecessary. But wait a minute; we give drugs for several other reasons, some of which are far less free from criticism. For example, drugs are often given, not because the disease demands one, but because the patient is not happy till he gets it: too often he is not happy even then. They are given sometimes to hide our ignorance, I fear, or to mark time while we watch and wait; they are given sometimes as a gambler on the Stock Exchange speculates in "futures," an enhanced reputation being the windfall that it is hoped to secure; and then we often give drugs as an experiment in the hope that they may do good. I will deal with this last more especially, for it is a reason for giving drugs about which the public are peculiarly sensitive and ill-informed. It is often said as a matter of prejudice against the hospitals of our country—than which none could possibly be conducted more humanely and considerately—that the patients are made the subjects of experiment. So they are. But this happens not only in the hospital. If it be true—and it is true—that you and I are unique in our way, and that it is this individualism of man that constitutes the great barrier of the evolution of any system of medication, it follows that each new patient who demands treatment is more or less a case for experiment, and it is by experiment of this qualified kind—upon the king as he sits upon his throne, as for the poorest being within his realm—not only that the value of drugs is established and new powers gained over disease, but by which an increase of knowledge of disease itself is gained. The cure of disease is always the fundamental object; but not far behind it should come the alert eye to watch the deviations from the hypothetic normal which the individual resistance or the drug in its action may show in the course of the case.

All treatment by drugs is more or less of an experiment, and it is, indeed, in this fact that the enormous number of new drugs daily poured upon us finds its justification. Many and many an ailment that afflicts mankind badly needs a remedy, but for which, as yet, no remedy is opportune; and who knows but what in each new drug some human ill may find alleviation? A druggist's shop is indeed a source of wonder and dismay to me, and I could indeed wish we were less the prey of the manufacturing chemist, but I would not for a moment even seem to discountenance new remedies. What I would discountenance is the giving of drugs by rule of thumb. Diseases run in fashions; I have mentioned one or two that seem to me in fashion now, and there are fashionable drugs which, while the sun shines upon them, become the darlings of society. Their popularity is enormous—far in excess of their merits; and by-and-by they sink into the cold shade of neglect. Who does not even now remember the boom of the antipyretics? A few of them have remained to us for other purposes; but as antipyretics who gives them now? They are not by any means valueless when given appropriately, but they were rushed for more than they were worth, and they are now buried by later booms, such as animal extracts and antitoxins, and many of these will be buried too. And then as to routine in the treatment of disease. I suppose there is not a single case of gout in the whole world that has not had sodium salicylate and other easily enumerated drugs, and had them freely; and why?—because they are supposed to eliminate the cause of the disease. I find that the British public know far more about uric acid and how to deal with it than I do with all my pains, and what men think they know in this respect, I fear that we, in the first place, and vulgar advertisement in the second place, have taught them. Yet I cannot understand how any reflective mind, making a careful study of gout in its clinical aspect, can settle down and bury itself in the doctrine that gout is a mere question of intake and output, and, if not, think of the harm that is done by false doctrine of this kind upon the thousands who are engaged in the hopeless struggle of dispossessing themselves of their fetish.

The open-air treatment of consumption, of which we are hearing much at the present day, is also bidding fair to come under the baneful influence of routine. "The new treatment," though it is hardly a compliment to our environment to call it so. What, think you, does the sufferer from consumption, and his friend, see in this? He sees a residence for a few months in a home, and a cure at the end of it. Is that what he has any chance of obtaining? Certainly not, and in proportion to the exaggerated hope will come the bitterness of the disappointment to the sick and the discredit to us. The benefit to be obtained in these sanatoria is that there will be learned a habit of life—what we mean by plenty of good food and plenty of fresh air; and having learned his lesson the tuberculous man will need to practise it all the rest of his life. There is no cure in this treatment as the sick man understands cure; for although it is true that there is no disease that is more often arrested than phthisis, it is equally true that there is no disease that has a more inveterate tendency to relapse, and I very much fear that when you come to strike the balance between arrest and relapse the latter has the best of it. Therefore if the open-air treatment is to take its real place and be of any abiding value the principles of the sanatorium must be introduced into the home.

And that reminds me of another fashionable idea that is now in vogue, and I will call it medical antisepsis. Antiseptics in lung disease have had a long day, tempered only by a momentary fall into heresy when it was proposed by those who ought to have known better that we should be converted into gasometers for the storage of sulphuretted hydrogen—and this was to cure consumption. I only mention this to show how much we need to keep our imaginations in check in thinking over the cure of disease. However, antiseptics in the lung from all the many inhalations up to iodoform, and finally creosote internally, have had a good innings and have not been without their minor successes, but it was very meet and right that the comparative inefficacy of such nauseous medicaments should drive us back into the arms of the great original antiseptic—fresh air. And perhaps for that reason we have now turned a somewhat cold shoulder to the lung and are directing our efforts to rendering the intestinal canal antiseptic and I hear daily of creasote and salol and all sorts of other well-meaning drugs being sent on this errand of reform. Far be it from me to decry the value of useful remedies, but I cannot help asking myself the question whether the staunch believers in intestinal antisepsis possess sufficiently cultured and liberal-minded noses to be good advisers to our intestinal apparatus. It is quite evident that stercorin, however much so to us, is not a *persona ingrata* to our colic mucous membrane; it is, indeed, bone of its bone; and it is possible that we might be none the healthier men and women even if our medical men got their wishes in this respect.

One other drug only will I wish to mention to illustrate my point, and that shall be the use of the bromides in epilepsy. Now, that these are useful drugs in this complaint no one will question to-day. But long ago it has gone forth from those who are in authority in such matters that after a person has suffered from epileptic fits the drug must be given regularly in considerable doses, and for long periods of time—a year or two, or more—to prevent their recurrence; and this advice is very generally acted upon. There is no doubt that it has become the routine treatment of epilepsy and as such I think it often does a great deal of harm; and I am by no means certain that it does any equivalent good.

THE DANGERS OF ROUTINE AND FASHION.

Now all this routine and fashion—and remember I have only taken one or two instances out of numbers that lie at my hand—I object to, and I do so because it all tends to establish false relationships between the medical man and his patient, and let me attempt to show you how. The patient first of all asks us for a name to his disease and whether we know or not we give him one. In so doing we, as I say, speculate in "futures," and that is a form of business that very often ends in bankruptcy. No remark is more frequent at a consultation than that we must give a name to the disease. I object to giving a name to anything I am not sure about and when a man says to me, "That is all very well for you, but it would never do for me," I object still more because the general practitioner is the great instructor of the public in matters medical. I have not a tithe of the influence that he has, and by giving names to symptoms that are doubtful in their significance, he is first of all losing an opportunity of insisting upon the dignity of ignorance; then he is conveying to the public the erroneous notion that we have the power of insight into problems that are at the time inscrutable; and we ultimately end in deceiving ourselves into thinking that we know much more than we do—an idea that is fatal to the progress of knowledge. There are hundreds of examples that might be given, but the various febrile disorders are the most fertile in discords of this sort. It is often absolutely impossible in the early days of typhoid fever to say what is the matter; equally is it absolutely impossible in many of the eruptive fevers to say what of several things will eventually declare itself. It is not ignorance but knowledge that halts. When I first entered Guy's Hospital some 36 years ago it was a common saying about one of our staff at that time—and certainly one of the best physicians of that day—that he knew so much that he could but seldom be prevailed upon to give a positive diagnosis. And it is true, as Sir Arthur Helps says in the book from which I have borrowed the title of this address, that knowledge brings doubts and exceptions and limitations that are all hindrances to vigorous statement.

Then a word about the evil of letting the public force our hand in the matter of drug-taking. I have already alluded to routine as destructive of all scientific observation, enabling as it does the giver to see only cures and nothing of failures, though they be in very truth staring him in the face. But I am now alluding especially to the numberless occasions when drugs are given, there being at the time no distinct indication for giving anything. There is no doubt that this is a very common and bad fault with us. I do not say that it must never be practised. There are times when the sick are not reasonable beings, and unless they have a bottle of medicine to anchor their faith to (oh, shifting sands!) they are in a state of unrest that is positively harmful to their progress. But there are multitudes who are not in this parlous state who are capable of listening to reason, but who as now, having been taught to look for their prescription or their bottle of medicine, have no idea of the value of advice only or of the need of the watchful eye. Why, we are all familiar with the "Are not you going to give me a prescription?" when you have been pouring in advice with much prodigality of tongue and had flattered yourself that you had gained a disciple; and there is no need to go far to be absolutely sure that the great body of the public, rich and poor, pay for our prescription, and that they do not value by a button any advice that lies outside it.

But I think that there is another reason for this indifference to the value of advice which, although it is perhaps one that savours of the sordid, I must nevertheless touch upon. I have often inwardly contrasted the two professions of law and medicine, how in the one advice pure and simple is sought and found and the givers thereof acquire positions of milk and honey and find themselves mounting to the high places of the land. In the other medicine passes for the consideration, and, well! the sellers thereof do not seem to possess themselves of many coveted places of honour. And if you ask me why this is I believe it to be because we make ourselves too cheap. Advice—just think of it! A product of so unique a value that when a man of great experience in the world of medicine dies his knowledge dies with him; no other man can supply his place and there is a dead loss to the community of a mine of unrealised information. You all know that very clever signboard in which a bullock is seen gazing yearningly upon a small jar of meat extract and exclaiming, "Alas! my poor brother." But I often wish that I could pot my brothers as they flit from off the stage; my trouble is that my masters die unbottled. And yet we "give" advice, and there are those in number who not only accept but ask the gift. Oh, dreadful degradation—that advice, a priceless article, should fall in value below cheese and butter.

It is told of the late Sir Andrew Clark, with what truth I do not know, that when he was asked to give gratuitous advice he said, "No; but I will give you the money with which you can purchase it." Whoever said this was a wise man, for on the one hand there was in the answer the generosity that knows no bounds of medicine to poverty; there was on the other the dignity and self-respect that fully understood the preciousness of the knowledge that he had the power to impart. We shall never make the public understand the true position of medicine until we set a higher value upon *ourselves* and upon the *advice* we give.

What better illustration could there be of the inutility of thus giving ourselves away than that so shrewd and penetrating and fair-minded a man as Mr. Joseph Chamberlain, in so grave a matter of right and wrong as the question of cheap consultation, should have declared that the question was settled by medicine upon the strictest trade union principles; and that another man, equally hard-headed if erratic, should agree upon that point, and then proceed to define trade unionism as "doing the worst possible work at the highest possible price." Cheap consultations! Philanthropy has, indeed, there got hold of the wrong end of the stick. Why, it is notorious that such is the generosity of medicine that there is not a needy person in the whole kingdom who cannot, if he need it, obtain the best opinion in the country gratuitously. The clergy, the army, the navy, artists, actors, actresses, clerks, artisans, and others pour into a practitioner's room or the hospital asking alms in the shape of advice and never get a refusal. And after it all we are insulted by being called trade unionists—"men who do the worst possible work at the highest possible price." And I honestly believe we have ourselves to thank for this in great measure, for we belittle the value of our advice in allowing the public to exalt so greatly the supremacy of physic.

That "the labourer is worthy of his hire" is but one side of the question, and not the best side, for it might be held to cover many a sordid act: the other and much the more important is surely this, "See to it that the hire is worthy of the labourer." And although expressed in these terms the face value may seem to be one of low ideals, I am far from thinking, as I speak, of any money consideration, but of the higher and nobler recompense of dignity and self-respect. And it is, in part, because I think that to careful observation it must seem that the very nobleness and generosity of medicine does tend somewhat to make us forget the importance to its well-being of these just rewards that I have chosen this subject for my address to-night.

On, then, my comrades, in your noble work till other voices, other years, shall bid you pause in other ways, according to their seeming. Mark well the hindrances to our onward progress that together we have traced to-night, be more than ever heretofore the steersman at the helm, to guide the sometimes teasy ship between the troubling eddies of the passing thought, and then your greater selves, firm anchored in "the spirit of the years to come," need reck not

"Lest the cause ye love
Should languish when your tender toil-worn hands
Are crossed in peace beneath the daisied sod!
The Means wax old and perishable prove,
The End endures eternally, and stands
Above the ages, face to face with God."

Address in Surgery:

SOME SURGICAL LESSONS FROM THE CAMPAIGN IN SOUTH AFRICA.

Delivered at the Annual Meeting of the British Medical Association at Cheltenham on August 1st, 1901,

BY SIR WILLIAM THOMSON, C.B., M.D.R.U.I., F.R.C.S.IREL.,

HONORARY SURGEON TO HIS MAJESTY THE KING IN IRELAND; SURGEON TO HIS EXCELLENCY THE LORD LIEUTENANT, K.G., AND TO THE RICHMOND HOSPITAL, DUBLIN.

SIR WILLIAM THOMSON commenced by making a feeling reference to the late Sir William Stokes who laid down his life in South Africa. He then passed to consider the entirely novel conditions under which the war in South Africa was fought. He gave some figures illustrative of the effects of rifle fire. In the American Civil War the killed were 17·97 per cent. of those hit. In the Spanish-American war, when the Mauser rifle was in use by Spain, the American killed were 11·9 per cent. of those hit. The latest figures from South Africa show that 14·8 per cent. of our men who were hit died. Small-bore bullets, continued Sir William Thomson, made ghastly wounds if they ricocheted and he quoted an unmistakeable instance of this that had come under his own eyes:

A soldier accidentally discharged his rifle at a distance of 10 paces. The bullet ricocheted and struck the victim on the inside of the thigh posteriorly to the femoral vessels. The entrance was more than an inch in diameter, the exit at the outer side was a wound two and a half inches in diameter, with great loss of substance. Here there was no doubt as to the weapon or the ammunition employed. The soft structures alone were injured, but they presented the appearance that one would expect as the result of some powerful local explosive.

WOUNDS OF THE SOFT PARTS.

The campaign in South Africa has presented many surprises. Perhaps none is greater than the large proportion of wounded who have recovered. Even severe wounds have responded to treatment in a manner which has surprised everyone having experience of surgical injuries. These happy results were due in the first place to the character of the bullet. The wound was in ordinary cases exceedingly small at both apertures, and the tendency was to close immediately. There was usually little hæmorrhage and the openings were quickly sealed by exudation. This was an important first step. The pointed end of the bullet made the area of primary collision with the surface struck quite minute, and being covered in a hard mantle it acted like a steel wedge driven with great velocity through the soft parts, rather cleaving than tearing its passage onwards. It appeared to contuse the walls of the channel sufficiently to prevent considerable oozing and not to lacerate or destroy.

One of my patients, a man of the 11th Hussars, was shot [illegible] so thin were they; but they ecrose, and the wounds were

But even in long flesh wounds in the extremities the same rapidity of repair was noticed. Here again the character of the injury influenced the result, for the walls of the track did not remain rigid, leaving a permeable tunnel. As soon as the passage had been accomplished the walls fell together, and thus further helped in the exclusion of air and in lessening the risks of sepsis.

Various suggestions have been made but have not been sustained that asepsis has been secured by the heat generated in the bullet itself—heat which it has been claimed is sufficient to destroy any pathogenic organisms. Cartridges carried in bandoliers were always exposed to contamination, but I have no doubt that the bullet received a thorough cleansing in the rifle. It was, of course, slightly larger than the bore and was forced to take the turn of the rifling by the explosion. The result was a certain polishing of the outer surface under immense pressure, and the after sources of contamination could only be found in passage through the air, the man's clothes, and his skin. Practically penetration was effected by a piece of clean very hard metal. Of course, there is no doubt that germs did gain access even under such circumstances, but in how many cases, even in operations under elaborate precautions, are they entirely absent? Unless the conditions which make them potent exist they give no trouble. The second cause was the early application of the first dressing. This was not always done by the surgeon. Very frequently the wounded man was able to attend to his own wants in this particular. Sometimes dressings had been lost and a piece of old linen or window-blind did duty. In spite of these, however, and of skin ingrained with dirt, the early closing of the apertures helped to avert mischief. But in the case of the extremities the bandages were of special importance in fixing the track of the wounds, in securing apposition of the walls, and in keeping the parts in that immobile condition which was of so much importance. The third cause was the climate. The temperature was high, the atmosphere very dry and particularly free from germs hostile to the surgeon's work. The general elevation of the plains in the northern part of Cape Colony, through Orange River Colony, and on to the Transvaal varied from 4000 to 6000 feet, higher by nearly 2000 feet than any mountain in the United Kingdom. The conditions, therefore, were exceedingly favourable. The intensely dry atmosphere quickly transformed oozing blood into crusts, and so helped on the healing in a wonderful way. In a moister climate the results probably would not have been as good, and we should have had to deal with a greatly increased number of cases of suppuration.

WOUNDS OF BONES.

So far we have been considering the effect of the small-bore bullet upon soft parts. Let me pass on to discuss the damage done to bones and the rate of mortality which followed. The subject is important, because in this as in all wars injuries of the upper and lower extremities outnumber many times those of any other part of the body. I will take a convenient illustration—the American Civil War. The total number of wounded treated in the [illegible] 71,694 were wounds of parts [illegible] unds of the upper extremities [illegible] 13. These produced fractures of bones in 32,992 and 27,274 respectively, or a total of 60,266. Injuries of bones, then, hold the first place in number, and hitherto they have been followed by an appalling mortality. It is in the damage inflicted upon these structures that we find the strongest evidence of the power of the small-bore. As the improvement in the rifle developed there was also an alteration in the shape of the bullet, which became elongated, and during these changes the character of the injuries to bones became correspondingly severe. The velocity at which the modern bullet travels as it leaves the muzzle may be taken as about 2000 feet a second, but during the flight this rate is gradually reduced owing to well-recognised causes. It is obvious that if the bullet within a few hundred yards after it has been fired strikes a bone it does so with crushing force, and that the severity of the injury decreases just in proportion to the distance which intervenes between the rifle and the object struck. In other words, the greater the velocity the greater the destruction when the bullet is suddenly obstructed by striking the shaft of a bone. Without entering into a discussion of the so-called explosive force produced on impact, what we find is that the bone is much comminuted and that fragments are carried some distance onwards in the soft parts as the bullet travels. But as the velocity lessens the effects are not so destructive; the bone is broken, sometimes into a few pieces, at the point at which it is struck, and sometimes the fracture has no subsidiary fragments. Occasionally a case is met with in which the velocity has been just enough to break the bone but not to carry the bullet through the limb after the collision. The behaviour of the bullet in the cancellous structure of the ends of bones differed from what I have just described. In the older forms of conical bullets with low velocity there was much tendency to lodge in these structures, but in this campaign the injury was chiefly a complete perforation. The different structure of the ends of bones as compared with the shafts accounted for this. The cancellous tissue presented a more or less elastic obstacle and yielded to the impact; but in the case of the shaft the hardness of the parts struck offered considerable resistance, and much of the force of impact was expended in breaking the denser obstruction into minute pieces.

AMPUTATIONS THROUGH THE THIGH.

In the campaigns of 40 or 50 years ago few injuries were more fatal than gunshot fractures of the femur, and the doctrine which had been laid down by earlier writers that amputation should be immediately performed still largely influenced practice. The flesh wounds were much more severe. Principles of cleanliness had not yet been formulated; the wounds always suppurated, and the result was a compound and comminuted fracture which often developed the worst forms of sepsis. It was to avoid these almost inevitable results that amputation was advised, for it got rid of a lacerated wound and fragments of bone and gave for a time a hope of safety. Nevertheless the mortality was appalling. Here are a few figures:—

Results of Amputation of the Thigh in Gunshot Fractures.

—	Cases.	Recovered.	Died.	Percentage of mortality.
Crimean war	2748	227	2033	73 5
American war (North) ...	6229	2839	3310	53 8
Franco-German war (German)	798	243	514	65·6
Franco-German war (French) . .	3794	342	3452	90·9

Out of a further group of 9017 cases 83 per cent. died.

But the results of conservative treatment did not show to much more advantage in the Crimea and the United States. I give the figures in the same campaigns by way of strict comparison.

Results of Conservative Treatment in Gunshot Fractures of the Thigh

—	Cases.	Recovered.	Died	Percentage of mortality.
Crimean war .. .	555	153	402	72·4
American war (North)	3467	1692	1684*	49·9
Franco-German war (German) . .	811	630	233	20 7
Franco-German war (French) –	866	811	55	9·4

* Result unknown in 91 cases

Nevertheless there was an improvement. The historians of the American Civil War hailed as victory the return which showed a mortality of 49·9 per cent. in conservative practice as compared with 53 8 for amputation. It was a gain of nearly 4 per cent. for the treatment which aimed at saving the limb

Then came the Franco-German war nearly 10 years later, and the lessons from America bore fruit. There was still a large number of surgeons whose opinion was valued who believed in immediate amputation, but even these yielded to the force of experience, and conservation as against amputation won by a difference of 26·9 per cent. The experience of France was remarkable, as only 85, or 9·4 per cent., are reported to have died without amputation, but the number given is so small that I am not prepared to accept it as representing the surgery of the period. Still the lesson remains that in those campaigns when the revolt against amputation began the result was with the progressives.

But if we turn to the recent Cuban war we have a further gratifying experience. Surgeon-General Sternberg reports that during the two years 1898–99 "82 cases of gunshot fracture of the femur were reported, six of which were treated by primary amputation and two by resection, the remaining 74 cases being treated by conservative methods, not because the conditions were not favourable for the performance of primary operations, but because of a conviction that under present methods of treatment the limb could be preserved without materially adding to the danger of life. The limb was lost through surgical intervention in only 7·3 per cent. of the cases. Of fracture of the upper third there were 32 cases, of which five were fatal under conservative methods; of the middle third, 27 cases and three deaths; of the lower third, 23 cases and one death. A general mortality of 10·8 per cent." This is a splendid record of the treatment of compound fractures of the femur in the field. I am not able to lay before you like figures from the campaign in South Africa. They have not yet been completely analysed, and partial results are apt to leave false impressions. Nevertheless, I think I may say that in no way have the number of amputations been so few, the number of limbs saved so many, or the mortality from such operations so small. Amputation of limbs was quite the exception and was only done when the case was otherwise beyond hope. For the lessons of modern surgery the vast possibilities of recovery which the teaching of Lister had put within the grasp of every practitioner of the art in the world had already proved that the nearer we could approach to natural conditions the greater was the safety for the patients. Therefore, when a bone was broken by a bullet and there was no other lesion but the track made through unimportant soft parts the indication was to apply an antiseptic dressing at once to secure as much immobility as possible and to have the patient sent to a place where rest and more deliberate attention could be had.

EXAMINATION OF WOUNDS.

The treatment of these cases in the first stage has led to some difference of views among surgeons, but I am satisfied that reason and experience point in one direction only. It has been recommended that fragments of bone which have been detached from the shaft ought to be removed and the limb then secured in splints. I am strongly of opinion that local examination ought not to be carried out unless the surgeon should be driven to it by developments. The fact that bone is broken can be elicited quite easily by the methods which we employ in a simple fracture. Of what value in treament on the field is it to learn whether there are four or 40 fragments? What should we learn by passing in probes or fingers except that there was fracture and that there were many pieces? To do this we should enlarge the wound considerably, introduce things that probably were not aseptic, disturb adhesions that were already in progress, break down clots, and generally do the things which were the very worst for the patient. It is surprising what little trouble many fragments apparently separated from sources of vitality may give. If they do necrose later they can be dealt with under safe conditions. But I am quite sure that, with rare exceptions, the wrong thing to do on the battle-field in a recent wound by a bullet involving fracture of a bone is to explore it with probes or to enlarge it for the passage of a finger and the removal of fragments.

WOUNDS OF JOINTS.

One of the interesting features of the surgery of the campaign was the injury done to joints. In a majority of cases the bone was more or less injured, but in three out of five cases of perforation of the knee-joint under my own care there was no apparent involvement of bone. Such cases did very well, most of them pursued an aseptic course, and recovered with good movement. Even suppuration did not demand more severe measures than incision and drainage. I have seen a bullet traverse the [illegible] astragalus with perfect movement [illegible] a naval officer the head of a pompom entered the astragalus and practically destroyed it, all that remained being the dense walls. There was a fracture of the tibia as well and the limb would certainly have been amputated under the old rules, but I succeeded in saving the foot, although with a stiff joint, and the patient is still in the service. Excisions again, were rare, and amputations were only performed on the field when vital parts were involved, or there was terrible destruction by a shell, whioh was an event of infrequent occurrence.

I have specially referred to injuries of the knee-joint because I wish to indicate how satisfactory our experience of them has been in this campaign as compared with that of 40 years ago. Then the doctrine was that when ever the knee-joint was penetrated by a bullet, whether the bone was fractured or not, the limb should be amputated, and the sooner the better. This view existed not only before the American war, but was emphasised by the experience then acquired. In the Crimea out of 138 cases 45 patients recovered and 93 died, or 67·3 per cent. In all but three of these there was fracture, of which the recoveries were 43 and the deaths 92. In the American war there were 793 cases, of which 402 were those of recovery and 376 were fatalities, or 48 per cent. In 659 instances there was fracture, of which 309 were recoveries and 350 fatalities. The proportion of cases in which bone was involved in wounds of the knee in the present campaign will perhaps be found to be somewhat less. But there can be no doubt that in spite of such a serious complication the cases did extremely well. The excisions must have been very few for I did not see or hear of any. The simple perforations were attended by some blood effusion, and, in my experience, trivial synovitis, and in these cases treatment by carefully occluding the openings and keeping the limb at rest was generally sufficient to secure safety and early restoration of normal movement.

PENETRATING WOUNDS OF THE ABDOMEN.

But the problem which most exercised the minds of surgeons in South Africa was the treatment of penetrating wounds of the abdomen. These had always been marked by the highest mortality in war. In the Crimea 92·5 per cent. of the British so injured died; 91·3 per cent. of the French. Here was a field in which there was plenty of scope for improvement. In the interval between that great campaign and the present far-reaching changes had taken place in the practice of surgery. It had been shown in civil practice that it was possible to deal with almost all kinds of pathological conditions within the abdomen. In our own country the surgery of this region had reached such a high level of security that many believed that the successes of the civil hospitals could be extended to the field of war, and that at all events the mortality would be diminished very effectively. The late Marion Sims had strenuously pleaded that these cases ought to be submitted to operation, because therein lay greater hope for the patient, and there were few surgeons who went to South Africa who did not hold the same view. In a few months, however, they abandoned that position, after experience of the actualities of war and the almost uniformly fatal results which followed —if they did not depend upon—interference. I think the causes of this were not far to seek. In civil life a patient so wounded is quickly brought into the best position for operation with all the appliances at hand which are almost essential to success. In warfare a wounded man may occasionally reach the field hospital within a short time, but when the casualties count into hundreds and thousands delay may extend into 12, and in some cases 24, hours before he is even rescued. Now, if there is an injury which should be treated promptly it is a lesion of the intestine; but the conditions in which operation should be done, if there is to be hope of success, are not to be found in a field hospital. The equipment is not sufficient or efficient and water is usually bad—in South Africa it was loaded with earth from which no filters could free it; it could not be boiled in sufficient quantity, and what we understand as the toilet of the abdomen was out of the question. There were, as I have hinted, two periods in which the surgical attitude towards these cases was quite different. In the early days many abdomens were opened, but probably all the recoveries after operation were less than a score. This depressing result has corroborated the experiences of surgeons elsewhere In the Tirah campaign five cases of laparotomy were reported, but the patients all died In the late Cuban war Senn says that in the four operation cases of which he personally knew the patients all died Surgeon General Sternberg of the United States Army, reports officially that in the two years 1898-99 they had 116 perforating wounds of the abdomen, of which 81, or 70 per cent., were fatal, and that of 10 cases in which laparotomy was performed nine patients died In South Africa I have known of a series of nine cases with one recovery Dr J E Neale, civil surgeon, has however, reported[1] a case of a man wounded at Frere, 15 inches of the intestine were resected and the patient never had a bad *symptom*

But, as I have said while the whole experience of operations was almost uniformly disappointing even in the most skilled hands, it was observed that many men with wounds of the abdomen did not present any alarming symptoms at all and that many of them quickly recovered Mr Watson Cheyne gives his impression, derived at Cape Town, that only 20 per cent of the abdominal cases had ended fatally; but this, of course, did not account for that large number killed outright or for those who lingered for a few days and died before they could be transferred to the base We are not yet in a position to deal with exact figures because they are not procurable, but I think it will be found that the proportion of deaths was far in excess of this, indeed, Mr Cheyne's subsequent experience at the front induced him to regard the death rate as much higher He reports 27 cases, of which 18 were fatal, two after operation, Mr Cheatle 10 cases of which nine were fatal From the Philippine war Dr Robinson has published figures which show 45 cases with a mortality of 48 9 per cent But of these eight were killed or died within 24 hours The interesting fact brought out, however, is that of 30 cases which were not operated upon only 10 were fatal, showing in this group a mortality of but 33 3 per cent These cases include all kinds of internal injuries, many of them necessarily mortal from hæmorrhage as in wounds of large vessels But if we limit our inquiry to wounds of the intestines we are still met by serious difficulties in settling the question of operation. Apart from the initial one of the unsuitable surroundings of the field hospital and the insecurity which must attend opening of the abdomen there, we must first try to determine whether the bowel has been wounded at all. If we accept the evidence of the apertures of entrance or exit there generally appears to be no doubt that the bullet has passed direct between the two points, and it seems impossible that the bowel has escaped perforation But there is abundant evidence, both recent and remote that bullets and even sharp weapons have traversed the abdomen not only without fatal results but without symptoms of perforation of the intestine I shall not trouble you with any other instances than that given by Mr Cheatle, and reported by Mr G H Makins in his admirable boo[illegible] of the War" There the bullet [illegible] and the sigmoid flexure but the [illegible] presented no indication of the slightest injury Even upon this one case it may be affirmed that a bullet can traverse the abdomen without wounding the intestine. I have seen or treated many cases in which the track of the bullet made it almost a certainty that it had passed through the bowel and in which the patient presented absolutely no symptoms up to his discharge from hospital Now here we have another problem Are we justified in opening the abdomen in such a case as soon as we see it with no other evidence than two external openings and a belief that the bowel cannot have escaped? There can be no doubt, I think, that after a prolonged search for wounds in the intestine which did not exist the patient's chances of recovery would be much on the wrong side

But I go further and take the cases in which there is actually a wound of the intestine Is it possible for recovery to take place? I am quite satisfied that in very many instances of this injury from the Mauser or Lee-Metford bullet the patients survived Some of them had bloody stools and other symptoms which made plain the nature of the lesion. Many reasons have been given for these remarkable escapes Probably they have depended in the first place on the angle of the impact of the bullet. A more or less direct hit would make a very small opening, which was immediately closed into a slit by contraction and in some degree blocked by mucous membrane The openings may have been further secured by pressure against an adjacent intestine, as suggested by Sir Frederick Treves, and kept secure until finally healed But if we go back to Mr Cheatle's case we find that there was no extravasation from the cæcum and no inflammation about the aperture, which had shaped itself into a minute slit If, however, the bullet struck at a smaller angle it would probably make multiple oval openings, with such loss of substance as to lead to extravasation and rapid infection of the peritoneum I have tried to show that there are cases in which there is no perforation, although we may suspect it, and cases in *which wounds occur which may run a safe course and in* which operation would only lead to greater risks There remains the group in which the wound does allow of extravasation and in which from various signs and symptoms we are able to recognise the condition. These cases as they stand are almost, but not quite, certain to prove fatal Can we do anything to diminish this tendency? I revert to the difficulty of operating upon them in a field hospital, and yet to send them back to a stationary hospital is almost hopeless They ought to be operated upon at once, but they are sent away with an infected peritoneum, which becomes worse each hour What chance is there for successful interference at the journey's end, when the patient is exhausted by pain and exposure and has been jolted in an ox-wagon for a couple of days? Yet if operation is to be done quickly there must be some better equipment of field hospitals and more suitable preparations for this special work for it is tedious and exacting and it demands expert hands and sound knowledge But every foresight will be nullified by the pressure of a severe engagement where there are many men to be attended to When everyone is working at high pressure night and day there is no time for the prolonged operations on the abdomen, unless it is possible to set apart one surgeon to deal with such cases only

On the whole, then considering the difficulty of diagnosis in many instances at the outset, the fact that intestines may be found unwounded and if wounded may be occluded by natural processes if not interfered with, it seems to me that in war as we stand at present the man whose abdomen is perforated by a small-bore *bullet has a better chance of life* without operation than with it, bearing in mind the circumstances under which laparotomy must be performed on the field That is an opinion which I think most surgeons came to when experience had ripened after the early months of the campaign Although the judgment may be a little humiliating it is one which must for the present be accepted

LODGED BULLETS

The war has developed once again the discussion upon the removal of bullets Formerly, with the low velocity the proportion of lodged bullets was much larger than it is now Some surgeons are of opinion that the missile ought to be searched for and removed at as early a moment as possible I think the practice in ordinary circumstances unjustifiable. If the nature of the wound enables us to reach the bullet without trouble or if it has lodged under the skin and can be reached by a simple incision it may be removed But remembering the character of the wounds made by the Mauser in most cases enlarging the apertures, or a search with probes or other instruments, may mean a suppurating instead of a non suppurating track It has been said in justification that the bullet may become displaced and give rise to troublesome after effects If these should occur the cause can then be dealt with but a bullet may lie buried with impunity throughout a long life Therefore, except under special circumstances which are sufficiently obvious, nothing should be done beyond trying to occlude the wound and to secure it from contamination

PROGRESS MADE BY MILITARY SURGERY.

I should have liked to speak of several other forms of injury, all of them full of interest, and of the great advantage given by the use of the x ray apparatus, but the limits of time demand that I should confine my remarks to some salient facts only The war is still in progress and it will take a considerable time after its conclusion before we can make an effective summing up But even thus far we have materials for conclusions which are not likely to be much modified We have seen a marvellous proportion of recoveries from severe wounds and we have been able to rejoice at the great reduction of suppurating cases and the practical absence of such infective diseases as tetanus, erysipelas, pyæmia, and hospital gangrene. This great difference in the records of to-day as compared with those of older and more bloody wars does not depend mainly upon the alteration in the bullet used. That, as we have seen, can do fearful things to a dense obstacle and add to its power for mischief by the laceration caused by bony fragments which it scatters on impact. To some extent the smallness of the canal made by it helps towards recovery. But, above all, the results are due to the treatment of the wounds by the surgeon and the operation of those great principles which have developed under the splendid genius of Lord Lister. He has made possible the nuquestionable triumph of conservative treatment. Honoured as he is throughout the whole world, proud as we all are to claim him as a compatriot, his most enduring memorial will be in the multitudes whom he has been the means of saving from pain and death, and in the direction which he has given to scientific surgery for all time.

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[1] Brit Med Jour vol 1, 1900 p 604

When the recoveries from wounds in this war are made up and analysed it will be seen what a tremendous progress has been made in protecting the injured from disaster, even in the face of all the difficulties of the battlefield. For, while in the general and stationary hospitals the precautions necessary in modern surgery can be observed, it is, after all, at the initial stage that safety from sepsis is to be secured. "The fate of the wounded rests in the hands of the one who applies the first dressing," wrote Von Nussbaum, and the truth of this assertion has been proved every day. War is at all times full of horrors, but as it is waged to-day it is less terrible than before. In the recent Spanish-American conflict the mortality among the wounded dropped from the 12·96 per cent. of the Civil war to 6·64—a reduction of nearly one-half—a result in part no doubt due to the smaller bullet employed, but more certainly to the improved methods which have been established in the practice of surgery.

Our profession has taken its full share in the work in South Africa, and whether as officers of the Royal Army Medical Corps or as civil surgeons all have worked ceaselessly in ministering to the sick and wounded. They have not flinched in danger on the field and they have vied with their combatant fellows in deeds of valour. Six medical officers have been killed, nine have died from disease, and 12 have been wounded; three civil surgeons have been killed, 11 have died from disease, and five have been wounded. Of all branches, including orderlies and nurses, nearly 400 medical helpers have fallen victims to their labours. It is a noble record of devotion. We must always glory in it, but so also must we delight to know that the true spirit of patriotism is still with us and that so many of our profession have been ready to show, by rendering up their lives, that "A country's a thing men should die for at need."

An Address

ON

TUBERCLE BACILLI IN COWS' MILK AS A POSSIBLE SOURCE OF TUBERCULOUS DISEASE IN MAN.

Delivered at the Fourth General Meeting of the British Congress on Tuberculosis on July 25th,

BY PROFESSOR JOHN McFADYEAN, M.B. EDIN., M.R.C.V.S.

MR. PRESIDENT, LADIES, AND GENTLEMEN,—As recently as a few days ago, when I was mentally arranging the material for the paper which I have now the great honour of submitting to this Congress, I was under the impression that it would not be necessary to formally prove that the term "tuberculosis" as it is now employed by medical men and veterinary surgeons relates to one and the same disease. I thought that I might ask my audience to accept it as proved and generally admitted that tuberculosis in man is caused by a single definite species of organism—the tubercle bacillus; that this organism is also the cause of the disease to which veterinary surgeons apply the term "tuberculosis" in the case of cattle and other domesticated species; and that therefore there existed a *primâ-facie* case against the germs formed in the bodies of tuberculous animals as a possible source of tuberculous disease in human beings. To-day, however, the position of anyone who undertakes to discuss the intercommunicability of human and bovine tuberculosis is very different from what it would have been a week ago, for in the interval the greatest living authority on tuberculosis—the world-renowned discoverer of the tubercle bacillus and the man to whom we are mainly indebted for our knowledge of the cause of tuberculosis—has declared his conviction that human and bovine tuberculosis are practically two distinct diseases. I do not know how far the reasons assigned by Professor Koch for the opinion which he now holds on this question may have commended themselves to the members of this Congress, and I am overwhelmed at finding myself in a position which compels me to offer some criticism on the pronouncement of one "the latchet of whose shoes I am not worthy to unloose."

That bovine and human tuberculosis were identical diseases was generally supposed to have been finally determined by Professor Koch himself when he discovered that the human and the bovine lesions contained bacilli that were identical in morphological, tinctorial, and cultural characters, and showed that the artificial cultures from both sources produced indistinguishable effects when they were employed to infect a variety of animals. The labours of hundreds of workers during the succeeding 18 years produced nothing in serious conflict with the conclusion that human and bovine tuberculosis were identical diseases, but they brought to light what appeared to be additional evidence of this identity, such as the discovery that tuberculin produced a specific reaction in tuberculous cattle, whether human or bovine bacilli had been employed in its preparation. In short, the identity of the bacilli from the two sources appeared to be as firmly established as any other generally accepted opinion regarding the identity or non-identity of bacteria associated with disease in more than one species of animal. Since it thus appeared to be proved that the only difference between human and bovine tubercle bacilli lay in their accidentally different position—one being parasitic in man and the other in cattle—it was natural to conclude that when circumstances were favourable for the transference of bacilli from one species to the other human tuberculosis might have an animal origin, and *vice versâ.*

Opinions varied as to the frequency with which this transmission of tuberculosis from one species to the other occurred, but practically never within the last 18 years regarding the possibility and probability of such reciprocal infection. What are the grounds upon which we are asked to discard convictions that appeared to rest on such a solid basis? I shall endeavour to state them briefly, as I understand Professor Koch's train of reasoning. 1. The bacilli found in cases of bovine tuberculosis are much more virulent for cattle and other domestic quadrupeds than the bacilli found in cases of human tuberculosis. 2. This difference is so marked and so constant that it may be relied upon as a means of distinguishing the bacilli of bovine tuberculosis from those of the human disease, even assuming that the former may occasionally be found as a cause of disease in man. 3. If bovine bacilli are capable of causing disease in man there are abundant opportunities for the transference of the bacilli from the one species to the other, and cases of primary intestinal tuberculosis from the consumption of tuberculous milk ought to be of common occurrence. But post-mortem examination of human beings proves that cases of primary intestinal tuberculosis are extremely rare in man, and therefore it must be concluded that the human subject is immune against infection with the bovine bacilli, or is so slightly susceptible that it is not necessary to take any steps to counteract the risk of infection in this way.

Now, with the utmost diffidence I venture to submit that at least one of the premisses contained in this argument is not well founded, that the others have little or no bearing on the question, and that there still remain reasonable grounds for regarding tuberculous cow's milk as distinctly dangerous to human beings.

It cannot be denied that what may be called bovine tubercle bacilli are as a rule distinctly more virulent for cattle and other domesticated animals than are human bacilli or that the results of experiments indicate that in natural circumstances there is little danger of cattle becoming infected from human beings. But it cannot be admitted that the low virulence of human bacilli for cattle proves, or even makes it probable, that bovine bacilli have only a feeble pathogenic power for [illegible] to be probable if it had been [illegible] very virulent only for cattle, [illegible] hat these bacilli are highly dangerous for such diverse species as the rabbit, horse, dog, pig, and sheep, and, in short for almost every quadruped on which they have been tried, it appears to be highly probable that they are dangerous to man At any rate, it is impossible to cite any ascertained fact relating to other bacterial diseases that makes the contrary conclusion probable It is well known that the majority of the disease exciting bacteria are harmful to only one or two species, but all those that are common to all the domesticated animals are also pathogenic to man

With regard to the view that the difference between human and bovine bacilli in respect of virulence for cattle is of such a fixed and constant character that it may be relied upon to distinguish the one from the other it need only be said that that is very far from being proved It appears to be quite possible that what may be called the normal or average virulence of bovine bacilli for cattle may be reduced by passage through the human subject Besides there are very great differences in the virulence of tubercle bacilli found in animals of the same species and if a low degree of virulence for cattle is to be taken as *the distinguishing feature* of human bacilli there will be no difficulty in proving that the human disease is sometimes transmitted to the lower animals

The third proposition in Professor Koch's argument is the only one which is really germane to the point at issue—viz., that only cases of primary intestinal tuberculosis can possibly have had their origin in infected milk or meat and that "such cases are extremely rare" Professor Koch refers to several large series of post-mortem observations that appear to justify this statement and adds that he could have cited many more pointing to the same conclusion. Now, if it were a fact that all the statistics relating to this point were unanimous it would have to be admitted that primary intestinal tuberculosis is rare in the human subject, and that cases of infection through milk are still rarer, though even then it might be advisable to take measures to prevent the few cases But the statistics are not by any means unanimous and those that are likely to appeal with most force to the people in this country are not at all in accord with those quoted from Germany During the last few years the evidence obtainable from the post mortem records of two of the largest hospitals for children in this country have been analysed with great care in order to see what evidence they afforded as to the relative frequency of the different methods of infection in tuberculosis In the case of the Hospital for Sick Children in Great Ormond street this has been done by Dr G F Still and in the case of the Royal Hospital for Sick Children in Edinburgh by Dr T Shennan The conclusion at which Dr Still arrived was that in 29 1 per cent. of the cases of tuberculosis in children primary infection appeared to have taken place through the intestine. That is very far from being an insignificant proportion, and it is a striking fact that Dr Shennan arrived at an almost identical conclusion and estimated that 28 1 per cent of the cases of tuberculosis among children in Edinburgh were due to alimentary infection. There does not appear to be any ground for supposing that there is a large margin of error in these statistics, as the number of cases dealt with was considerable (547 in the two series) and in both series the post mortem appearances were interpreted in a way to which no exception can be taken In face of these statistics it is not possible to assent to the statement that cases of primary tuberculosis of the alimentary canal are extremely rare Precisely the contrary conclusion [illegible] e meanwhile be drawn with regard [illegible] his country—viz., that, at least in [illegible] by way of the alimentary canal is comparatively common. I therefore submit that there is still a strong *primâ facie* ca e against animal tuberculosis as a possible source of human tuberculosis and it becomes necessary to consider whether there are any data from which one may estimate the extent of the danger to which human beings are exposed through the occurrence of tubercle bacilli in milk.

The evidence in favour of the view that the ingestion of tuberculous milk is one of the causes of human tuberculosis includes a number of recorded cases in which the relationship of cause and effect appeared to be obvious From the nature of the circumstances evidence of this kind is very scanty, and it must be admitted that very few of the alleged examples are absolutely convincing Tuberculosis is a disease that develops slowly and assuming for the moment that tubercle bacilli do occur in milk and are a cause of disease in persons consuming such milk it is obvious that, as a rule the very act by which the infection is brought about destroys the only direct evidence of cause and effect that exists One could only expect to be able to trace the disease to the milk when, after the onset of symptoms pointing to infection by way of the mouth, the cow from which the milk had been obtained was still available for examination. In practice this is rarely the case, and it is therefore not surprising that medical literature contains very few specific instances of the infection of human beings with tuberculosis by means of milk It is obvious however, that the entire absence of evidence of this kind would in no way exonerate milk from the suspicion of being one of the causes of human tuberculosis

We have already seen that, at least in this country, in a considerable number of [illegible] life the first seeds of [illegible] the body by way of t [illegible] cases ought to be ascribed to tubercle infected milk? It scarcely appears to be possible to give a very confident reply *to this question, though some distinguished authorities* have not hesitated to express the opinion that practically all the cases of primary intestinal tuberculosis occurring in childhood may be set down to this cause The late Sir Richard Thorne, in [illegible] Control of Tubercul [illegible] his conviction that [illegible] tabes mesenterica in children, and he characterised the loss of child life from this [illegible] evidence on which this formidable [illegible] milch cow was of the followin. [illegible] r General's returns show that during the last 50 years there has been a marked decline in the death rate from human phthisis, which is the form that tuberculosis generally takes when the bacilli are inhaled On the other hand, during the same period there has been only a slight decline in the death rate at all ages from that form of tuberculosis which is ascribable to alimentary infection, and among children under one year of age there has been a notable increase in the mortality from that form of the disease The decline in the death rate from phthisis is ascribable to the great improvements which have been effected during the last 50 years in the hygiene of human habitations, such as improvements in lighting, drainage and ventilation These naturally, have not interfered with infection through milk which has therefore remained unchecked and in infants has even increased, because during the last 50 years cows milk has entered more largely into the dietary of very young children

There are several weak points in this argument Perhaps the weakest of all is the assumption that the deaths certified under the head of tabes mesenterica' correspond closely with those which the pathologist would classify as cases of primary alimentary infection. It is scarcely possible to doubt that the term tabes mesenterica ' in the Registrar General's return covers a heterogeneous collection of cases of which the majority may not be cases of tuberculosis at all But even if it is agreed to accept all the cases registered under the head of "tabes mesenterica as in tances of primary alimentary infection the figures found in the Registrar General s returns do not support the contention that milk is responsible for all the cases of tabes It is true that they indicate an increase in the death rate from alimentary tuberculosis among children under 12 months old, but on the other hand, there appears to have been a considerable decline in the death rate from the same cause at all ages between one and five years Now, if tuberculous milk were a frequent cau e of tuberculosis, one would not have expected the death rate from that cause to decline among children between one and five years of age, for there is no reason to suppo e that there has been any decline in the use of cows milk in the feeding of children at that age during the last 50 years The fact appears to be that the Registrar General s returns do not afford much trustworthy information with regard to the number of cases of primary alimentary tuberculosis and are absolutely worthless as an indication of the extent to which human beings are infected by means of milk.

There is another direction in which one may turn for evidence on this point We cannot with any pretence to accuracy ascertain the number of persons who annually become infected by milk, but we may be able to form some estimate of the existing danger in this connexion by collecting information as to the frequency with which milk contains tubercle bacilli. We know that about 30 per cent. of all the cows giving milk in this country are tuberculous in some degree. This statement, no doubt, indicates a deplorable state of affairs, but in the present connexion it is not quite so alarming as it at first sight appears. Fortunately, not every cow that is tuberculous gives milk containing tubercle bacilli. It is true that opinions with regard to this point are not absolutely unanimous, but there is ample evidence to justify the assertion that, as a rule, the milk is not dangerous until the udder itself becomes diseased. The experiments pointing to an opposite conclusion form only a small minority, and the results obtained in most of them were probably due to carelessness on the part of the experimenter. In a few of the cases in which the milk of an apparently healthy udder was found to be infective it is probable that the gland tissue was in reality diseased, though not to an extent discoverable without microscopic examination. The important question, therefore, is not what proportion of milch cows are tuberculous, but what proportion of them have tuberculous udders. Some authorities have estimated this to be as high as 10 per cent.; but the proportion is certainly much less than that in Great Britain. My own experience leads me to think that about 2 per cent. of the cows in the milking herds in this country are thus affected. Now, the milk secreted by a tuberculous udder always contains tubercle bacilli, and it sometimes contains enormous numbers of them, and when these facts are apprehended one begins to realise the seriousness of the danger to which, in the present state of affairs, those who drink uncooked milk are exposed. But there are one or two considerations that make the danger greater than the mere statement of the number of cows affected would at first sight indicate. In the first place, the udder disease is not attended by any pain or tenderness in milking, and the milk for a considerable time after the udder has become manifestly diseased may appear quite wholesome, though in reality it is charged with the germs of tuberculosis. It therefore often happens that the gravity of the condition is not realised by the milker or the owner of the cow, and the milk continues to be sold for human consumption. There is scarcely any room for doubt that if it were sold and consumed unmixed with other milk some of the persons partaking of it would become infected. In practice it is usually mixed with the milk from other cows that have healthy udders and thus the germs are distributed among a larger number of persons. Even tuberculous milk that has been thus much diluted may prove infective, but the danger to the individual consumer is in inverse proportion to the degree of dilution. Since about one cow in 50 is the subject of tuberculosis of the udder, and the average number of cows in the milking herds of this country is less than 50, it follows that the majority of dairies and farms supply milk that is free from tubercle bacilli, or at least does not contain any derived from this source On the other hand, when the infected material is present, it operates with the greatest intensity in the milk of single cows and in the mixed milk from small herds

It must be added that tuberculous disease of the udder is not the only source of tubercle bacilli found in milk. A great deal of the milk in the market contains a considerable quantity of dust and dirt, most of which comes from the cow's udder and the hands of the milker, and part from the dust of the air of the cowshed. When 30 per cent. of the cows in a byre are tuberculous the dirt in that building and the atmosphere in it are almost certain to contain tubercle bacilli, and some of these are very likely to find their way into the milk. The more dirt milk contains the greater is the chance that tubercle bacilli from that source may be present.

What has been said with regard to the extent of the danger to which the public are exposed through the sale of milk containing tubercle bacilli may be summed up as follows. The danger cannot be defined by stating how many persons are thus infected annually, or what fraction the persons thus infected form of the total number who contract tuberculosis in the course of a year At the same time, it is impossible to doubt that the danger is a very real one, since at the present time milk is a vehicle by which tubercle bacilli are often introduced into the bodies of human beings.

As to the means of averting the danger, the ideal method of counteracting this source of human disease would be to stamp out bovine tuberculosis or to prevent the sale of milk from every cow that is tuberculous. Unfortunately, it must be admitted that at present that is unattainable. At the present time probably not less than 30 per cent. of all the breeding and milking cattle in this country are in some degree affected with tuberculosis, and to urge that the disease should be attacked on the lines adopted in dealing with cattle-plague and pleuro-pneumonia is an effectual method of preventing any Government from touching the subject. But although the complete and rapid extermination of the disease is impossible it does not follow that nothing can be done, or ought to be done, in the way of prevention The disease has attained to its present alarming proportions simply because, until quite recently, altogether erroneous notions were held regarding its cause, and because there has hitherto been the most absolute neglect of the precautions necessary for its prevention. The greatest obstacle to successful action against tuberculosis, whether in man or animals, is the ignorance of the laity [illegible] the cause of the disease. The immense majority of [illegible] yet convinced that contagion is the only cause of tuberculosis, and very few of them have yet made the slightest effort to check the spread of the disease. As a rule, cows and other cattle visibly ill from tuberculosis are still left alive and in close association with their fellows, although the lowest grade of common sense and prudence would suggest that such animals ought to be promptly killed or at least isolated. It is not want of common sense, nor is it mainly lack of means, that is responsible for this reaction—it is simply a want of conviction on the part of cattle-owners that tuberculous animals are dangerous to their companions.

The first thing necessary in this connexion is education of the people regarding the nature of the disease. This is necessary, because in this country, where Parliament never moves except by the force of public opinion, the legislative action required will not be taken unless the people are satisfied of its wisdom and also because even the most drastic sanitary measures enforced by the law are likely to fail if they are not supplemented by the intelligent coöperation of the people The National Association for the Prevention of Consumption and other Forms of Tuberculosis and the Royal Agricultural Society have been endeavouring to disseminate sound views regarding the cause of bovine tuberculosis among farmers and others, but much remains to be done in this direction. But it is not reasonable to ask that things should be left as they are until the education of the farmer in the matter of tuberculosis has been finished. If there are any practicable and reasonable measures by which, figuratively speaking, the flow of tubercle bacilli from tuberculous cows to healthy human beings can be stopped or impeded, they ought to be immediately enforced.

As soon as the valuable diagnostic properties of tuberculin had been proved by experience it occurred to a good many people that its assistance ought to be called in in order to exclude tuberculous cows from milking herds. In other words, it was thought that although it might not be practicable to insist upon the application of the tuberculin test to all infected herds and to compel the isolation or slaughter of all cattle thus found to be infected, it might still be possible to require that only cows found to be free from the disease by the application of the test should be kept for milch purposes. I doubt whether anyone who is well acquainted with the circumstances of the case now believes this to be practicable. Here, again, the fact that one-third of the cows now giving milk are tuberculous is an insurmountable obstacle. The cost of carrying out the tuberculin test several times annually in all the milking herds in this country would be enormous, and the exclusion of all reacting cows from such herds would seriously disorganise cattle-breeding as well as milk production. Moreover, to rely blindly on the tuberculin test, and to pronounce the milk of every cow that does not react to it free from tubercle bacilli, would be very unsafe The test is recognised to be one of great value, but it is not infallible. Rather serious defects in connexion with it are: (1) that for a period after infection—a period that is sometimes very considerable—an animal will not react; (2) that in some advanced cases of tuberculosis no distinct reaction is obtainable; and (3) that in a considerable proportion of cases a second reaction is not obtainable for some days or weeks after the first. It is therefore clear that if we wish to exclude the milk of tuberculous cows, or if the object is the more restricted one of preventing the sale of milk from tuberculous udders, some system of inspection is necessary.

This was the conclusion at which the second Royal Commission on Tuberculosis arrived. We have already seen that whatever danger attaches to milk comes mainly from cows with tuberculosis of the udder, and the public health would be almost entirely safeguarded from this danger if we could exclude such animals from our dairies Periodical examination by competent inspectors would go a long way towards securing this object, but the inspection would require to be at rather short intervals, for tuberculosis of the udder may come into existence and attain most dangerous dimensions in a period of a few weeks. The more frequent the inspection the better, but of course this means a great deal of expense. If every town and rural district produced its own milk it would be a comparatively simple problem to organise and carry out a fairly efficient system of inspection of milch cows, but as the law at present stands the majority of the population cannot obtain this safeguard With the exception of Glasgow, Manchester, and a few other places, a local authority has no power to inspect cows outside its own district, and the helpless position in which this state of the law leaves the inhabitants of London and other large towns is obvious. If cows of which the milk is sold for human food had everywhere to be submitted to periodical inspection such inspection would naturally be undertaken by the various local authorities, each of which would supervise the cows and cowsheds in its own district; but the compulsory inspection of all the milch cows in the country would be a very large undertaking, and perhaps it would be premature to press for it. In the meantime a good case can be made out for making general the special powers relating to inspection of cows in outside districts which a few fortunate cities have acquired by special Acts of Parliament. This also was one of the directions in which the members of the second Royal Commission on Tuberculosis considered immediate action to be necessary.

There remain for consideration some other safeguards which would doubtless be less effective than those just discussed, but which, unlike these, would not be difficult to enforce—viz : (1) compulsory notification of udder disease and of any symptoms of tuberculosis in milch cows, with, of course, the power to inflict a considerable fine for not reporting; and (2) the interdiction of the sale of milk from any cow suffering from tuberculous disease of the udder or exhibiting clinical signs of tuberculosis. Against the demand for the amendment of the existing law to the extent of granting the public these very reasonable safeguards against infection through milk it cannot be urged that they would be very expensive or that they would press harshly on private interests. The present state of the law, or rather the almost entire absence of any law, dealing with tuberculous disease of the udder in cows is a scandal and a reproach to civilisation. It scarcely sounds credible, but it is a fact, that the owner of a cow in the most advanced state of tuberculosis, and exhibiting the most manifest signs of udder disease, may sell that cow's milk for human food as long as the sale has not been specially interdicted on the certificate of a veterinary surgeon, and that no penalty attaches to this crime of deliberately or carelessly placing on the market a food material charged with the germs of a dangerous disease. In the interests of public health the sale of milk from tuberculous udders and from cows that are obviously tuberculous in any part of the body must be stopped, and it must be declared illegal to keep such animals alive. There need be no hesitation in pressing for this reform because the measures demanded are in the interests of the owners of cattle and would be advisable even if it were established that bovine tuberculosis is not transmissible to man. There is no dispute as to the danger of visibly tuberculous animals to others of their own species, and it is the very reverse of a hardship to the owner of such animals to insist on their being slaughtered.

It would probably be regarded as a serious omission if I did not refer to one other method of counteracting whatever danger at present attaches to impure milk as a cause of tuberculosis. No matter how highly charged milk may be with tubercle bacilli, it can be deprived of all danger from that source by raising it to the temperature known to be fatal to these germs Less than the boiling temperature (212° F.) suffices for this purpose; but, unfortunately, the lowest temperature that can be relied upon imparts to the milk a flavour that many people find distasteful. That objection does not hold good in the case of infants and young children, and the custom of boiling or steaming the nursery milk for a few minutes cannot be made too general. But while abstinence from uncooked milk is a sure way of avoiding infection with bacilli present in that article of food, it cannot for a moment be admitted that this absolves public health authorities from all concern with the subject. Arsenical beer may be made harmless by adding the proper antidote before drinking it, but the most courageous brewer would not plead this as an excuse for selling the impure article.

In conclusion, I would venture to express the earnest hope that the Congress will not endorse the view that it is inadvisable to take any measures to prevent the transmission of tuberculosis from the lower animals to human beings. To justify the introduction of measures to that end it is not necessary to contend that this is a common method of infection, or that the danger arising from milk can for a moment be compared with that present in human sputum. The inhalation of tubercle bacilli expelled from the bodies of human patients is doubtless the great cause of human tuberculosis, and every practicable means of preventing infection in that way ought to be employed; but at the same time we ought not to concede to the milkmen the right to sell us tubercle bacilli, even if we were assured that —like Professor Koch's experimental pigs—we had nothing to fear beyond the development of "little nodules here and there in the lymphatic glands" of our necks and "a few grey tubercles" in our lungs

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WHAT ADMINISTRATIVE MEASURES ARE NECESSARY FOR PREVENTING THE SALE TO THE PUBLIC OF TUBERCULOUS MEAT?[1]

BY SHIRLEY F. MURPHY, M.R.C.S. ENG., L.S.A.,
MEDICAL OFFICER OF HEALTH TO THE ADMINISTRATIVE COUNTY OF LONDON.

WHEN I was asked to open a discussion at this Congress on the administrative measures which are necessary for preventing the sale to the public of tuberculous meat it was at once obvious to me that no new material, no new fact, could be submitted to the meeting. The measures which are necessary are well understood by those who have directed their attention to the subject and what is wanted now is not the knowledge by such persons of what to do but the education of the public in the necessity for adopting in this country measures which have been tried and found successful elsewhere. In England we are always slow to modify our procedure and in any matter which is held to affect a trade interest especially slow, for this interest at once provides an opposing force which renders the education of the public difficult. This force is able to manifest its power from the beginning and at a time when the public concern themselves little with the subject. It is only at a later stage that the public find that they have an interest at stake and that they must bestir themselves to put law makers and law administrators in motion. When once this position is arrived at we may look forward to success. Our Congress may do much by discussion of this subject to create a wider interest in it and by influencing public opinion to bring about the result which is hoped for by those who see the need for better supervision over meat-supplies.

It is not within our province in this section to consider whether or not the consumption of the meat of tuberculous animals is prejudicial to man The title of the subject which I am invited to discuss implies that tuberculous meat must be excluded from the food-supply. This question has been considered by two Royal Commissions, the second of which was presided over by our chairman, Sir Herbert Maxwell. I shall later have to mention the conclusion at which this Commission arrived, and this because it has a necessary bearing upon the sort of administration which is needed, but I shall accept its conclusions and shall not enter into a discussion of pathological questions. I may, however, in commencement, briefly refer to the frequency with which tuberculous diseases affect cattle and the proportion of those which are slaughtered which must be deemed to be unfit for human food If animals were rarely affected with this disease, it might be difficult on this ground to claim the institution of an administration to prevent the sale of their meat to the public. This, however, is not the case, and it will suffice in evidence of this contention to quote the figures published by the first Royal Commission. This report shows that during a period of four years in the Copenhagen slaughter-house 17·7 per cent. of oxen and cows and 15·3 per cent. of swine were found to be tuberculous, and that in the Berlin slaughter-house in one year 15·1 per cent. of oxen and cows and 15·5 per cent. of swine were found to be tuberculous Of the oxen and cows in the Berlin slaughter-house 1·26 per cent. were condemned on account of tuberculosis and 0·23 per cent. of swine. The report further says that the Commission has reason for thinking that in this country "the facts about tuberculous animals would exhibit a broad resemblance to the foregoing if such records could be obtained." The figures obtained from public slaughter-houses in England are in no way conclusive of the amount of animals intended for food which are tuberculous or which are found to be unfit for human consumption. At the present time there is no need for the owner of an animal presenting signs of disease to have it slaughtered under conditions which would ensure its inspection. He can easily kill it elsewhere. I may state that among 18,440 cattle slaughtered in the Manchester public slaughter-house in 1896, 48½ carcasses of cows and three carcasses of bullocks were condemned on account of tuberculosis, or about 0·3 per cent., being but about one-quarter of the proportion condemned in the Berlin slaughter-house. Mr. James King, the veterinary inspector of Manchester, who supplied the figures relating to that city, stated to the second Commission that very few cows are sent to the public slaughter-house from the country round. "People," he said, "are a little frightened to send cows to the abattoirs. They do not care to send them in where there is rigorous inspection. The cows go [he thought] to the districts outside, because the Manchester market received a greater number of cows dressed than live cows coming to the abattoirs. The carcasses are brought in if it is thought they will pass in the Manchester market, and no doubt if they are badly diseased they are retained outside. That [he said] is my opinion about the matter." Mr. King is an officer of much experience, and his statements suffice to show that we must not assume that only one bovine animal in every three or four hundred is unfit for human consumption, for those entering the Manchester slaughter-house must be regarded as exclusive of a number which the owners believe to be too diseased to submit to inspection. It would be interesting to know what happens to those which are "retained outside," but for the moment I am concerned only to show that the proportion of cattle in this country which are tuberculous and which are unfit for human consumption is so large that if the public desire to avoid the consumption of their flesh they must provide an administrative system for the purpose. I may add the figures of another city to the above, taken also from the report of the second Commission. Dr. E. W. Hope, medical officer of health of Liverpool, stated that of 16,340 cattle slaughtered in the public slaughter-houses the carcasses of 214 were destroyed on account of tuberculosis—i.e., about 1·4 per cent., or about the same proportion as in Berlin In the two cities which I have referred to it has not been the practice to condemn the flesh of all animals which have suffered from tuberculous disease. In Manchester Mr. King stated that "if the disease is generalised the whole carcass is condemned; if it is only localised the localised part is removed and the remainder is passed." In Liverpool Dr. Hope said that if the disease were confined to the lung and the carcass generally was deteriorated then the carcass is seized, and it is also seized if the disease is very extensive and the carcass is not deteriorated.

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[1] A paper communicated to the British Congress on Tuberculosis. Section I., State and Municipal.

I may now turn to the consideration of the amount of tuberculous disease which must be deemed to render the flesh of animals unfit for human consumption. Turning first to Germany, we find the practice is as follows. In Prussia the law of 1892 provides that (1) the flesh of tuberculous cattle is deemed unfit for food if it contains tubercle or if the tuberculous animal is emaciated, although there may be no tubercle in the flesh; and (2) that the flesh of tuberculous cattle may be considered fit for food if the animal is well nourished and (*a*) the tubercle is found solely in one organ, or (*b*) in the event of two or more organs being diseased these organs lie in the same cavity of the body and are directly connected with each other either through the lymph-vessels or through blood-vessels, which do not belong to the general circulation, but to the lungs and portal circulation. In Bavaria the law of 1892 provides that the flesh of cattle and swine shall be deemed fit for food if the tuberculosis is localised and in the first stage of development and the animal is in a well-nourished condition. The flesh is to be considered unfit for food if the animal is suffering from generalised and advanced tuberculosis and at the same time shows signs of emaciation. In Saxony the law of 1892 provides that the flesh of a tuberculous animal is to be deemed unfit for food (1) if the tuberculosis has so far developed as to lead to emaciation and if the flesh differs in appearance from that of healthy flesh; (2) also if the same is generalised—i.e., if the spread of the tuberculous processes in the body can have taken place only by the circulation of the blood (excepting the portal circulation) and at the same time emaciation exists in a high degree, or the meat, or the bones, or the lymph glands belonging thereto are impregnated with tubercle; and (3) also if the disease is in the form of a generalised miliary tuberculosis with fever. In France the law of 1888 prohibits the sale of the flesh of tuberculous animals—(1) if the lesions are generalised—i.e., not confined exclusively in the visceral organs and their lymphatic glands; and (2) if the lesions, although localised, have invaded the major portion of a viscus or show themselves by occurring on the walls of the thoracic or abdominal cavities.

The second Royal Commission recommended that the entire carcass and all the organs should be seized if (1) there is miliary tuberculosis of both lungs; (2) when tuberculous lesions are present in the pleura and peritoneum; (3) when tuberculous lesions are present in the muscular system or in the lymphatic glands, embedded in or between the muscles; and (4) when tuberculous lesions exist in any part of an emaciated carcass, and that the carcass, if otherwise healthy, shall not be condemned, but every part of it containing tuberculous lesions shall be seized (*a*) when the lesions are confined to the lungs and the thoracic lymphatic glands, (*b*) when the lesions are confined to the liver, (*o*) when the lesions are confined to the pharyngeal lymphatic glands, and (*d*) when the lesions are confined to any combination of the foregoing but are collectively small in extent In the case of the flesh of the pig it is recommended that, in view of the greater tendency to generalisation of tuberculosis in that animal, the presence of tuberculous deposit in any degree shall involve seizure of the whole carcass and of the organs.

If we may assume that it is necessary in the interest of the public health to enforce the requirements of these laws and recommendations—and I see no reason for any other view—we are obliged to consider the course which should be adopted for that purpose. The law in England as to meat inspection differs at the present time materially from that of other countries. In England the responsibility of determining whether the flesh of animals is fit or unfit for human food is cast upon the butcher. He is presumed to have sufficient knowledge for that purpose, and the duty which is cast upon the sanitary authority is to see that he exercises his judgment properly. If he is found offering for sale meat which is unfit for food he cannot claim ignorance as his excuse; his meat is seized and he is subjected to penalty. The alternative method, which is that adopted in other countries where there is systematic meat inspection, casts the duty of determining whether the meat is fit for human food on the local authority. The butcher brings to them the live animal which he is going to slaughter or the flesh of the slaughtered animal, and they determine whether or not it shall be sold for food While in England, therefore, meat is only occasionally inspected before sale in the countries referred to it is always inspected before sale. Which of these two methods is fairer to the public and to the butcher? Obviously it is impracticable to require all butchers to possess the knowledge which is implied in the regulations as to the meat of tuberculous animals which I have stated above, and, further, it is practically impossible to ensure that each of them will observe these regulations unless complete machinery is provided for this purpose. What then, have other countries done in this matter?

For what follows I am largely indebted to Professor Ostertag's excellent work on meat inspection. In Belgium the law of 1890 requires that all animals, including pigs, whose flesh, intestines, fat or blood is intended for human food, must be examined, after slaughtering, by an expert who is either appointed by the town or, if this does not occur, by the Government for the commune in which the slaughtering takes place, and the communes may require inspection of the animal before slaughter. The conditions under which this is to take place are prescribed by the commune which also bears the cost. The inspection is generally made by veterinary surgeons Inspection of the carcass and viscera must take place at the latest within 12 hours of the slaughtering in summer and 24 hours in winter, and the carcass must not be cut up before inspection. The abdominal viscera must be taken out before the arrival of the expert and so preserved that their connexion with the particular carcass can be recognised; in the case of solipeds, the thoracic viscera, the bronchial tubes, and the larynx must remain in their natural position. If after the examination the meat, viscera, &c., are found to be healthy the expert must stamp them with an approved stamp, in large animals on at least every quarter and in small animals on at least every half. If on examination the whole or part of the animal is considered to be unfit for food notice has to be given to the burgomaster who gives orders as to what shall be done with the carcass. If the owner of the animal is dissatisfied an appeal is provided. It is unlawful to sell meat which has been slaughtered contrarily to these regulations, and in the case of meat brought in from outside it is required that it shall only be the whole, or the half, or the quarter of the carcass, and the lungs must remain in their natural position; all must be examined and stamped. In Southern Germany, in part of Western and part of Central Germany, and in the free cities of Bremen, Lubeck, and Hamburg there is regulated meat inspection. Animals intended for human food must be examined before and after slaughter, in some places exemption being made for very young animals. In Northern Germany the conditions are not the same, obligatory meat inspection being required in some parts, including Berlin, and not in others, examination for trichinosis alone being practically general. In Brunswick and Saxony, since 1898, however, meat inspection is obligatory throughout, the law being very similar to that of Belgium.

In Sweden and Norway there have been laws requiring the provision of communal slaughter-houses since 1892 and since 1895 requiring meat inspection in the towns. Public slaughter-houses have, however, not been provided. In Norway there is at the present time, Dr. Bentzen informs me, only one public slaughter-house—viz., at Christiansund—and in Sweden, I learn from Dr. Linroth, there is no public slaug[illegible] Gott[illegible] Oste[illegible] houses and meat inspection in seven towns. In Austro-Hungary he says that the law requires the inspection of slaughtered animals, but the method of administration had prevented uniformity of action. In Italy he writes that a good scheme for meat inspection became law in 1890, but the regulation of meat being left to the provincial authorities has made a thorough reform impossible. The law requires the inspection of all animals intended for the food of man, the erection of public slaughter-houses in towns of more than 6000 inhabitants, and the stamping of meat, including the inspection of imported meat.

It is thus seen that already there is obligatory inspection of meat in some countries and that other countries are adopting the same course I am not exaggerating the position if I say that the trend of opinion and of law in civilised Europe is to require that meat intended for human food shall be inspected by competent persons before it is sold for this purpose. All countries are not equally advanced in this matter, delay being often caused by the want of provision of the one condition which is essential to the carrying out of this intention—the provision of public slaughter-houses. I need not point out the absolute necessity of this provision, if effect is to be given to the recommendations of the Royal Commission on Tuberculosis, or the requirements of laws which have been adopted in other countries. So long as animals may be slaughtered in numerous private premises in our cities inspection cannot be carried out. The inspector must be present at the time of slaughter so as to ensure that regulations as to what is to be deemed fit for food and what is to be deemed unfit for food shall be complied with and to prevent the dishonest butcher from practising those arts which give to meat a fictitious appearance and which are well known to those who have experience of meat inspection. This is becoming generally recognised, and in Prussia, Professor Ostertag tells us, public slaughter-houses have in the last 20 years "literally grown out of the earth," so much so that in 1897 there were 321 public slaughter-houses in that kingdom and 40 were provided in the period 1895–97. This provision is, of course, required for other reasons than those which relate only to the prevention of tuberculous disease in man; but we may here claim that it is absolutely necessary on the score of the disease which this Congress is especially considering. It is the want of public slaughter-houses which stands in the way of effect being given in some of the continental countries to their law of obligatory meat inspection; it is the opposition to public slaughter-houses on the part of the butchers which is the chief obstacle to the institution of a system of meat inspection in this country.

I may therefore briefly refer to the objections which have been urged by the butchers' trade to the replacement of private by public slaughter-houses. One of these objections is that the price of meat would be increased. The effect in Germany of the system of slaughter in public slaughter-houses and of meat inspection has been carefully considered by Osthoff who came to the conclusion in 1894 that the cost of the administration represented a sum less than about one-half of a farthing in the pound of meat. This is obviously a price of no practical importance when considered as a set-off against the advantage of the exclusion from sale for human food of meat which is unfit for the purpose. Dr. Schwartz, director of the town slaughter-house and cattle-market at Stolp, however, writing later, says: "The fear whether such establishments [public slaughter-houses] would pay or possibly cause an increase in the price of meat has been found to be quite groundless and has long been disproved. That this latter cannot be the case is conclusively proved by the experience of many years which individual communes possess; on the contrary, one may rather maintain that the prices have gone down, since the quality of the meat has improved, but the price has remained the same, apart from the general rise in the prices of food." It has also been urged that the meat killed in public slaughter-houses would be less well cared for than the meat killed in private slaughter-houses. Such argument would not be used by those alike familiar with the procedure in public slaughter-houses on the continent and of private slaughter-houses in this country. Compare for a moment the difference between the opportunity given for slaughter in a well-appointed slaughter-house fitted with every convenience and with cold chambers, to which the carcasses are removed, with the opportunity which exists in t[illegible] in the rear of private houses [illegible] urged that the offal which [illegible] be lost if the animal be slaughtered in a public slaughter-house. This, again, the experience of the public slaughter-houses of the continent shows, has no foundation. It has been urged that the butcher who has a private slaughter-house is able to employ his men at one time in slaughtering and at another time in his shop or calling for orders. There is no reason why, if the butcher prefers it, they should not be equally employed in the public slaughter-house as in the private slaughter-house It has been urged that if there were no private slaughter-houses there would be risk of a "ring" being formed to the detriment of the public. Obviously the best safeguard to the formation of a ring is to give to everyone selling meat the opportunity to slaughter his own animals. At the present time in London only a small proportion of meat vendors have this opportunity, and the rest depend, in the main, upon the middleman. They have no opportunity of slaughtering.

It has been said that the effect of the replacement of private by public slaughter-houses would tend to the exclusion from the meat market of English-grown cattle. Obviously so far as London is concerned the result would be the opposite, for every meat vendor would be able to purchase his own meat alive, instead of depending upon middlemen who may prefer to supply him with the meat of foreign animals I am satisfied that the use of the public slaughter-house is directly in the interest of the butcher who would save in expense and who would be able especially to save by using the meat-cooling chambers associated with it. I recently made some inquiry as to the cost incurred in London by London butchers in providing ice for their ice-safes in hot weather The amount is enormous and for this the public have eventually to pay in the price of the meat they purchase

It has been asserted that public slaughter-houses will be a charge upon the public purse This, again, is not in accord with continental experience At the time when the second Royal Commission on Tuberculosis was sitting several of its members, including its chairman, visited a number of public slaughter-houses on the continent and reported that "all the public slaughter-houses in Germany are self-supporting." A commission in Saxony, appointed in 1893, investigated the subject of the finances of public slaughter-houses. They reported that—

> As soon as the project [the establishment of a public slaughter-house] is mentioned—the butchers (the traders most interested therein) almost always oppose it, fearing various inconveniences to which their trade may be subjected in connexion with a public slaughter-house and its compulsory use, not the least of which is the stricter control of their business which comes with a [illegible] this, they raise the question of cost [illegible] an increase in the price of meat—a [illegible] public and with the representatives [illegible] opinion is not influenced by this opposition and by these fears of the butchers, and if the leading citizens are of opinion that a slaughter-house is necessary, the butchers almost always abandon their opposition [illegible] the citizen on his weakest side, the not inconsiderable cost of building, arrangement, and administration of a public slaughter-house is unduly brought forward by the butchers, and the prospect is held out of a heavy charge on the finances of the town, increased taxation, &c. It is important to emphasise that the establishment of a public slaughter-house is in no way prejudicial to the finances of a town or increases the taxes of the citizens, but that the funds devoted to the building and management are a very good investment. This the butchers' guilds and other persons who offer to [illegible] ow very well, and with this reason strive with [illegible], favourable financial project shall not escap[illegible] inancial matter the local authority has a predominant interest.

The Commission states that the receipts, without burdening the trader with heavy fees, provide, after payment of expenses, an interest of from 5 to 6 per cent. as well as a contribution to a sinking fund which will extinguish the debt in from 35 to 40 years.

I have dwelt upon this financial question at some length because only a few years ago London went through the first phase which the Saxon Commission describes. In England, therefore, we must, if we are to prevent the sale of tuberculous meat to the public, provide for and insist upon the slaughter of all animals intended for food in public slaughter-houses and we must provide competent meat inspectors for that purpose. The question has to be considered to whom shall this duty of meat inspection be entrusted. It is perfectly clear that the work must devolve upon those who have as a basis of the knowledge of meat inspection a knowledge of pathology, and this at once narrows the question down to the selection of members of one of the two professions having such knowledge—the medical and the veterinary. I do not think that in this country we shall ever relieve the medical officer of health of the duty of determining what is to be deemed fit for the food of man, nor is it desirable that this should be done; but in the actual carrying out of the work I believe we should do well to enlist much more than we have done in the past the services of members of the veterinary profession, and that we shall find that as they qualify themselves for this special duty they will be able to serve the purpose which we have in view.

In conclusion, then, I may say that the time has fully come when we should follow the excellent example which has been set us by other countries, that we should require all the animals which are killed in urban districts for human food to be slaughtered in public slaughter-houses, where there can be inspection before, at the time of, and after slaughter of the animal, that the meat shall be stamped, and that the public should be taught to look for this stamping as the test of wholesomeness rather than have to rely upon the pathological knowledge of the butcher and the housewife. Further, that all meat which has been killed outside a district, other than that which may have been killed in some public slaughter-house and which bears the evidence of inspection, shall be taken to meat-inspection stations for examination. Greater difficulty no doubt attends the inspection of meat in village communities, but even in such sparse populations the veterinary surgeon is to be found, and it is quite possible to organise a system by which his services are available when animals are killed for food. We are not now concerned with any question of other disease than tuberculosis, but I may refer to the enormous gain which it would be to the community to exclude from the human food-supply the meat of diseased animals which now can, practically without let or hindrance, find its way to the consumer. It would prevent, what has been within my own knowledge, meat from knackers' premises, being sent regularly to London from the provinces, and it would ensure to the poor people among us that in purchasing meat they were receiving the value of their money. It would, however, do much more than I have stated, and especially in respect of tuberculosis; for in closing the door to the ready disposal of the meat of tuberculous animals it would compel the stock-owner to take steps to prevent the infection of his herd and would lead to the earlier exclusion from the milk-supply of animals manifesting symptoms of tuberculosis, for the interest of the cow-owner would be to slaughter them before disease became advanced.

I beg to move:—

> That, in the opinion of this section, the meat of all animals intend for human food should be inspected before being sold for that purpo and that in all urban districts, and in all rural districts as far possible, such animals should be slaughtered in public slaughter house so as to ensure efficient inspection.

THE VETERINARY WORK DONE UNDE THE MILK CLAUSES IN MANCHESTER AND THE DIFFICULTIES MET WITH.[1]

BY J. S. LLOYD, M.R.C.V.S.,

LATE VETERINARY SURGEON TO THE SANITARY COMMITTEE, CITY OF MANCHESTER.

BETWEEN the dates Jan. 11th, 1900, and April 30th, 1901, the number of farms from which samples of mixed milk have been taken at the Manchester railway stations or *en route* to the city has been 401. Of these 259 are situate in Cheshire, and from 42 of these (or 16·21 per cent.) tuberculous milk has been sent to Manchester; 41 are situate in Staffordshire, from one of which (or 2·44 per cent.) tuberculous milk has been sent to Manchester; 93 are situate in Derbyshire, from four of which (or 4·3 per cent.) tuberculous milk has been sent to Manchester; whilst three are situate in Salop and five in Lancashire, all of which were free from tuberculous infection. From figures supplied by the farmers themselves to the public health office, the estimated number of cows kept at these 401 farms is 8408 or an average of nearly 21 cows per farm

The total number of farms from which tuberculous samples have been sent is 47 (or 11·72 per cent). At 31 of these 47 farms 35 cows with tuberculous udders have been found. At 15 of these farms no cows having diseased udders could be found, and subsequent control samples of the mixed milk from these farms have all been reported free from infection after being tested by Professor S. Delépine. In one instance the result of inoculation is undeclared. At most of these farms the owners have admitted selling cows from the farms between the date of the taking of the mixed sample at the station and the date of the visit of the veterinary surgeon, but only in two or three instances have the owners admitted that the cows sold were diseased, and in only one case has a farmer admitted that the cow had a diseased udder. In three of these instances the farmers stated that they also sent the milk from a neighbour's cows together with the milk from their own cows, and in two cases these were followed up, but with negative results. At the remaining one of the 47 farms samples of the milk from suspicious cows are still in process of examination.

To give the percentage of cows having tuberculous udders among the cows represented on the 401 farms from which the mixed milk sent into Manchester was tested it will be necessary to strike out the 15 farms at which no cows with tuberculous udders could be found and also the one farm from which the milk from suspicious cows is still under investigation. The average number of cows will then be represented by $\frac{31}{47}$ of $8408 = 5545$, which, taking 35 cows at the 31 farms, gives a percentage of 0·63.

The total number of cows clinically examined as the result of following tuberculous samples of mixed milk is 1308, but the number of cows examined irrespectively of previous samples of mixed milk is 4031. Of these 2182 were examined in the Manchester cowsheds, and among them eight cows were found to have tuberculous udders. This gives a percentage of 0·36. The remaining 1849 cows were examined in cowsheds outside Manchester, and among them nine were found to have tuberculous udders, equal to a percentage of 0·48 If we add up the number of cows thus, 5545 + 2182 + 1849, we have a grand total of 9576 cows the milk from which was tested for tuberculosis or among which cows with tuberculous udders were found by clinical examination; and by adding up the figures 35 + 8 + 9 we have a total of 52 such cows having tuberculous udders, which is equal to an average per- [illegible] for 1900 the number [illegible] alf in England was [illegible] f these to have tuberculous udders we have a total for England of 10,257. Or if we take the figures for Great Britain on the same basis—viz., 2,620,901 at 0·54 per cent.—we have a total of 14,152 cows with tuberculous udders. For administrative purposes the statistics will show a much lower proportion of tuberculous cows—viz., 35 out of 8408, or 9·4 per cent.

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[1] A paper communicated to the British Congress on Tuberculo Section I., State and Municipal.

Regarding the disposal of the 52 cows mentioned, the particulars ascertained are as follows. Of the eight city cows having tuberculous udders, two are isolated and are still in the possession of their owners, who have promised to slaughter them ultimately in the presence of the veterinary surgeon. The remaining six have been slaughtered at the Water-street abattoirs; three of the carcasses were passed as fit for human food and three were condemned as quite unfit and were destroyed. Of the nine cows found outside the city, irrespectively of previously tuberculous mixed samples, [illegible] of the carcasses being passed [illegible] ther four, being totally unfit, [illegible] remaining four of these nine cows were disposed of by the owners and could not be traced. Of the 35 cows with tuberculous udders found by following up tuberculous samples of mixed milk, 15 have been slaughtered; three have been passed as fit for human food, two as partially fit, the unfit parts being destroyed; 10 have been condemned as unfit, four of which went to the knacker's yard, five were buried, and a portion of the other was subsequently discovered to have been sent into Manchester for human food. Of the remaining 20 out of the 35 seven are stated to have been fed and sold for slaughter, seven have been disposed of but have not been traced, and six are still in the possession of their owners. Four of these owners have promised ultimately to have their cows slaughtered in the presence of the veterinary surgeon. Thus out of these 52 cows with tuberculous udders only 26 have been definitely proved to have been slaughtered; the remainder, due to the absence of any compulsory power to deal with them, are either still in the possession of the farmers or have been sold by the latter, some it may be for slaughter, others probably to milk elsewhere. At any rate, nothing definite or trustworthy can be ascertained as to their ultimate disposal. It will thus be seen that against the successful working of the milk clauses certain difficulties have been found to arise, and I will now proceed to deal with each one shortly:—

I.—The first difficulty is where, on following up a tuberculous station (mixed) sample of milk to the farm, no cow is found exhibiting signs suspicious of tuberculosis.

1. In several instances where this has been the case the farmer has admitted selling cows from his farm between the date of inspection and the date of taking the sample. But, although in a few cases he has admitted that he had sold a diseased cow or a cow which he states has not been doing well, he has only in one instance admitted selling a cow which he knew to have a diseased udder.

2. Another possible difficulty which has been met with is where the farmer also sells milk from his neighbour's cows mixed with the milk from his own cows. In a few cases this has *come under my notice. In one case I failed to follow* this up, but in the remainder of the cases when followed up, I failed in each instance to discover a cow with a tuberculous udder. Still it is quite possible that contamination could be produced in that way.

3. Another reason for tuberculous infection in milk, and one which has been brought to the notice of the Council of the Royal Agricultural Society of England, is external and accidental contamination. It is possible, perhaps, that a consumptive herdsman or railway porter might infect the milk, but I think that it is not probable, and the committee appointed to consider the question by the Royal Agricultural Society of England did not attach any weight to this point. Another external source of contamination has been considered by Dr. J. Niven, and that is contamination by dirt in the cowshed. When we consider the dirty condition of some cowsheds and some cows, together with the fact that one of the cows may be suffering from tuberculous *muco-enteritis, it is quite conceivable that* the dirt on the cow's udder may convey to the milk the bacilli given off in the discharge from the bowels of the diseased cow or, it may be, from the matter coughed up by a cow suffering from pulmonary tuberculosis. Still, in these latter cases the presence of the diseased cow in the herd should not escape the notice of an observant veterinary surgeon. In all cases (19) where I have been unable to find the cow with the diseased udder at my first visit to the farm a control sample of the mixed milk from the cows on the farm has been taken for a second bacteriological examination by Professor Delépine In 15 of these cases the milk was reported as being incapable of producing tuberculosis, whilst in four instances the milk was still *found to be infected*, thus proving that the source of infection was still present. In these cases I again visited the farm, and in three cases, after a very lengthy examination both previously to and after having the whole herd milked, I have discovered a cow showing slight signs of disease about the udder, but in no one were the symptoms at all typical of tuberculosis. In each instance, however, a sample of milk from these cows was found when examined by Professor Delépine to contain tuberculous infection and to be capable of producing disease in test animals. The milk from suspicious cows on the other farm is still under investigation. That brings me to the next point—another reason why the cow with a diseased udder may not be found on the first visit of the veterinary surgeon to the farm.

4. There is sometimes a difficulty in diagnosis. Several authorities, including, I think, Professor Bang, have stated that a tuberculous cow can give tuberculous milk without having tuberculous disease of the udder. That is not my opinion. I can quite conceive that a cow with an udder apparently free from tuberculous disease can give tuberculous milk, but my experience with several such cows is that, if the cows are kept under observation for a short time (from one to three months) it will be found that the symptoms of the disease in the udder of the implicated cow will begin to be manifest. That has been my experience in other cases besides the above three In one case I took a sample of milk from a cow suffering from chronic pulmonary tuberculosis, the udder at the same time appearing healthy. That sample was examined by Professor Delépine, and he reported that it had caused tuberculosis in test animals. The cow was again examined by me in five weeks after the first examination, when I detected a slight atrophy of one hind quarter together with very slight induration of the same quarter. After consultation with Dr Niven and Professor Delépine I again examined the cow in a fortnight, when the induration was a little more pronounced I then took a separate sample of the milk from each teat, and these samples were examined by Professor Delépine He reported that the milk from the suspicious quarter only had caused *tuberculosis in test* animals I have also examined the udder of this cow on a subsequent occasion, when I found that the diseased quarter of the udder had become equal in size to the opposite healthy quarter In another case I have obtained tuberculous milk from a "wasting" cow but in this instance after the cow was milked a very slight hypertrophy of one half of the udder could be found but only by very careful manipulation and visual examination In several other cases I was only able to find the suspicious udder after the animal had been almost completely milked

The conditions and symptoms met with in cows suffering from tuberculosis of the udder differ very considerably, both *ante-mortem* and post-mortem In addition to the obscure cases just mentioned the symptoms presented in fairly well-marked cases differ very widely during life. For instance, I have met with a tuberculous udder in a two-year-old heifer, and several in four-year-olds, although the majority were in aged cows. Again, the bodily condition of the cow is no criterion, as I have discovered tuberculous udders in fat cows as well as in cows in fair condition and in "wasters." The condition of, or symptoms presented by, the diseased udder itself I have also found to vary considerably. As a rule, the disease is most frequently manifest in one or both of the hind-quarters of the udder, occasionally I have found it in the fore-quarters, and in several instances both quarters of the same side have been affected. In one case I found the disease very well marked *in the right hind-quarter and the* left fore-quarter, whilst the other two quarters were apparently free from the disease. Again, the diseased portion of the udder is generally hypertrophied, but in several instances I have found well-marked, really typical cases where a diseased quarter has been atrophied and where the secretory powers of the organ were to a greater or less extent destroyed, the milk being in most of these instances small in quantity and changed in appearance, the latter varying from thin normal-coloured milk to a mud-coloured liquid, and in a couple of instances to an amber-coloured serum. In all of those atrophied quarters the gland structure had been replaced by a hard tuberculous deposit, and they were also associated with the disease in at least one other quarter of the udder. In the amber-coloured serum mentioned above Professor Delépine found tubercle bacilli by microscopic examination.

In all cases of tuberculosis of the udder that I have met with I have been able to find some amount of hardening or induration. The amount has been very variable, as has been also the position or portion of the quarter affected. As a rule, the supra-posterior portion of the hind-quarter has been the seat of this induration, in most cases it has been fairly superficial, whilst in a few it has been more deeply seated, and in two or three instances I have found a small indurated mass only near the base of one of the hind teats, and placed either inward or forward to the ampulla of the teat. In the three instances where I was unable to find the cow with a diseased udder at my first visit to the farm I did not notice this induration, except at the second visit, and from this fact I conclude that this induration is subsequent by some weeks to the invasion of the udder by the tubercle bacilli, but that the milk from such an udder is infective before any sign can be detected, so as to contaminate the milk from an entire herd. In prosecutions under the milk clauses for failure to notify tuberculous udders, the question is usually asked by the defence as to the probability of the defendant knowing that his cow exhibited symptoms suspicious of tuberculosis of the udder. It is possible from the character of the induration to say if it has been of some standing. In more recent cases of tuberculous invasion of the udder, however, the nodular character of the induration is not so marked; it may appear of a granular character to a practised hand, often it is very diffuse, and if accompanied in that stage by little or no hypertrophy it is then easily confounded with what is termed a "fleshy udder." In these latter cases a milk-seller could hardly be expected to suspect tuberculosis and particularly, as is often the case, when the cow seems otherwise a healthy beast. But in these cases also he will often detect some change, and in order to protect himself he should seek the advice of his veterinary surgeon or notify the case to the proper authority and so keep himself within the law. Although the disease is usually chronic and unaccompanied by any acute symptoms I have in several instances met with cases where the disease has suddenly become acute, and from an old-standing disease in one quarter suddenly attacked the whole organ. In one case where a cow with a tuberculous udder has been isolated since January last I noticed on a recent visit (May 7th) that although the cow had calved in the meantime I could detect practically no alteration in the diseased quarter of the udder from what I had noticed when the cow was examined in December. There is still one other form in which I have found two cows suffering from tuberculosis of the udder, and that is where the udders were the seat of catarrhal mastitis of a tuberculous nature, and in the pus from which Professor Delépine found tubercle bacilli by microscopic examination. It should be added that other samples of a like nature were examined with a negative result. Before passing on to note shortly several conditions of the udder which may be confounded with tuberculosis I may point out that in all cases where I have found cows with tuberculous udders the diseased animals had all been in the possession of their respective owners for some considerable time, many of the country cows having been reared by the owners.

A very common condition met with in milking cows, particularly what may be called tied-up or stall-fed cows, is atrophy of one half of the udder, caused by continually lying upon one side only. The pressure of the cow's body forces the milk from the side of the udder next the ground, and the gland gradually becomes, to a variable extent, atrophied. This often gives the opposite half of the udder an enlarged appearance. A true hypertrophy of one part of the udder also follows a case of mammitis, where one or more quarters lose their functional activity, constituting lost quarters, and the other healthy quarters take on compensatory action and become hypertrophied. When these lost quarters waste completely away they are of no moment, except to depreciate the market value of the cow; but when the lost quarter is replaced by an indurated mass, as I have pointed out before, there is a possibility that they are tuberculous in that case; but then, in my experience, they have been accompanied by tuberculosis in one or more of the other quarters of the udder. Abnormal, but not pathological, hypertrophy of one or more quarters is also sometimes met with in milking cows, and especially is this so when supernumerary teats are present. But in all such cases, if the hypertrophy is of a non-tuberculous origin there has been an absence of chronic induration (with the exception of one which I will shortly describe) and the milk from the hypertrophied quarters of the udder has been non-infective when tested by inoculation into test animals. In all doubtful cases I have no hesitation in stating that I believe the inoculation test as carried out in Manchester to be absolutely infallible, and that it is as delicate as it is true, as proved in several cases to my knowledge where it has demonstrated tuberculous infection in both mixed milk and milk from special cows several weeks before the symptoms of the disease in the infected cow's udders became manifest.

The one condition of chronic induration which I have just mentioned is that caused by chronic interstitial mammitis. This affection of the udder is often a result of acute mammitis, but, according to the late Professor Walley, it may be interstitial in its character throughout. Owing to the amount of interstitial tissue formed the affected udder becomes indurated and often markedly hypertrophied. At the same time the secretory power of the glandular tissue is destroyed, and the milk secreted gradually becomes less and finally stops. Such a case I have had under observation for some time and a short account of it will, I think, be interesting. The subject is a Galloway cow about six years old, which was first seen by me in October, 1900. The animal had then been bought about a fortnight as a fresh calver. The right hind-quarter was a little hypertrophied and considerably indurated. I considered the case to be very suspicious and took a sample of the cow's milk. This was examined by Professor Delépine, and he reported that it had failed to cause tuberculosis in test animals. I again examined the cow at the end of November, when the condition of the udder was not materially changed and took another sample of her milk, which also was reported negative by Professor Delépine. Early in January, 1901, I again examined this cow's udder when I noticed that the induration seemed to be of a corded character, something like the feeling under the skin of an animal's trachea. With the owner's consent I tested the cow with tuberculin, when the animal passed the test. Samples of her milk were taken just previously to testing and again 12 hours later, also with a negative result. Just previously to testing the owner informed me that the cow was not giving so much milk from the indurated quarter as from the others—at first no diminution was noticed The quarter gradually became harder and more corded in character, at the same time that the quantity of milk secreted became less, and the quarter ultimately became dry.

II.—The second difficulty met with in working the milk clauses is failure on the part of the farmers and cow-keepers to notify to the medical officer of health the presence in their dairy of a cow "affected with, or suspected of, or exhibiting signs of tuberculosis of the udder," as required by sub-section 4.

III.—The third difficulty which has arisen in connexion with the working of the milk clauses in Manchester is due to the absence from them of any specific powers for dealing with cows suffering from tuberculosis of the udder after they have been found, and the tuberculous nature of the disease in their udders has been definitely proved. The procedure adopted by the medical officer of health in Manchester has been to advise immediate slaughter of cows which have been definitely proved to have tuberculous udders. In the case of exactly half of the 52 cows found to have diseased udders (26) this has been carried out. Six of the eight cows found in the city have been slaughtered at the Water-street abattoirs. The carcasses of these have been inspected by Mr. Holburn, the chief meat inspector, by whom three were passed as fit for human food and three were condemned as being unfit. The remaining 20 cows were slaughtered at different places in the country either in my presence or in that of Mr. Holburn. When the carcasses were inspected six were passed as fit for human food and 14 were condemned as being unfit. It may be noted that in several of these cases the animals were so far advanced with disease that the owners recognised the futility of trying to fatten them for the butcher, otherwise they would doubtless have been less easily advised to accede to immediate slaughter.

The *post-mortem conditions* that have been met with in the carcasses of those cov [illegible] been almost as varia [illegible] exhibited during life. [illegible] have been fit for humai [illegible] most of the latter car [illegible] have been very extensive, involving in addition to the udder and the mammary lymphatic glands most of the viscera and lymphatic glands, and in many cases tuberculous lesions, varying in age and extent, have been found on the serous membranes. In a few cases large patches of tuberculous ulceration have been found on the mucous membrane of the intestines. In other carcasses which were unfit for food the disease was not so extensive, but in these cases the carcasses were thin and wasted, so much so that the owners did not have the carcasses prepared for sale, but before slaughter decided either to bury them or to send them to the knacker's yard.

In two or three of the carcasses which were fit for human food, not only were they well-nourished but, excepting the udder and its lymphatic glands, very little tuberculous lesion was present, the carcasses being sold for from eight to 12 pounds. In all these cases, however, caseous deposits could be found in the mesenteric glands, although in one or two instances it required a careful examination of several of the glands in order to demonstrate the presence of the disease to the naked eye. In all cases of *tuberculous udder* the mammary lymphatic glands are found hypertrophied, but in many of the cases no tuberculous deposits are visible by microscopical examination, and it is only in animals that are thin, and where these glands are much enlarged, that the *condition can be detected during life.*

Regarding the disposal of the remaining 26 cows matters have not been at all satisfactory. Seven of the owners elected to isolate their cows with tuberculous udders, to stop selling their milk, gradually to dry off and to fatten them for slaughter. When the animals are not far advanced with disease this can, no doubt, be done to advantage; but in the interests of the public health these cows should not be sold except for slaughter and under adequate veterinary inspection. Where the carcass fulfils the conditions suggested by the Royal Commission on Tuberculosis and recommended by the Local Government Board there is no reason why such a carcass should be condemned, although it must be borne in mind that a cow with a tuberculous udder is in the majority of cases rather far advanced with disease, *and the longer she is kept for feeding purposes the more* advanced the disease will become, and the less likely that the carcass will be fit for human food. In all of these seven instances the owners were asked by the medical officer of health to inform him when they disposed of their diseased cows for slaughter, so that the killing of the animals could be verified and the carcasses inspected, but in no instance was this information given, although several gave a promise to do so. In 11 instances the diseased cows were removed from the farms by their respective owners and could not be traced Several of these cows were removed soon after my visit to the farms and after the diseased or suspicious condition of the cows' udders had been pointed out. In other cases the cows were removed as soon as the owners received the letter from the medical officer of health advising that the diseased cows should be slaughtered. In several of these cases no information regarding the disposal of the cow could be obtained; in others the owners wrote stating that the cows were sold for slaughter. In not one of such instances could the actual slaughter of the cow be verified, and in some of them it was afterwards ascertained that the buyers had sold the cows again in open market. It will thus be seen that 18 of these cows with tuberculous udders have been lost sight of, and as some of them were in calf it is quite probable that they may be giving diseased milk somewhere, possibly to be consumed in Manchester. Eight of the 26 cows are still in the possession of their owners; two of these are city cows and six belong to farmers in the country. The owners of all these have given either written or verbal promises to notify the medical officer of health as to the time when they dispose of these cows, so that their slaughter can be witnessed and the carcasses inspected.

THE RELATION OF ALCOHOLISM TO TUBERCULOSIS.[1]

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ALCOHOLISM and tuberculosis stand foremost amongst the causes hampering human progress and limiting man's happiness. Through them the evolution of the race has been impeded, and, unfortunately, in spite of numerous restraining and restricting agencies, their baneful influence is still accountable for a high degree of mortality and an immense amount of sickness and suffering. The stay of such calamitous agencies has long afforded problems which have appealed to all sorts and conditions of men, and their solution even now is to a great extent shrouded in mystery and surrounded by difficulty. With two such morbid influences barring human advance it was but natural that eager minds studying the one should have been compelled to recognise the presence and action of the other. Hence the question as to the relationship of alcoholism to tuberculosis is one of old standing But since the answers have been hitherto by no means uniform it is particularly desirable that some approximation to the truth should be arrived at, and if possible generally accepted The position has been well expressed by Dr. J. F. Payne,[2] who says: "With regard to the influence of alcohol on the production of tubercle, the utmost divergence and, indeed, contradictory opposition of opinion prevails. Huss found tuberculous phthisis to be rare in drunkards, and that has been the general conclusion drawn from post-mortem observations. It has even been thought that drinking freely checks the progress of phthisis, but of this I can find little evidence. On the other hand, the more general impression is that alcoholism is a frequent cause of consumption." And Dr Payne goes on to say: "On this disputed point we must appeal to the methodised experience of those who have special opportunities of observation."

The subject, however, is one full of peculiar and unavoidable difficulties. And not the least arises from prejudices, which, however repugnant to scientific research, have only too frequently warped the minds of those who attempted an investigation of the matter. Efforts to elucidate the question by an appeal to what has been termed clinical statistics is necessarily permeated with fallacy. Purely experimental inquiry, however suggestive in the presence of modifying influences concerning which we have but little knowledge and but limited control, can afford but unreliable results. Mortality returns, although rendering material for interesting, and it may be useful, analysis, afford data too gross for anything but rough generalisations. A study by the pathological examination of a large number of cases would seem to afford the most hopeful method of research, and when combined with a discriminating clinical investigation is likely to accomplish as near an approach to the truth as we are likely to obtain under present *circumstances. But before indicating* the manner and results of such a method of inquiry it will be well to refer briefly to opinions and conclusions of certain authorities which, as the outcome of exceptional experience or special inquiry, may be deemed worthy of consideration; and it will be desirable that special reference be accorded to those expressions which are based on a knowledge of alcoholism and tuberculosis as they are met with more particularly in this country Three views are possible: (1) that alcoholism is antagonistic to tuberculosis; (2) that alcoholism bears no special relationship to tuberculosis; and (3) that alcoholism definitely predisposes to tuberculosis. Let us briefly consider them

1. *The view that alcoholism is antagonistic to tuberculosis* — Before the true nature of tuberculosis became apparent the opinion was somewhat widely held that habits of alcoholic excess were antagonistic to tuberculosis and even preventive. This impression still exists among a large section of the public and is apparently in part due to opinions expressed by many of the earlier writers on pulmonary tuberculosis. Indeed, in some medical quarters such a view is still held. This view

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[1] Précis of a paper communicated to the British Congress on Tuberculosis Section II., Medical, including Climatology and Sanatoria.

[2] Transactions of the Pathological Society of London, 1889, vol. xl. p 332.

was clearly expressed by Dr. R. Payne Cotton[3] many years since in his Fothergillian Essay: "It is worthy of remark that the habitual drunkard—he who is always in his cups—is not very often the subject of phthisis; such, at least, is the result of my own observations."

The idea that alcoholism was antagonistic to tuberculosis may, perhaps, in part account for the advocacy of its persistent and even excessive use in phthisis. Bennet,[4] writing some 30 years since, says: "Of late years in America alcohol, especially whisky, has been much lauded as a remedy in consumption"; but he adds: "I have seen a certain number of cases in which it had been long taken, but I cannot say with benefit. The daily ingestion of large quantities of nerve-stimulating, carbon-producing spirit certainly does not come under my ideas of hygienic treatment." Flint[5] used alcohol freely, that is from six ounces to a pint of spirit daily, and appears to have considered it beneficial, "but not in the sense of exerting a special influence upon the disease." Charteris, writing in 1877 concerning the administration of whisky to phthisical patients, says: "In private practice I order it to be taken *ad libitum.*" Dr. Hermann Weber[6] in 1885 was convinced of the great usefulness of alcohol in the treatment of phthisis. Dr. Thomas Harris[7] tried the effects of whisky containing 53 per cent. of alcohol during a period of nine months. 26 cases were so treated, the doses commencing with two drachms of pure whisky gradually increased up to one and a half ounces of whisky every four hours, day and night. Dr. A. Ransome, who saw many of the cases, expresses the opinion that "at certain times of the day the dose of alcohol was unnecessarily large—for some of the patients at times were distinctly flushed and slept heavily even in the daytime." Dr. Harris states: "No case left the hospital in a worse state than that in which he entered it. As regards the physical signs, very little difference could be detected between those at the date of admission and the date of the discharge of the individual." Manifestly in no instance did "cure" occur.

Reference has frequently been made to Stokes's account of a gentleman who recovered from pulmonary tuberculosis after regularly drinking "seven tumblers of punch every night," but it is sometimes forgotten that at the same time he was duck-shooting every day that he could go out, and according to his own account "had to stand up to my hips in the Shannon for four and five hours of a winter's day following the birds."[8]

It is interesting to note that Bell of New York as far back as 1859 opposed the current view, for he then stated: "The opinion so largely prevailing as to the effects of the uses of alcoholic liquors—viz., that they have a marked influence in preventing the deposition of tubercle—is destitute of any solid foundation. On the contrary, their use appears rather to predispose to tubercular deposition. When tubercle already exists alcohol has no obvious effect in modifying the usual course it takes. Neither does it mitigate in any considerable degree the morbid effects of tubercle upon the system in any stage of the disease."[9] The abolition of alcohol from many modern sanatoria seems to indicate that, as Dr. Ransome well expresses it, "owing to the terrible consequences of excess and to the proclivity of mankind to its excessive employment it [alcohol] can only be recommended in selected cases with many cautions."[10]

2. *The view that alcoholism bears no special relationship to tuberculosis.*—Many hold that alcoholism bears no special relationship to tuberculosis and only exerts an indirect influence in so far as it leads to lowering of general vitality and places the individual under conditions particularly favourable to the infection of tubercle. And certainly the circumstances attending the life of the chronic alcoholic are generally such as to specially expose him to the risks of tuberculosis. His habits lead in great measure to an indoor existence, the maintenance of an insanitary environment, insufficiency of suitable food, oftentimes to the influence of depressing emotions, and not infrequently his indulgence necessitates his following an occ [illegible] peculiarly inimical to h[illegible] neglect, uncleanliness, [illegible] cannot be overlooked, [illegible] any attempt to estimate the effect of alcohol *per se* in rendering the tissues peculiarly vulnerable to the tubercle bacillus [illegible]

3. *The view that a[illegible] tuberculosis.*—The view [illegible] to tuberculosis has of r[illegible] Indeed, the tendency of modern opinion is to recognise alcohol as an agent which renders the tissues specially [illegible] to tuberculous infection. This [illegible] recent expressions as the followi[illegible] a recent article on Tuberculosis [illegible] must be regarded as a powerful [illegible]culosis. ... It is almost invariabl[illegible] the lungs in patients dying in the course of alcoholic paralysis. ... Tubercle of the peritoneum or pleura frequently complicates cirrhosis of the liver.' ... Alcohol in excess undermines the strongest constitutions and renders the body less resistant to diseases of all kinds. This is especially true when the individual leads a sedentary town life. Considerable amounts of alcohol may be taken without obvious deterioration of health by persons who lead an out-of-door life and eat heartil[illegible]s appear to be specially liable to ac[illegible]

One of the most [illegible]onouncements is that of Professor Thomas Oliver, who says: "Nor is there any truth in the opinion held by the laity that the use of alcohol protects the individual against tuberculous disease. I do not refer to such a restrictive employment of alcohol as a glass of beer or stout or a little wine at dinner-time; that may be helpful to the individual. It is to the mistaken opinion that where there is a [illegible] to the disease it is necessary to be [illegible] In my experience of young men with a hereditary tendency to phthisis alcohol has, by the late hours which it encourages and the careless and irregular habits that it fosters, frequently precipitated the individual into active tuberculous disease, which abstinence and more careful living would have assuredly prevented. It indirectly favours the development of tuberculous disease." Pulmonary tuberculosis was found by Dickinson to be more frequent in drinkers than in ordinary people in the proportion of three to one. Dr. H. D. Rolleston, quoting Dr. H. Mackenzie, states that in 67 cases of pulmonary tuberculosis occurring in drinkers a family history of tubercle was only found in 10, whereas it is found in about 30 per cent. of the ordinary cases. The frequent association of pulmonary tuberculosis with alcoholic peripheral neuritis and its presence, too, in nearly one-third of the cases of cirrhosis of the liver are circumstances which show that under the debilitating influences of alcohol resistance is reduced, ordinary pulmonary catarrhs are not so quickly thrown off, and thus the bacillus of tubercle gains an easier entrance. Some have held that there is a tendency for phthisis in alcoholics to assume the fibroid form, but this is not in accordance with the best modern experience. Dr. G. V. Poore and Dr. W. H. Allchin in a recent article[13] speak of the association of tuberculous phthisis with alcoholic cirrhosis of the liver as "well established, the course of the disease being usually one of rapid caseation and excavation with broncho-pneumonia and rarely towards fibrosis." But the close association of tuberculosis and alcoholism has now been widely recognised not only by British physicians but also particularly by Americans and French observers.

Various suggestions have been made in explaining the liability of alcoholics to tuberculosis. There can be no doubt but that the non-hygienic surroundings and nutritional impairment and lowered vitality of the drunkard greatly predispose him to tuberculous invasion. But it is contended by some that even besides these factors there are special influences arising from the action of the alcohol and its associates. Professor Sims Woodhead has recently shown that alcohol has a marked influence in altering, or determining alteration of, the cells of animals subjected to the action of certain pathogenic organisms. Professor Abbott of Pennsylvania and also Dr. Deléarde working in the Institut Pasteur at Lille have recently shown that alcoholised animals are more readily infected by many organisms than non-alcoholised animals and other investigators have also shown that alcohol produces a marked negative chemiotaxis. It has also been found that animals brought into a state of chronic alcoholism are much less readily rendered experimentally immune to microbial infection. Attempts have also been made to show that alcohol through its influence on nervous structures renders the tissues and especially the lungs prone to invasion by tubercle.[14]

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[3] On Consumption, its Nature, Symptoms, and Treatment, 1858.

[4] On the Treatment of Pulmonary Consumption, second edition, 1871.

[5] Austin Flint: Phthisis, 1875.

[6] THE LANCET, April 4th, 1885, p. 604.

[7] Dr. Arthur Ransome: The Treatment of Phthisis, 1896, p. 95.

[8] Clinical Lectures on Fever, Medical Times and Gazette, 1854, vol. xxx., p. 487.

[9] Medical Times and Gazette, vol. i., 1859, p. 587.

[10] Dr. Arthur Ransome: The Treatment of Phthisis, 1896, p. 94.

[11] Text-book of Medicine, edited by G. A. Gibson, 1901, vol. i., pp. 352–371.

[12] Ibid., p. 603.

[13] Diseases Determined by Poisons: a Manual of Medicine, edited by W. H. Allchin, London, 1900, vol. ii., p. 52.

In order to compare some of our Manchester experience with the views and opinions above indicated I have endeavoured to analyse and to express the results of observation of hospital ca [illegible] nce to pathological data [illegible] sis for the formation [illegible] of alcoholism and tuberculosis.

1. *Alcoholic neuritis and phthisis.*—Some time since I analysed a number of fatal cases of peripheral neuritis occurring in chronic [illegible] to pathological exan [illegible] They formed 1·6 per [illegible] during that period. [illegible] seven. This gives a percentage of over 57. All the cases were females. In only one subject were there distinct tuberculous lesions elsewhere than in the lungs, and then [illegible] In one subject there was [illegible] the apex of the lung, but it [illegible] phthisis was rather due to *a fresh infection than from this latent patch.* In five cases both lungs were more or less involved. In two the left was the only one show [illegible] process. In three of the cases [illegible] n rapid. In four it seemed t [illegible] onths. One subject, it was st [illegible] months before her death. In one case one lung only was studded with small tubercles, the injection having been recent. In two there was more or less extensive caseation. Four presented evidences of softening and cavitation, and in two of these there was some fibrosis. Since collecting the above[15] I have gone over my more recent pathological notes. Two further [illegible] to necropsy [illegible] the subject [illegible] recent tubercles. There was no softening, but caseous foci at the apices were apparently of older formation than the tubercles elsewhere. In the other case, a female, aged 32 years, in whom there was also a fatty and cirrhotic liver, the lungs, [illegible] patches of [illegible] of tubercle. [illegible] nine female [illegible] subjects of [illegible]

In connexion with the recent remarkable outbreak of arsenical neuritis in Manchester and district, and occurring principally in alcoholics among the poorer classes, it is interesting to note that in a considerable number of the fatal cases active pulmonary tuberculosis was present and in some undoubtedly it had hastened the end.

2. *Tuberculosis is also of frequent occurrence in the subjects of alcoholic cirrhosis of the liver.*—In many cases it is manifestly of the nature of a terminal infection. In order to throw light on this matter the records of 3053 medical cases examined in the pathological department of the Manchester Royal Infirmary [illegible] 121 examples of commo [illegible] and complicated cases w [illegible] cardiac or such chronic affection as seemed to have led to secondary changes in the liver were excluded. All examples of "biliary" cirrhosis and those in any way connected with syphilis have been passed over. After omitting several doubtful cases, in 28 tuberculosis, either active, latent, or obsolete, was present. Thus, over 25 per cent. presented evidences of tuberculosis, active phthisis was present in 14 (12 males and two females), and active peritoneal tuberculosis in 12 (nine males and three females). Of these, six males and one female had involvement of both lungs and peritoneum. In five males and one female the lungs alone were affected, and in two males and two females the peritoneum alone. No less than 12, or nearly 10 per cent. of the 121 cases, appeared to die directly from tuberculosis. The average age of those in which active tuberculosis was limited to the peritoneum was nearly 47 years. The average age of those in which active tuberculosis was limited to the lungs was just over 44 years.[16]

LEGISLATION SUGGESTED FOR CONTROLLING AND ERADICATING TUBERCULOSIS IN ANIMALS.[1]

BY PROFESSOR DUNCAN McEACHRAN.

DELEGATE TO THE CONGRESS OF THE CANADIAN GOVERNMENT.

THE subject for discussion which I have the privilege of introducing must be carefully considered in all its various bearings, lest by proposing impracticable enactments we nullify our good intentions and give rise (as has already been the case in some countries and states) to bitter opposition by the owners of infected herds. Our efforts must be to educate the people so that they themselves will voluntarily adopt our suggestions, and, with the assistance of the State, to bring about a gradual diminution in the numbers of tuberculous animals in our herds, and the adoption by every stock-owner in the land of thorough preventive measures by which its re-introduction will be rendered impossible. The first step, therefore, which I would recommend is the publication and distribution among the masses—the agricultural population in particular—of information on the subject of tuberculosis. Much good work has already been done in this direction, but more must be done. If we look back for 35 years, when Villimin, Viseur, Chauveau, Gerlach, and others were engaged in demonstrating the contagious character and transmissibility of this disease, and compare our scanty knowledge then with the vast amount of information which, thanks to Koch, Bang, Nocard, and many others, we now possess, it will be easily understood why we who have been in the field of active work in the practical sense, as practitioners and advisers of our Governments, have in early days hesitated to advise active measures of control or eradication, and why the Governments have been slow to pass enactments bearing on the subject.

It was in 1882 that Koch first communicated the results of his investigations of the etiology of tuberculosis before the Physiological Society of Berlin, followed by further communic [illegible] transmissibility being [illegible] vestigation and experi [illegible] butions to the literature of tuberculosis have for many years filled our journals and bookshelves to such an extent that no excuse is left for ignorance concerning the subject on the part of those interested in it. In citing evidence in support of any suggestions one may make as to legislation necessary to enable the people, assisted by the Governments, to control and subsequently to eradicate tuberculosis from the lower animals, we necessarily must consider the measures tried by those countries, especially in Europe and America, which have dealt with it. It is to be hoped that in the course of the discussion some new practical suggestions will be adduced which this Congress can recommend for adoption. Until Koch demonstrated that tuberculosis was due to the invasion of an organism, the tubercle bacillus, communicated either directly from an infected person or animal or by intermediate sources of infection, especially by buildings, pathologists were content to attribute its existence and extension to heredity; when, however, its real nature and its pronounced contagious character came to be known, both medical and veterinary practitioners stood aghast in contemplation of the thousand-and-one blunders which crowded their memories consequent on want of this knowledge. I remember well when, 30 years ago, I had temerity enough to read a paper based on the continental investigations referred to, before the Medico-Chirurgical Society of Montreal, in which I ventured to say: "*The experiments of continental* investigators have clearly established the close relationship between tuberculosis in men and in animals and the possibility of the disease being in many ways transmitted from the one to the other; and I am well aware that this disease is far more prevalent in the dairy herds supplying milk to the citizens of Montreal than is generally known, therefore I feel it my duty to invoke the aid of this society in endeavouring to bring about certain sanitary improvements in connexion with our meat- and milk-supply by the establishment of abattoirs under proper inspection, supervision of dairies, and inspection of milk." Such was the limited information on these matters at that date that of about 40 members present only one was in sympathy with the statements made. He was at the time a young man but recently graduated who has since made his mark in the world of medical science—I refer to Professor William Osler of Johns Hopkins Hospital, Baltimore. He alone would admit even the probability of contagion, or intercommunicability from animals to mankind or from mankind to animals—a doctrine which was to sweep away the long-cherished belief in heredity as a sole cause.

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[14] See Pulmonary [illegible] al Diseases of the Lungs, by Thos. [illegible]

[15] Kelynack: On [illegible] Tuberculosis in the Subjects of [illegible] nicle, 1895-96, vol. iv., p. 180.

[16] See Kelynack "On the Occurrence of Tuberculosis in the subjects of Common Hepatic Cirrhosis," Medical Chronicle, 1896-97, vol. vi., p. 252.

[1] A paper communicated to the British Congress on Tuberculosis. Section IV., Veterinary Tuberculosis in Animals.

Pursuing this subject by close observation and numerous investigations of herds in Canada in which the disease existed instance after instance came to my knowledge of cases where the infecting animal was clearly traced to a diseased herd. Valuable herds were destroyed by tuberculosis and several owners were brought to the verge of ruin. At the period to which I refer shorthorn cattle (Bates and Booth families) had attained fabulous values, £5000 being a common price for a Duchess heifer, one cow being sold for nearly £9000 in the State of New York. Many of them were tuberculous. The frequent discovery by clinical examination of cattle imported from Britain passing through our quarantines, tuberculosis not being legally classified as a contagious disease at that time, obliged me to urge on the Government the necessity of amending the Animals Contagious Diseases Act so as to include tuberculosis in the list of contagious diseases. This was done in 1886, thus enabling us to put a stop to such dangerous animals being admitted to the country to the serious detriment of our home herds Members of my own profession, and of the medical profession, did not hesitate to say that this act was premature owing to the etiology of the disease being not then sufficiently understood. Were proofs wanting of its contagiousness, I could furnish sufficient to convince the most sceptical, but I should be wasting your time by their recital. I must, however, crave your indulgence for a few minutes while I make some general allusions to this characteristic of the disease.

The infection of healthy animals we know takes place readily from cohabitation, the bacilli gaining entrance by the respiratory organs in most cases · but by the digestive tract in many, especially in calves when suckled by diseased mothers, and calves, pigs, and other animals fed on milk or on dairy by-products containing living bacilli—in pigs when allowed to eat tuberculous matter found in carcasses and slaughter-house refuse given them as food; probably, too, in rare instances, from eating the flesh of tuberculous animals. It is to the buildings themselves, however, that we must look for the chief source of infection, and to neglect of disinfection and sanitation must we attribute in a great measure the continuance of the disease and re-infections with which we are familiar. I could cite repeated instances of herds cleared out and new purchases made, with every care in purchasing, being followed by new cases of tuberculosis; so that I feel that too much trouble cannot be taken by practitioners who are employed to eradicate this disease to make sure that the buildings are aseptic and that sufficient air-space is provided as well as a rational system of ventilation, whereby pure air is admitted and foul air driven out, also that properly trapped drains carry off the liquid excrements and prevent the return of noxious vapours. The importance of pure air and sunshine cannot be overstated in considering the prevention of tuberculosis. It is, however, a mistake to suppose that infection will not take place when diseased and healthy cattle are brought together, even when these conditions exist in the very highest degree. I have seen tuberculosis prevalent in ranche cattle, few of which were ever under a roof, ranging on the foothills of the Rocky Mountains in Montana. I have known a valuable herd of Polled Angus which were brought into the Peace River country in the far North-west of Canada which proved to be tuberculous and was ultimately exterminated in consequence. In these and other instances which might be referred to pure air and sunshine certainly prevailed, yet these did not prevent infection from taking place when the animals were congregated in corrals, bunched together during fly-time, or placed in infected sheds in winter.

Heredity.—To eliminate heredity entirely from the causative faculty would be an error; but we are safe in saying that it plays a very unimportant part in its extension. The rarity of the disease being found in calves at birth in all countries has been noticed by Professor Bang, Professor Siedamgrotzky, and others, and the immense success attending the rearing of calves from tuberculous cows by Professor Bang's system in Denmark and other countries, including Canada, proves conclusively that it is not hereditary in the same sense as gout or insanity are known to be transmitted from parent to progeny. When visiting Professor Bang at Copenhagen three years ago he showed me two newly-born calves sent in by an inspector; in the livers of both tubercles were found. Uterine tuberculosis when seen is generally associated with generalised miliary tuberculosis, especially when it is peritoneal. The rarity of tuberculosis in the male genital organs precludes the probability of infection by copulation, except in very rare instances; hence we infer that when the newly-born calf is found tuberculous infection has probably taken place within a diseased uterus. By far the most numerous infections have occurred after birth. Professor Bang says: "I had occasion to observe more than 400 cases of tuberculosis either in fœtuses or newly-born calves; nevertheless, the number of congenital tuberculosis has scarcely gone beyond 0·33 per cent. of the killed calves even in the most infected regions" While intra-uterine infection from a diseased mother is occasionally seen congenital tuberculosis plays a very unimportant part in the continuance and extension of the disease compared with the many ways in which the essential factor in its production—viz., the tubercle bacillus—gains an entrance to the animal body; in other words tuberculosis is a contagious disease, not a hereditary one as was supposed

The diagnosis of tuberculosis—The clinical diagnosis of tuberculosis, even by the most expert clinical examiner, except in advanced cases, is always unreliable, as tubercle may exist in such a stage as would be impossible of diagnosis by this means.

The tuberculin test.—The discovery by Koch, in 1890, of the production of fever, indicated by a rise in temperature in tuberculous animals into which he injected a sterilised glycerine extract of pure cultures of tubercle bacilli, while it produced no effect whatever when the animals were free from that disease, furnished us with a simple but very reliable diagnostic agent. The effects produced by this discovery on the commercial aspect of the business of the dairyman and cattle-breeder have been in many instances most disastrous. Herds which were supposed to be free from disease were discovered by this test to be tuberculous; dairy businesses have been ruined—justly so we must admit, for no man has a right to sell milk or dairy products manufactured from them when derived from diseased cows any more than a breeder of pure-bred stock has to sell animals suffering from a contagious disease from which recovery is the exception. The exposure by this means of the prevalence of the disease, especially in dairy cattle, naturally aroused anxiety in the minds of the guardians of public health; a furore was thus created and the public mind was greatly disturbed when, in addition to this, its intercommunicability to human beings was made known. Hence we find many dairymen and cattlemen in all countries denouncing tuberculin and protesting against its use; not all dairymen, nor all breeders, however, joined in the denunciation of what is well known to be a safe, harmless, but reliable means of detecting this disease, even in its most incipient stages. In Canada during the past year, from Nov. 1st to Nov. 1st, there were 17,785 head of dairy cattle tested officially by voluntary application of the owners, on condition that the entire herd should be tested and all reacting animals quarantined for life, without compensation. Of this number only 358 reacted, or about 2 per cent. What opposition we met with came from breeders who had suspicious herds or herds which by private testing were known to be diseased; it came chiefly from men who combined importing for speculative purposes with breeding. In some of these cases the importers, we have reason to believe, were not ignorant of the cattle being tuberculous; in others we fear the man who paid the money was a victim of imposition or gross neglect of his interests on the part of his agent.

I will cite one instance of each case which came under my personal notice. (*a*) A herd of 13 cattle arrived at

Point Levis quarantine—two of them showing clinical symptoms of the disease, examination of the chart which accompanied them showed that it was not genuine It was therefore decided to test them, to which the person who had imported them objected, and while correspondence was going on one cow died from acute generalised tuberculosis, of the rest all reacted but one, and on post-mortem examination all were found to be tuberculous (*b*) A gentleman of large means decided to import a herd of useful but not high priced shorthorns He sent an agent to purchase and to import them This agent was instructed to use every precaution by testing and otherwise to secure animals free from tuberculosis They were bought in Ireland without being tested, they were brought to Scotland and there tested, two were rejected, the balance were shipped to Canada with a chart which was not quite satisfactory, and on testing them, by request of the owner, five out of 13 reacted

Personally I believe with Professor Nocard that tuberculin does not lie, how is it, then that so many tuberculous cattle come to us in America accompanied by charts and certificates of health? If the importer is a party to fraud, then he should be severely dealt with, if he is negligent, then he should pay the penalty of his negligence, for he has no right to import animals suffering from a contagious disease Is it p[illegible] in suspected cattle— [illegible] class of importer or [illegible] ional man employed to test for export imposed on by previous tuberculination nullifying or at least rendering uncertain his honestly applied test? Are all such men above suspicion? My own experience in a few instances in Canada compels me to say no Or is it the tuberculin that is at fault? When we meet with reactions varying from 40 to 90 per cent in cattle certified as healthy, as is found in both Canadian and United States importations, such questions force themselves on us and are sufficient explanation of why both Governments have each decided to keep a professional man in Britain on whose charts alone will cattle be allowed to pass through our quarantines without re testing

Reaction.—We are often asked by importers and testers in Britain what reaction we consider indicates tuberculosis Experience has taught us that it is not the extent of the rise in temperature so much as its character taken in conjunction with attendant circumstances Ordinarily a rise of 2° F above the highest normal is due to tubercle being present, but the single occurrence during the day of such a rise may be due to some accidental circumstance A typical reaction is arched, the maximum temperature occurring at the seventeenth hour, falling to normal about the twenty fourth hour or sooner in many cases The character of the reaction may be altered by copious draughts of cold water, or a lowering of the body temperature from any cause, so, also, does the raising of the body heat from such causes as flies, atmospheric heat, and scarcity of water, all of which produce variations in the reactions. In addition to which might be mentioned applying the test when the animal is excited from any cause, such as driving cows from the field to the stable, railroad journeys steamboat conveyance, change of climate, change of byre, bulling, stage of the disease (in advanced cases often no reaction follows) and, what to us is most important the uncertainty of reaction for months after injection of tuberculin. As I said above, tuberculin can be almost absolutely relied upon if properly used, there is no other diagnostic agent to be compared with it yet it is capable of much abuse, and is often improperly used

Objections urged against the tuberculin test—In my opinion there is not one tenable argument used by cattle owners or importers against its use I have never known a single instance of a person owning a healthy herd to lift up his voice against it, but I could multiply instances of men becoming almost maniacal in their denunciation of the test since it has been required in the international live-stock trade between the United States and Canada, as well as importations from Europe—men whose herds when tested reacted sufficiently to warrant one in suspecting previous knowledge from private testing on their part. With a view to get at the truth of some of their objections I sent a circular letter to inspectors throughout Canada, in which I asked replies to the following questions, suggested by newspaper discussions on the subject 1 "Do you know of any cases in which the use of tuberculin as a test has produced abortion? 2. Do you know of any instance in which a bull has been rendered impotent by the use of tuberculin? 3. Do you know of any case in which the general health of the animals has been injured by the tuberculin test? 4 How many cattle have you tested during the past year? 5. How many post mortem examinations have you witnessed of animals condemned in consequence of having reacted to the test? 6 In how many instances did you fail to find tubercle?" The replies are all negative to the first three questions, to the fourth they aggregate 22 023 head, to the fifth 579 and to the sixth 10, and one doubtful Professor Leonard Pearson, State Veterinarian for Pennsylvania, states, in his report for 1899, that "of 4400 post-mortem examinations made tuberculosis was found in all but eight animals that had reacted"

I also sent similar ques[illegible] had most experience wit[illegible] will represent the others "Do you think that the [illegible] says, 'No, I do not think there is the least injury in the tuberculin test Our herd of over 60 head have been tested three years in succession and I fail to notice any injurious effects whatever from the test' In answer to the second question 'Have you ever had any bad results that you could attribute to the use of tuberculin?' he says, "None I am using a bull that has been tested five years in succession and is seven years old and a more active, healthy animal I never saw—a very sure animal, you may judge, by our dairy of 42 cows, there is only one farrow As to abortion, we do not have near the trouble that we had before we commenced testing for I consider that we have a healthy herd now Previous to the testing of our dairy we had very serious trouble with abortion" (*b*) "1. I do not know of any case wherein the use of tuberculin has produced abortion, and on our farms we have tested cows at all stages up to within a very short time of calving 2 I have never known of a case wherein a bull was rendered impotent or injured in any degree whatever by the use of the tuberculin test 3 I have not known of a single case wherein the application of the tuberculin test affected prejudicially in the slightest degree the general health of animals tested therewith 4 We have had between 300 and 400 cattle tested 5 I have not personally witnessed any post-mortem examination, but I have had reports from the veterinary surgeon who does our work on every animal which was condemned as a result of the test and in almost every one positive traces of the disease were found."

From these facts we deduce the following —1 Tuberculosis is essentially a contagious disease and ought to be so classified and acknowledged by every country and state in the world as such 2. It is insidious in its character and in only a few cases comparatively can it be diagnosed by physical examination, but in tuberculin we have a safe and reliable test by which even latent cases can be diagnosed 3 That tuberculin is harmless It does not produce abortion in pregnant cows, impotency in bulls or in any way produce any injurious effects on animals tested by it

Methods adopted by different countries—Some years ago in Massachusetts compulsory testing was tried but was found to be impracticable and met with strong opposition. Belgium adopted somewhat similar methods with similar results It had to be given up and at present the killing is restricted to animals in which the diagnosis can be made by clinical examination In Switzerland free testing is practised. All clinically diseased animals are slaughtered, reacting animals are marked by cutting out a triangular portion of the ear In France there is immediate slaughter of clinically diseased animals and slaughter within one year of reacting ones In Germany tuberculin is furnished free and monetary aid is given to those who adopt the Danish system and otherwise resort to prophylactic measures for its eradication. In most of the German States it is required to sterilise the creamery and dairy products and their by products, skim and butter milk. In Denmark free testing is done on voluntary application Clinically diseased animals are killed, the others are divided into healthy and reacting These are separated in different buildings or partitions are used to divide the byres; in one section the healthy, in the other the diseased are placed. The reacting ones are bred from, the calves are reared on milk from healthy cows or pasteurised milk, or milk which has been heated sufficiently to kill the tubercle bacilli The success of this plan has been fully demonstrated by Professor Bang In America—both the United States and Canada—for a number of years all cattle imported from Europe were tested in the quarantines A few years ago importers urged that the practice too often led them into serious losses—the value of the diseased animals as well as freight and other expenses incurred—and discouraged, as a consequence, importation generally, and to meet the views of importers the Canadian Minister of Agriculture ordered that a number of veterinarians throughout Britain should be selected whose charts of test would be accepted without testing again in Canadian quarantines. This plan worked very badly, as numbers of diseased cattle were imported, several valuable herds being found clinically diseased, and were slaughtered. The United States had similar experiences with British charts of testing. This is regrettable, as both countries acknowledge the great results obtained by British breeders in producing excellent cattle, knowing as they do that on no spot on earth can cattle of equal merit be produced. There is something in the soil and the air of the sea-girt isle so favourable to the production of high-class bovines that breeders abroad must come to Britain for fresh blood to keep up their herds, otherwise marked degeneration is soon apparent. For this reason each country, rather than prohibit importation altogether, has appointed a veterinarian to do the testing, and on their charts alone cattle are admitted to both countries without being tested in quarantine. In Canada testing is done at Government expense, when voluntary application is made for testing the whole herd, and reacting animals are quarantined for life. Professor Bang's system is coming much into practice in Canada. In a few herds it has been successful in a remarkable degree. No compulsory measures have been tried. Tuberculosis exists in Canada to a limited extent only. No statistics for the entire Dominion are available, but the following figures indicate this. Testing has so far been confined almost entirely to dairy herds, and was employed in most of these owing to suspicion or knowledge of infection.

Year.	Tested.	Reacted.
1897-98	6,516	412
1898-99	16,882	451
1899-1900	17,785	358

The following regulations are enforced between the United States and Canada :—

Breeding stock.—Section 21 : All cattle to be admitted for breeding purposes shall be accompanied by : (*a*) a declaration made by the importer that they are actually for breeding and no other purposes ; (*b*) a certificate signed by a Government veterinarian specially selected and appointed for this duty, that they have been subjected to the tuberculin test and found free from tuberculosis. Such certificates must show the date of testing and chart of reaction with a description of the animal giving age and markings. The importer may be required to swear that the certificate refers to the animal represented. (*c*) A certificate of inspection signed by a Government veterinarian showing that the animals are free from contagious disease, and that no contagious disease of cattle (excepting tuberculosis and actinomycosis) exists in the district whence they came (*d*) When not accompanied by such certificates the animal or animals must be detained in quarantine for one week and subjected to the tuberculin test. (*e*) Should they be found tuberculous they must be returned to the country from which they were shipped or slaughtered without compensation.

Fat cattle and cattle for feeding, including range cattle for stocking ranches.—Section 22 : This class of animals shall be accompanied by a certificate of inspection signed by an official veterinarian showing that the animals are free from contagious disease and that no contagious disease of cattle (excepting tuberculosis and actinomycosis) exists in the district whence they came.

Settlers' cattle.—Section 23 : Settlers' cattle when accompanied by certificates of health to be admitted without detention ; when not so accompanied they must be inspected. Inspectors may subject any cattle showing symptoms of tuberculosis to the tuberculin test before allowing them to enter. Section 24 : Any cattle found tuberculous to be returned to the United States or killed without indemnity. The following extracts from copies of the laws and regulations governing the control and for the eradication of tuberculosis in individual States furnished to me by the authorities may be cited with advantage and can be found more in detail in a bulletin recently issued by Dr. Salmon, Chief of the Bureau of Animal Industry at Washington.

State legislation with reference to bovine tuberculosis.—Illinois.—Legislation under Board of Live Stock Commissioners. Their rules and regulations are as follows. All cases are reported to the Board. When physical condition indicates tuberculosis the animals are quarantined till tested under direction of the Board. A rise of two degrees or more (if in the opinion of the veterinarian in charge it is due to tuberculin) constitutes reaction and such animals must be isolated and held in quarantine till they are slaughtered and examined post mortem. A rise of 1·5°F. and less than two degrees is suspicious, and the animals must be isolated and quarantined for re-test. The maximum indemnity is not to exceed $75. The following is the classification for compensation. Class A.—No lesions: full appraisal. Class B.—Incipient disease: 75 per cent. of appraised value Class C.—Infected for one year: 50 per cent. of appraised value. Class D.—Infected for two years: 35 per cent. of appraised value. Class E.—Infected for three years: 25 per cent. of appraised value. Class F.—Infected more than three years: 15 per cent. of appraised value. Should the proceeds of the carcass exceed the percentage valuation, the owner receives the full amount. "Definite legislation needed with money to carry out provisions. Time not ripe for drastic measures."

Iowa.—No special legislation. Tuberculin is used where necessity and public safety demand. Reacting animals are tagged and quarantined, provision being made that they may be shipped to any abattoir in the State for slaughter, subject to inspection by bureau inspector, State veterinarian, or one of his assistants. No remuneration save what the animal will bring as a fertiliser. Thirty per cent. of the reacting animals are condemned on post-mortem examination. Work that is done is done thoroughly, but more is needed.

Kansas.—No specific law. Animals must be tested on entering the State, but may be brought in for show purposes without test, but if sold, they must be tested before they are allowed to stay in the State. At the present time there is litigation as to the legality of the rules and regulations.

Kentucky.—No special legislation. Animals may be dealt with by the State Board of Health. Animals cannot be condemned until examined by competent veterinarian. Indemnity is not provided.

Maine.—Commission of three persons appointed by the Governor. Necessary quarantine is enforced, half compensation being given for animals destroyed providing they have been in the State for a year or more. Compensation not to exceed $100 for pedigreed, or $50 for grade stock. Appraisal not being accepted by owner, rigid quarantine is enforced. The tuberculin test is not officially designated. The regulations are sufficient, but there are not enough funds for enforcing them properly.

Massachusetts.—General laws on contagious diseases cover tuberculosis. Compensation to the full value, not to exceed $40·00 in any case. Tuberculin is restricted to cattle brought in from without the State, excepting upon written request of the owner and on such animals as are condemned as being tuberculous by a competent veterinary surgeon. No compensation is granted unless the rules regarding disinfection, cleanliness, ventilation, light, and water-supply are complied with as directed by the commission. Owners using tuberculin are not entitled to indemnity for animals which react, unless the testing is done by the Board of Cattle Commissioners or by its direction. The regulations work well and good work is done, but more money could be spent to advantage.

Michigan.—General law on contagious diseases ; no special law on tuberculosis. The State veterinarian is acting under the general law against tuberculosis. On complaint of local board of health or individuals suspected cases of tuberculosis are tested. Reacting animals are destroyed or rigidly quarantined. There is no provision against entrance of tuberculous cattle The Governor has power to prevent, but the commissioner has not seen fit to protect the State.

Minnesota. — General legislation applies empowering local or State board of health to act Two tuberculin tests are required to condemn a tuberculous animal and must be given within three months and in not less than two months. There is no further legislation. Experience shows the inefficiency of procedure now in vogue.

Montana.—Towns of 5000 or over to have a meat and milk inspector who must be a graduate of a reputable veterinary medical college. All animals supplying milk to the public must have a certificate of tuberculin test and be inspected every month. The laws have just passed, and it is thought that they will prove sufficient if carried out to the letter. There is not much tuberculosis in the State—only about 5 per cent.

New Hampshire —General law relates to tuberculosis. Coöperation is general with the Federal bureau. The indemnity is the full appraised value, to be paid by the towns, which are reimbursed four-fifths by the State. Such animals must have been owned within the State three months before the detection of the disease. Cattle entering the State must be tested under the authority of the Board of Commissioners. Pasturage permits granted on physical examination by competent veterinarian—a graduate of a recognised school. Massachusetts cattle, tagged by the Massachusetts Cattle Commission, are allowed to go to New Hampshire for pasturing and to return to Massachusetts without test. Upon a request by cattle-owner he may have his herd officially inspected by the Board. If the inspector deems it necessary tuberculin is used, and the owner must conform to measures prescribed by the Board. The test applied is at the State's expense, and half value is given for all animals reacting. Precautionary measures to stamp out disease are at owner's expense. Experience shows that enforcement of sanitary measures is as important as the destruction of diseased animals. Ventilation, light, exercise of animals, and disinfection are regarded as the most important part of the work. Progress is being made in suppression and radical measures are not needed.

New Jersey.—Commission of seven, composed of the president and the secretary of the Board of Agriculture and five others appointed by the president, examine herds on request, but the tuberculin test is optional with the commission. Condemned [illegible] value and three-fourths are p[illegible]ithout the State are tested. [illegible]ing in prevalence by the education of farmers as to its character, and the need of greater care in breeding, stabling, sunlight, and ventilation.

State of New York.—Tuberculin applied upon written request under conditions prescribed by the Commissioner of Agriculture. The commissioner may order the test, holding a reacting animal in strict quarantine. He may condemn, quarantine, or slaughter when tuberculosis is found on physical examination. Compensation shall not exceed $60.00 [illegible] or other dangerously contagious or infectious disease no compensation is allowed. Animals entering the State which pass the Federal authorities are allowed to proceed.

[illegible] or be examined by State official. Tuberculin test is not specified.

Pennsylvania.—All animals entering the State must be tested with tuberculin. Other testing is left to the discretion of the Board. Compensation is not more than $25 00 for infected grade and $50.00 for infected registered stock. Measures for combating this disease as well as others are at the discretion of the Board and are not flexible.

Rhode Island.—Appraisal for "scrub" animal $50 00, grade $75 00, and registered $100.00. In event of an animal being found infected at necropsy the State pays half the value, but if healthy the full value. The animal must be owned within the State at least three months previously. Cattle coming into the State must be tested with tuberculin

Utah.—Cattle having tuberculosis shall not be kept by dairymen and shall be killed by the Dairy and Food Commissioners. There is no provision for the tuberculin test or for indemnity.

Vermont.—Tuberculin test is applied without expense on application and the whole herd must be tested. Such herds cannot admit new animals unless they undergo the test. Reacting animals must be killed and buried or burned at the expense of the owners, who retain the hides. The Board regulates a right to re-test when considered necessary. The rules of the Board where herds are tested regarding disinfection must be observed. Cattle entering the State from without must be tested by a person approved by the Board and the expense is borne by the owner. Animals killed by written order of the Board are appraised, such appraisal not to exceed $40.00. A necropsy is held, and if tuberculosis or other disease dangerous to public health is f[illegible] are followed the disease is stamped out. Persuasion is used by the Board to induce testing of the suspected herd. These measures are radical enough at present, for the public must be considered and be in sympathy with the movement rather than antagonistic.

Virginia.—Tuberculosis is classed as a highly contagious and infectious disease. The Board of Control of Agricultural College has power to enforce such measures for its control as are deemed necessary.

Educate the People.—Educate the people by furnishing them with the most important scientific and practical facts which are known about the disease. Much good has been done in Canada by the distribution broadcast of bulletins from which the following items are extracted:—

Tuberculosis.—This disease claims for its victims nearly, perhaps we might say, all the domestic animals, and few of the wild animals subjected to domestication resist the contagion, as is well known to keepers of menageries. Rats, mice, and other vermin which inhabit houses and outbuildings not only contract the disease but are active agents in spreading it. Some species are more susceptible than others, and contract it readily by eating food containing the germ of the disease, or by inhaling the dried germs given off from the lungs, throat, uterus, or intestines of animals affected in these organs. The most susceptible of the domestic animals are cattle, swine, chickens, goats, and rabbits. These contract it readily in the natural way, but it can be produced in sheep, dogs, cats, and horses by inoculation with tuberculous material. Tuberculosis in the lower animals is the analogue of consumption in the human family. It is due to a similar germ (bacillus tuberculosis bovis); it is, however, more virulent than the human bacillus. It is communicable from other animals to man, and from man to the lower animals, by natural infection and inoculation.

Tubercle.—The germs (bacilli), which are living organisms of minute microscopic size, when they reach and become located in a tissue, produce local irritation and the formation of small reddened areas infiltrated with fluid and cells. These are the tubercles. As they become older they enlarge, and their colour is greyish or yellow from changes that take place within, causing the death of the central tissues. Their appearance and consistence in this way resemble that of cheese. These nodules may vary in size from a pinhead to a cocoanut, often they are of stony hardness from the presence of lime salts. The tubercles, for example, may be confined to one organ or tissue of the body, such as the lymphatic glands of the mesentery or thorax, or the throat, udder, ovaries, &c., or they may be generalised throughout the body, the germs travelling in the blood circulation. In this way the abdominal organs (the liver, spleen, kidneys, &c.) may all be involved as well as those of the thorax, lungs, pleura, lymph glands, &c. Often the pleura and peritoneum are covered with grape-like excrescences the appearances of [illegible] this disease. Wherever tubercles [illegible] time much destruction occurs in [illegible]

The tubercle bacillus.—This is described as a rod-shaped organism with rounded ends and a slight curve, requiring complex laboratory methods of cultivation and staining to [illegible] for microscopic study. It is a parasitic organism [illegible] excretions of animals [illegible] badly in the sunlight, which is said to kill it in from a few minutes to several hours. This fact should be remembered in dealing with it with a view to preventing tuberculosis. The invasion of the animal's body by the entrance into it of living bacilli is effected either through the digestive organs (ingestion) or by the respiratory organs (inhalation), by transmission to the sexual organs when the testicle is invaded and by inoculation, or by a cut or abraded surface. Without the entrance of the living bacillus into the body tuberculosis cannot affect it. It is the seed from which it grows, and it is as essential to the development of the disease as oats, peas, or potatoes are to reproduce these plants.

What renders cattle susceptible to this disease?—Impaired health, from whatever cause it arises, renders cattle susceptible [illegible] Heredity has been proved not to be an [illegible] It is well established by the [illegible] and others that calves may be bred from tuberculous mothers, and if removed before the cow licks them or they have sucked their mother's milk, placed in absolutely healthy surroundings and fed on milk from healthy cows, they can be reared and remain, so far as any inherited disease is concerned, perfectly free. In-and-in breeding by producing animals with reduced vitality, over-milking, under-feeding, want of sunlight, pure air, or sufficient exercise, breeding too young, are all what may be termed predisposing causes to tuberculosis and should be avoided. One breed of cattle is just as liable to contract this disease as another when subjected to the predisposing and exciting causes. Dairy cattle are most subject to it because they are more exposed—they are more congregated, more closely and continuously housed, their vitality is more drained by heavy milking, and they are kept longer than the beef breeds. Their calves are more liable to milk infection, as they are fed on mixed milk, whereas the beef breeds usually suckle their calves. The majority of beef cattle are killed off at three or four years old, hence they are exposed to the contagion for a shorter term of life, which is spent more in the open air and in sunlight.

How the disease is usually introduced into a herd and how it extends in it.—A tuberculous bull is probably the most active agent in spreading this disease, both by cohabitation and by sexual connexion. Farmers cannot be over-cautious in buying a bull or in having cows served by one till he has been subjected to the tuberculin test and found free from the disease. Nothing should induce a breeder to allow contact with his healthy cattle by a bull till he has every assurance that he is free from tuberculosis. Tuberculous animals of any kind should be prevented from coming in contact with the cattle.

Tuberculous attendants.—Tuberculous attendants—men or women suffering from pulmonary consumption—should on no account be allowed to feed, milk, or have anything to do with cattle or pigs. The intercommunicability of the disease from animals to man, and from man to animals, is an established fact and is no longer open to discussion. The bacilli from the throat and lungs of diseased people or animals, being coughed up, adhere to and dry on the woodwork, walls, floors, and feed-boxes in buildings, cattle-trucks, or stockyards, and the dust being moved about by air-currents, being inhaled, infects the respiratory organs, gains access to the blood-stream or lymphatic glands, or mixing with the food in the hay-rack or feed-trough, finds access to the stomach and intestines, and thence through the blood or lymph channels to the abdominal glands and other organs.

Danger from milk.—The virulence of milk from tuberculous cattle, especially when the udder is diseased, has been clearly demonstrated. It will communicate the disease even when the milk is diluted by mixing with large quantities of other milk in the creamery or cheese factory; whey is equally dangerous. Milk from cows in advanced stages of generalised tuberculosis is also dangerous, but milk from cows in early stages of localised tuberculosis may not prove infective to calves or persons fed on it. It should, however, be sterilised by heat before being used. The germs remain active in skim-milk and whey and may produce the disease in calves fed on it. Milk obtained from creameries in districts where tuberculosis prevails should be raised in temperature for 10 minutes to 180° F. before being given to calves, otherwise living bacilli may be taken into the stomach, and, entering the lymph channels, produce the disease. As a precautionary measure, milk from tuberculous cows should not be received at creameries or cheese factories. Unless this is done creameries and cheese factories may become distributing agents of the disease to healthy herds. Milk from tuberculous cows is a frequent source of communication of the disease from cattle to people, especially children and old, feeble persons.

How to prevent its introduction to a herd.—See that your animals to begin with are free from the disease. Never bring any animal into the byre till you have ascertained beyond a doubt that it is healthy. Keep your own bull. Your neighbour may be obliging, but if he is careless about the health of his stock you may suffer irreparable injury by accepting even the free use of his bull should the animal happen to be tuberculous. Conversely, if you have a bull, be exceedingly careful to see that no tuberculous cows are brought to him for service. Never allow a consumptive person to have anything to do with your cattle; make no mistake about this. Your byres must be well lighted—almost as light as outdoors; disease germs are killed by sunlight. Pure air and plenty of it is essential to health. This can only be provided by sufficient space. Let your cow stable be roomy. Drainage is essential to the purity of the air. Without proper and efficient drainage the air must become contaminated by the emanations from the droppings and urine of the cattle as well as by the decomposing vegetable matters with which they are mixed. Drain your buildings, and do it thoroughly. The ventilation is all-important. By properly arranged ventilators the impure air is removed and replaced by pure air. The oxygen of the air is constantly being consumed in the process of breathing and unless it is replaced it becomes unfit to sustain animal life. The constant change of the air in buildings inhabited by animals is absolutely necessary to preserve health. During summer weather most buildings are sufficiently ventilated by the doors and windows being left open; it is during the winter, when cattle are housed, that they suffer from imperfect ventilation Proper ventilation provides for the admission of the pure and the escape of the foul air. As a rule, farmers' architects do not make sufficient provision for either. The air may be admitted by openings near the floor and by windows hinged at the bottom and dropping inward. The ventilators or air-shafts are usually too small. Most buildings require shafts three feet square, placed about 20 feet apart, in the middle aisle of the byre. The shafts should be divided inside into two by a partition extending from the top to within three feet of the ceiling, the opening being controlled by trap-doors opened or closed by cords running through pulleys.

Cattle standing head-to-head objectionable.—The common plan of arranging the byre, so as to save labour in feeding, by having an alleyway with the heads of the cattle opposite each other, is objectionable from a health standpoint, as it exposes animals opposite to tuberculous cattle much more to the contagion than when they are placed with their heads to the wall. They may be easier fed the former way, but they are easier cleaned the latter, and it has a decided sanitary advantage should contagious disease exist. Running water in troughs placed in front of the cattle is objectionable if tuberculosis is present, as by this means the germs may be carried to the whole herd.

Symptoms and diagnosis of tuberculosis.—In the majority of cases the symptoms are obscure, and till the discovery by Professor Koch of the reaction produced by the injection of tuberculin (being a most reliable test for discovering this disease in obscure cases unrecognisable by symptoms), the majority of cases could not be detected even by experts. When affecting the lungs, throat, and respiratory organs generally it is accompanied by a frequent cough but no fever. There is disturbance of respiration; the breathing is quickened by slight exertion or excitement, and the cough is produced by changes of temperature. The expert can detect dull spots surrounded by areas of increased resonance on examination of the lungs by the usual methods. Usually the superficial glands in the throat, between the jaws, or under the ear or the udder may be hard and swollen. The animals may continue for months or even years to maintain fair condition; they are sometimes fat while the lungs may be found studded by large tuberculous masses. When the disease is abdominal and the glands and organs in the belly are chiefly affected, the symptoms of defective nutrition are early apparent—emaciation, lessened secretion of milk, indigestion, breathlessness, and general failure more or less rapid. Many cases cannot be detected by symptoms, but can be revealed almost to a certainty by the tuberculin test.

The tuberculin test.—Until the discovery by Professor Koch in his experiments to find a cure for consumption in human beings that the injection of tuberculin invariably caused a rise in temperature when the person or animal was tuberculous, while it produced no effect whatever when free from it, the detection of the disease in early stages or when slightly affected was considered impossible in most cases. This test is most delicate and reliable (about 98 per cent.) where it is properly applied. Tuberculin is a soluble product of cultures of tubercle bacilli, of which a glycerine extract is made, which is sterilised by heat and filtered through porcelain, so that it contains no living germs and therefore cannot produce tuberculosis in animals injected with it. It has therefore no effect on healthy animals; in some cases the disease is aggravated by it when it exists, but it cannot be produced by it.[2] The lymph must not be exposed to sunlight, it must not be frozen, and it must be kept well corked to exclude air. Tuberculin injection has no bad effects on the secretion of milk. The consensus of opinion of those most experienced is that it does not lessen the secretion of milk in dairy cattle, consequently these may be tested even when they are in full milk without disturbing its secretion unless it be during the few hours of its absorption. It has never been known to cause abortion in cows or sterility in bulls, as has been claimed by its opponents; in fact some breeders state that it lessens abortion. The consensus of unprejudiced opinion is that it is harmless to cattle, even when tubercle is present, and in some cases it exercises curative influence. Dose.—The dose varies with the size and age. As issued by the Department of Agriculture it is ready for use, with doses marked on the bottle—viz., 20 drops for calves, 40 drops for small or medium sized animals, 60 drops for larger, and 80 drops for very large ones When second tests are considered necessary at least 90 days should elapse and the doses should be slightly increased. Second tests are quite unreliable and often deceptive.

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[2] It would be as reasonable to expect barley to grow from whisky placed in the ground as tubercle from injecting tuberculin into an animal body.

How to deal with a diseased herd —When tuberculosis is discovered in a herd immediately remove the diseased animals from the healthy to an isolated stable, or a part of the byre may be partitioned off by close boards as far as possible from the rest of the herd In the case of low-priced cattle the owner will best serve his own interests by slaughtering them at once When they are especially valuable and in calf, the experiments of Professor Bang and others show that the calf may be saved by removing it as soon as born and before the cow has licked it or it has been suckled by its diseased mother, and by placing it in an uninfected building and feeding it on milk from tested cows, it will in all probability grow up free from tuberculosis The herd should be tested every six months and those animals which react should likewise be removed till all symptoms have disappeared

Disinfection of premises —Most careful and complete disinfection of buildings and yards in which diseased cattle have been kept should be employed to rid them of disease germs In doing this, before sweeping, sprinkle the floors and walls thoroughly with water to prevent dust rising, removing drinking-troughs, feed-boxes, and stall divisions The floors must be specially scrubbed, the walls, ceilings, and partitions should be carefully washed, and all freely sprayed with a disinfectant solution such as carbolic acid (one pint of crude acid to four gallons of water) or lime-wash. It may be applied by a whitewash brush or by a spraying pump, care being taken to see that every corner, crack, and joint is thoroughly penetrated by it The cleansing and disinfection should extend to drinking troughs and fences of the barnyard to make disinfection complete

Disposal of tuberculous carcasses —Should the disease be local as is frequently the case, being confined to one or more glands, the flesh can be used as food with impunity Infection from flesh is an extremely rare occurrence, and most unlikely to occur if it has been thoroughly cooked. This can be most relied on when it is cooked in the minced form, deep seated portions of large roasts may not be exposed to sufficient heat to kill the bacilli When on post-mortem examination the disease is found to be generalised the carcass should be put into the vat, the diseased viscera and tuberculous masses should be burned or buried deeply in lime No restriction is necessary on the sale and removal of hides, horns, hoofs, or hair

Insurance —At the Seventh International Veterinary Congress, held at Baden Baden two years ago, Professor Siedamgrotzky suggested a system of insurance which, if it could be carried out, would be a common sense way of lessening individual losses consequent on eradication by slaughter of clinically diseased and reacting animals This is surrounded by many practical difficulties, yet it is well worthy of the consideration of this Congress An effort should be made to provide an indemnity fund by this or some other way, the public purse contributing a liberal share, otherwise, I fear that the progress made in eradication will be slow In the State of Illinois, United States of America, indemnity is paid by the State on a plan which is worthy of imitation A maximum value is fixed at, say, £15 Diseased cattle are classified as follows after being slaughtered —

	Indemnity
Class A, in which no lesions are found.	Full appraised value
" B, in incipient stage	75 per cent appraised value
" C, infected for one year	50 " " "
" D " " two years ...	35 " " "
" E " " three " .	25 " " "
" F " " over three years	15 " " "

Should the proceeds of the sale of the carcass exceed the percentage valuation the owner is paid the full amount so received

Suggested legislation —No legislation will accomplish the end in view unless the measures are such that the public are in sympathy with them rather than antagonistic to them

I Tuberculosis should be included in the list of contagious diseases. Tuberculous animals should consequently come under the provisions of the Animal Contagious Diseases Act; but the local *authorities* should have power to allow the sale and movement of such parts of the *carcasses* as are known not to carry *contagion*, such as hides, *hoofs*, horns, and hair, thus preventing *unnecessary loss*

II All foreign animals admitted *for breeding* or dairy purposes should be tested by the tuberculin test. Tuberculous animals should be prohibited from entering

III Tuberculin should be controlled, and none but qualified veterinarians should be allowed *to* use *it, and all* reacting animals should be reported, marked, and quarantined

IV All animals showing clinical symptoms of tuberculosis, especially disease of the udder, lungs, uterus, or bowels, should be killed at once, and all scrub and grade animals reacting should be killed within six *months* Pure-bred cattle may be bred from under Professor Bang's system, in quarantine for life

V All testing, other than imported animals, should be by voluntary application for a test of the entire herd, and the expense should be borne by the State A reaction of 2° to be understood to indicate tuberculosis, 1½° as suspicious Suspicious animals to be quarantined and re tested in three months, unless clinical symptoms develop, when they should be at once condemned The Government to have the right to order a re test when considered necessary

VI Disinfection of premises should be ordered by special regulations, the carrying out of which should be superintended by Government officials

TUBERCULOSIS AMONG AUSTRALIAN STOCK[1]

BY G PENTLAND,

CHIEF INSPECTOR OF STOCK FOR THE STATE OF VICTORIA

EARLY in the year 1883 the attention of the district and border staff was called by the late chief inspector of stock, Mr Curr, to the fact that diseases of cattle known as tuberculosis (consumption) and ' cancer" (lumpy jaw), now known as "actinomycosis,' were becoming more common and appeared to be gaining ground At that time little was known of the nature of these diseases, but the brilliant discovery by Professor Koch in 1882 of the cause of tuberculosis being a minute rod like organism, the bacillus tuberculosis, awoke the scientists *of the world to inquire into the* value of this great discovery In 1883 the Hon James Buchanan, M L.C, an experienced stock owner, called the attention of the Victorian Government to the fact that it was necessary that a board of experts should be appointed "to inquire into the existence and extent in this colony of the disease in cattle known as tuberculosis, whether its existence is likely to be detrimental to the public health, and what preventive measures should be adopted", and in 1885 the board recommended after very exhaustive inquiries that tuberculosis be placed on *the schedule of contagious diseases* under the Stock Act 1870 This was done in the year 1887, and since then this department has been able to deal with visibly affected animals in the same way as pleuro pneumonia and other infectious diseases Previously to this power being given by law there was no power to cause tuberculous animals to be destroyed, although a large number were willingly destroyed by owners at the instance of inspectors, who, to a large extent used moral suasion in these matters We are now constantly destroying affected animals in the course of our inspections, both *in the districts and* on the borders, as the annual returns hereunder show In the year 1893 special instructions were given by the Secretary for Agriculture to have all dairy cattle inspected as closely as possible by the district staff, and I think I am safe in saying that this instruction has been faithfully carried out The district staff is composed of practical men experienced amongst stock and accustomed to country life and the ways of the bush They have in the past been successful in stamping out scab, and have also met with great success in coping with and keeping down pleuro-pneumonia by the measures of slaughter, quarantine and inoculation.

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[1] A paper communicated to the British Congress on Tuberculosis, Section IV, Veterinary

The duty of combating tuberculosis has fallen to the stock branch whose primary business is to see that infectious and contagious diseases are kept out by land and sea and to prevent the spread of any infectious or contagious disease within the State. Tuberculosis, pleuro-pneumonia, and actinomycosis are all imported diseases; they were introduced at a time when there was no department for their prevention or control, and hence they gained great headway in consequence and would do so again if there were no stock departments throughout Australasia to keep them in check. Besides having practical and experienced men to travel the districts, there are attached to the department six veterinary surgeons in private practice whose services are sought in special cases where special inquiry or demonstration is necessary. They are called upon, in conjunction with inspectors of stock, to inspect before landing all foreign stock arriving at port, and then again before release from quarantine. We thus have a staff equal to any emergency, and in the regulations we have hard-and-fast rules for the guidance of owners of stock and the general staff.

As regards the general condition of dairy stock, I reported in June, 1893, that dairymen as a rule vie with each other in keeping the best class of stock, it being the best cows that yield a profit, and that odd cases of tuberculosis crop up once in a way which they readily get rid of; but that on the whole the health of our dairy stock was excellent and would compare favourably with the same class in any part of the world. Owners are only too anxious to maintain the excellence that has been obtained. In a report dated Nov. 2nd, 1896, I stated that it was upon the principle of stock-owners, aided by the inspectorial staff, destroying diseased animals themselves that pleuro-pneumonia was kept in check, and it has been upon the same principle and with the same aid that tuberculosis has been got under. The greatest factor, however, we have in preventing the spread of tuberculosis is the open-air life which our cattle live, and this fact accounts for their greater freedom from tuberculous disease than the cattle of Great Britain, Denmark, and other European countries, which are housed and hand-fed for the best part of the year. On disease breaking out in the confined atmospheres of byres the infection spreads rapidly throughout, and there is a larger percentage of animals affected than there would be if they were living under more favourable conditions of hygiene. We therefore have an advantage over countries the climatic conditions of which are not so favourable as ours. The sun's rays, too, are all-powerful in destroying the bacillus of tuberculosis, and the success of any scheme for getting rid of and keeping rid of tuberculosis will depend upon cleanliness and upon having cowsheds and yards built so as to get as much sunlight as possible. It is to be remembered that darkness, dirt, overcrowding, and imperfect ventilation favour the spread of tuberculosis. No infected or suspected animals should be allowed to mix with healthy animals. Among the many ways of spreading infection is that of healthy animals licking affected ones; and in small dusty areas or yards where diseased animals have been the dry particles containing the germs of disease are floating about and are therefore a menace to man and beast.

Since 1885, the year of the board's report, which showed that 7 per cent. of all cattle were affected in various degrees, the percentage has been decreasing at a satisfactory rate according to the statistics obtained at the city abattoirs. In 1896 the return showed that all cattle were affected to the extent of 4 per cent., and a later return for 12 months ending June 30th, 1899, showed that bullocks were affected to the extent of 3 per cent., cows 5 per cent., and calves to the extent of one only out of 3935. For the year ending Dec. 31st, 1900, the return furnished by the superintendent of city abattoirs is as follows :—

Cattle.	Tuberculosis.		
	Number slaughtered and inspected.	Number affected in various degrees.	Number condemned and destroyed.
Bullocks	36,125	No record kept.	66
Cows	8,517		64
Calves	3,532		*Nil.*
Totals ..	43,174	—	130

The percentage of disease found at the city abattoirs is necessarily much greater than that found by inspectors in live stock, and therefore it is only the rough of the herds that is culled, so that affected animals showing no external signs escape; but, nevertheless, the general condition of our dairy and other classes of cattle is improved, whilst in every animal that is destroyed and the carcass burnt the centres of contagion are thereby lessened and kept in check and suspicious cases are dealt with under the tuberculin test or by isolation. The following statement shows the number of dairy and other cattle inspected and killed in the districts on account of tuberculosis for the period 1894–1900 :—

Year.	Cattle.	Number inspected.	Killed for tuberculosis.
1894	Dairy	119,450	315
	Other	194,373	276
1895	Dairy	108,169	325
	Other	236,651	269
1896	Dairy	120,709	320
	Other	245,448	229
1897	Dairy	102,972	270
	Other	227,167	182
1898	Dairy	91,397	220
	Other	257,387	237
1899	Dairy	87,360	151
	Other	227,008	141
1900	Dairy	85,413	115
	Other	202,044	114
Total killed ...	—	—	3164

Owners of tuberculous stock are generally only too pleased to get rid of diseased stock without delay and without compensation, their motto being, "The first loss is always the best loss." No compensation was given in the cases of scab or of pleuro-pneumonia. It was only given when an outbreak of a new disease—foot-and-mouth disease—occurred in this colony about 30 years ago and in the case of some scabby sheep being illegally destroyed. Compensation for valueless beasts has not been asked for by owners of cattle or sheep, as they do not place any value on stock suffering from disease, and they readily consent to destruction without raising the question of compensation when inspectors make their condemnation. Clause 10 of the Act clinches this matter, as it provides that under an Order in Council owners of diseased stock shall have no claim for compensation when destroyed at the instance of inspectors. Diseased animals are usually destroyed and opened on the nearest available spot and the diseased parts are shown to the owner who profits by the object-lesson. This course is highly educational to them in getting affected beasts destroyed at once, without waiting for the action of the department. In the case of the tuberculin test I may state that owners of apparently healthy animals reacting and slaughtered, and showing but slight lesions, complain of the losses they sustain, and would claim compensation in such cases if the tuberculin test were compulsory. Some owners argue that their cattle might live for years where the lesions are slight and might heal up or make no further progress; but, on the other hand, if the test disclosed generalised tuberculosis, or one or more organs were badly affected, then they would not apply to be compensated.

The Diseases in Stock Act, 1890, consolidating the laws relating to diseases in stock, provides by Section 6 that inspectors of stock shall have power to enter at any time into any ship or any land, or into any building, not being a dwelling-house, for the purpose of inspecting any stock. This is a power which enables an inspector to find out for himself the state of his district as regards disease, and has a certain amount of influence among stock-owners in reporting disease. I understand that in England inspectors have no such power, and if this be the case owners of affected stock can do just as they like—they may either report disease or give notice of such for compensation or may send stock that has been in contact with affected stock to the market yards for sale, since they have nothing to fear whilst an inspector has no power of entering. Regulations for placing diseased stock in quarantine are in force in this State and this power judiciously exercised enables an inspector to have affected stock destroyed at once, with the consent of the owner. The owner readily consents to destroy

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tained and in
this he has the right to appear As regards foreign and inter State stock we have sufficient power to fix any condition that may be justifiable for introducing certain kinds of stock, and this enables us to prevent animals being introduced by sea or land if they are affected with tuberculosis or any other disease, and the Health Act gives power to prohibit the entry of any kind of stock whether diseased or not Members of the police force generally assist the district inspectors The districts, however, assigned to each inspector for the inspection of dairy cattle are too large and unwieldy and the requirements of the dairying industry, which has grown so large of late years, justify closer and more regular inspection than obtains at the present time

Unlike other infectious and contagious diseases tuberculosis is so slow of development that it is impossible to say how many animals in a herd are affected. It was hoped, when the tuberculin test was discovered, that results of a satisfactory nature would be afforded to the cattle raising industry, but so far there does not seem to be any great desire on the part of Australian cattle-owners to have the test applied to their herds The cattle that react should be "dried off" and fattened for slaughter, whatever the result may be when opened The test considered from the most favourable point of view,
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the destruction of
would certainly require to be provided and in this matter it has been estimated that in England it would take £19 000 000 sterling to get rid of the disease Three and a quarter millions of cows would have to be taken from the milking sheds and slaughtered. This is a very grave matter and points to the necessity of other alternatives or ameliorative measures being devised I know of no better method of gradually getting rid of tuberculosis than plenty of fresh air, sunshine, and slaughter of visibly affected beasts The sun s rays are death to the bacillus of this disease, therefore every effort should be made by the people in the old country to try hygienic methods for the cure of tuberculosis both in man and beast This fact is sufficient for the local authorities to have sanitary laws enforced the doing away with everything that tends to promote disease *the thorough ventilation and drainage of byres, and the* cleaning and keeping clean of all cows in milk and the utensils nd gearing used in connexion with the dairy These matters cannot be repeated too often for it stands to reason that the more fresh air we get the more vitality we have of resisting the enemy A stock owner has a perfect right to get rid of disease in his dairy herd in the same way as Her late Majesty the Queen did in getting rid of the cows which reacted to the tuberculin test at Windsor This is a matter which touches the pockets of owners directly, and no one can take exception to any owner attempting to purify his herd in the most effective manner he can.

The United States have not been slow in following up the discovery of Professor Koch s tuberculin cure for consumption in the human being The State of Vermont some years ago made experiments in regard to the te t One of the objections taken to it was that tuberculin does not determine the stage of the disease but condemns animals that might live for years and possibly recover This objection seems to me a fatal one in respect to making the test a compulsory measure, and therefore it can only be a means of privately finding out whether tuberculosis exists or not It appears, therefore that we have yet to hear of other scientific methods of a more exact nature than that disclosed by the tuberculin test The test does not allay the progress of the disease, but on the contrary increases its severity stirs the minutest lesions, and therefore brings to a climax the disease in a generalised form dormant for all time to
come methods as the easiest
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tuberculin test is not allowed in the case of the human being, why should its use be advocated in the case of the bovine species? Some of the cattle breeders of the United States and Canada have protested against the use of tuberculin as a test for pure bred cattle being allowed to be imported, on the ground that it is "unreliable and unsatisfactory," and in the same sentence it is pointed out that it is of great use to the cattle-owner who wishes to maintain a healthy herd, but that importe l stud cattle should not be subjected to the test As regards this exception I can only say that importers of pure bred cattle in the State of Victoria have it in their power to have their cattle tested if they please before shipping them from foreign ports and this has been done in one or two instances within the last two years The quarantine of all suspected animals should be insisted on which react to tuberculin with the alternative of immediate slaughter if quarantine cannot be maintained. I have lately heard of a stock owner having gone to the trouble of getting his herd subjected professionally to the tuberculin test and then when the animals which were put away to fatten had been killed the tuberculin test proved to be satisfactory Cases of this kind I should be glad to have made official or at any rate brought under official observation

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ON THE MORTALITY AMONG RATS AT THE CAPE TOWN DOCKS WHICH PRECEDED THE PRESENT EPIDEMIC OF PLAGUE

BY ALEXANDER EDINGTON, M D , F R S EDIN ,
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IN the report of the meeting of the Epidemiological Society on May 17th as published in THE LANCET of June 1st, p 1541, certain remarks are contained with reference to a mortality among rats in the Cape Town Docks and Dr Klein is reported as having said "Dr Edington now admitted the mortality among rats at Cape Town and had sent cultures obtained from them to several bacteriologists, including himself There was no doubt as to their being true plague bacilli Dr Edington s failure to recognise them having been due to his employing unsuitable media ' Since this statement is totally inadequate and, as a matter of fact, really mis states the case I have thought it advisable in the following brief account to recount the facts of the case

I arrived at Cape Town *en route* to my headquarters at Grahamstown on Feb 5th At Cape Town, however, I was *detained* by the Honourable the Colonial Secretary in order to investigate an alleged mortality among rats at the docks Accounts from reliable per ons went to show that rats had been dying at the docks in some appreciable numbers but in an official letter of Feb 9th the Table Bay Harbour Board stated in regard to the alleged mortality that it had been ' brought to the notice of the board s officials and it was attributed to the energies of the rat-catcher which had been newly awakened by the threatened appointment of another man ' I found in so far as my information went, that rats had been dying in appreciable numbers for two months previous to my arrival Professor Simpson, in a recent address given to the Cape Town branch of the British Medical Association states that "the sickness and mortality among rats prevailed for at least four months before the fir t recognised case of plague This is a long time to elap e without any manifestation of the disease in man

Immediately that I had been asked to make an investigation the Under Colonial Secretary, at my request, issued instructions that rats found dead or dying at the docks should be immediately sent to me Despite every effort however during the following six days no rats were found and I was *forced to report at that time that so far no* evidence had been brought before me which could enable me to say that rats were dying from plague On the following day, however a rat was brought to me from the south arm of the dock (the area in which the mortality had actually been observed formerly) and a number of rats from other parts Of tho e brought from other parts not one was found which showed the slightest evidence of disease I ought to say here that with two exceptions all of them were alive and in perfect health while of the two which were dead no evidence of disease was found at all That one however from the south arm showed conditions which are of very great interest and I shall refer to it in detail Meanwhile having heard on Feb 10th that several suspicious cases of sickness in man, together with one which I had just seen, had been removed to the isolation camp at Uitvlugt, and having received authority on Feb. 11th to examine these, I proceeded there on the morning of Feb. 12th. On my arrival I found that 12 patients had been admitted, most of whom had well-marked buboes, either in the femoral or axillary regions. I opened into most of these buboes with a sterilised hypodermic syringe and in the material thus collected I was able in most instances to demonstrate the presence of the plague bacilli. Thereupon I reported officially to the Colonial Secretary on Feb. 13th "that the disease now appearing in Cape Town is undoubtedly the bubonic plague."

Cultivation experiments were also successfully carried out, and since that date I have produced the disease by inoculation of the cultures in guinea-pigs and rabbits. I was detained at Cape Town for only a fortnight, and as when I arrived there originally I had no materials for culture experiments I telegraphed to Grahamstown for them and they arrived four days later. All the culture material (agar-agar) came from one batch and upon it the human plague bacilli reproduced themselves in characteristic microscopic form and have retained their virulence in successive transferences until now when it (the original strain, not passed through an animal) is now showing a very definite declension in virulence. I have referred to this thus fully as controverting the statement that I had used unsuitable media, since the bacilli of the rat plague, grown on the same media and inoculated simultaneously with the human plague, produced bacteria of the most diverse character.

But to return to the case of the rat from the south arm. It was examined with the assistance of the principal veterinary surgeon, Mr. Duncan Hutcheon, M.R.C.V.S., and a very complete dissection was made. On removing the skin no injection of the subcutaneous tissue was observable, nor were any enlarged glands found either in the axillary, femoral regions, nor, afterwards, in the abdomen. On opening into the abdomen no peritoneal exudation was seen, while the intestines were quite normal. The adrenals were pale and slightly enlarged, but the kidneys were normal. The spleen, which consisted of a mere ribbon, was certainly not enlarged, while its consistence was normal. The liver was slightly congested. No enlarged glands were found. On opening into the pleural cavity we found a large collection of clear yellow exudation. The lungs otherwise appeared absolutely healthy. The pericardium was also filled with clear yellow exudation to such an extent as to make the membrane tense. No hæmorrhagic exudations were found in connexion with the heart-muscle or the endocardium. Thus far the post-mortem examination had failed to reveal any suggestion of plague infection. Cultivation experiments were instituted with the spleen-pulp and the blood of the heart, the results of which I shall refer to later. Microscopical examination was made of the blood from the axilla and also from the heart, whilst smears were made from the liver, spleen, adrenals, and kidneys. In all of these, and especially the spleen, large numbers of a somewhat ovoid bacterium were found. These were very regular in size and shape and did not show bipolar staining either with Löffler's blue or gentian violet. They were thus in marked contrast with the bacilli found in the human buboes, in which typical bipolar staining was found in every case. I therefore reported in regard to my examination of the various organs, blood, &c., that "in all of these, but least of all the suprarenal capsules, there are numbers, often innumerable, of a microbe which is somewhat similar to one stage of the plague bacilli, with which, however, it differs in many respects."

As I was under instructions, dated Feb. 16th, having already declared the disease at Cape Town to be bubonic plague, to proceed to Grahamstown and to re-assume the charge of the Bacteriological Institute no inoculation experiments could be carried out until I should have reached that place. The cultures of the rat disease and the human plague, both, as I have stated, having been made in the same media, showed the most striking and diverse microscopic form. While the human plague existed as small more or less ovoid bacteria, most of which showed bipolar staining, the rat microbes presented larger irregularly spherical forms with some irregular filaments, and approximated to very exaggerated involution forms of plague. These latter grown in bouillon, inoculated with the merest trace of an agar culture and incubated for 24 hours, were used for the inocu-[illegible] of guinea-pigs, rabbits, pigeons, one cat, and one [illegible] These animals when inoculated each received [illegible], excepting the pigeons, one of which received five [illegible] e other only a trace.

Guinea-pigs.—The first, inoculated with another, on March 1st, died within two days. The subcutaneous tissue around the area of inoculation was occupied by an immense pale gelatinous œdema. This œdema extended from the groins over almost the whole ventral surface. The site of inoculation was almost œdematous and the track of the needle was marked by a slight hæmorrhagic exudation. The only other trace of such hæmorrhagic character was a small area 10 millimetres in diameter on the left side. The œdema was remarkably free from any hæmorrhage and was in parts about six millimetres in depth. This œdematous condition is an essential characteristic, while the absence of hæmorrhage is equally so, in all animals inoculated. The spleen was slightly enlarged, showed no white spots, and was of normal consistence. A few glands were found enlarged in the axillæ, groins, and in the mesentery. These, however, were œdematous rather than enlarged, were semi-transparent when held to the light, and emitted a semi-transparent fluid when cut into. The second guinea-pig died on the following day. Here the conditions were similar to the former, with the addition that the spleen showed white points somewhat similar to what is found in true plague and the pericardium contained some clear yellow exudation. In neither case were the lungs found to be inflamed. In other guinea-pigs similar results have been found.

Rabbits.—Two rabbits were inoculated with the original culture and two with a culture recovered from the spleen of a guinea-pig, but in neither of the cases was any illness produced. Cold abscesses were found at the seat of the inoculation which proved to be sterile. The first two rabbits were thereafter inoculated with cultures from the human plague, and in each case died from bubonic plague.

Baboon and cat.—In the cases of the baboon and cat neither were affected by the inoculation.

Pigeons.—In the case of the pigeons two were inoculated on March 26th. The one which received five drops died early on the morning of March 31st, while that which had received but a trace of the bouillon culture died on the following day. In both pigeons and guinea-pigs the rat microbes were recognised in the blood and organs, while cultures of the bacilli were also easily obtained in every case. The blood of the pigeons was in both cases most prolific in bacteria and the smallest trace transferred to agar gave rise to confluent colonies of the microbe. In the liver of the pigeon the bacteria showed greater tendency to bipolar staining than in any other situation.

Although the cultures of the rat microbe are very similar to the somewhat non-characteristic growth of plague, and although the cultures in buttered bouillon give rise to stalactite growth, yet the microscopical form of the bacteria in the body of the rat, together with its pathogenic action, are somewhat at variance with what we know of true plague bacilli. Moreover, I have had numerous opportunities of observing rats affected with bubonic plague in Port Elizabeth, but, although I have found an abundance of plague bacilli more or less virulent in action, I have not seen one case in which the rat microbe found in the early mortality at the south arm of the Cape Town Docks has reappeared. I must, therefore, until further observations have otherwise convinced me, adhere to my belief that the disease which primarily caused the mortality among the rats at the Cape Town Docks was not true bubonic plague, although being undoubtedly a variety of the bacillus of hæmorrhagic septicæmia.

Grahamstown, South Africa.

WALLINGFORD COTTAGE HOSPITAL. — This hospital, which has hitherto been very slenderly endowed, has recently received a substantial addition to its resources. The sum of £1010 has been subscribed for the purpose of endowing a bed as a memorial of the late Mrs. Helen Mary Wells, who took an untiring interest in, and rendered much active help to, the hospital from its foundation in 1878 to the time of her death in September last. During that long period she was one of its lady visitors and her cheerful presence was ever welcome to patients and officials alike. The money has been invested in Local Loans Stock in the names of the Official Trustees of Charitable Funds and a presentation brass bedstead of the Lawson Tait pattern, with a memorial plate over it, has been set up in the principal ward. A dedication service was conducted last week by the Rev. Sir J. L. Hoskyns, Bart., rural dean, when the attendance was more than sufficient to fill the ward, great interest being manifested in the proceedings, which were of a very impressive character.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare —MORGAGNI *De Sed et Caus Morb.*, lib iv., Proœmium.

SHEFFIELD ROYAL INFIRMARY.

A CASE OF STRANGULATED INGUINAL HERNIA; ENTERECTOMY; RECOVERY.

(Under the care of Mr ARTHUR CONNELL.)

IT is now generally recognised that immediate resection of the gangrenous bowel is preferable in strangulated hernia if the general condition of the patient will admit of it. Such primary resection saves the patient the risk of a second operation for closure of the fæcal fistula, and also, if the gangrenous portion is in the jejunum, it saves him from the risk of inanition which may result from insufficient absorption. It is still, however, sometimes necessary to open the [illegible] form, if the [illegible] lation appear [illegible] n would lead to a fatal issue.

A man, aged 21 years, a labourer, was admitted into the Sheffield Royal Infirmary on June 1st, 1901, suffering from symptoms of strangulated hernia. On questioning the patient the following history was elicited. Twelve months before, whilst at work, he was suddenly seized with a sense of something giving way in the abdomen, followed by violent pain and accompanied by a swelling in the left inguinal region; he immediately went to bed, the hernia being reduced by his medical attendant. Since the first attack the bowel had frequently come down, but the patient had been able to return it into the abdomen. On the present occasion, however (May 29th), the hernia was very much larger and all attempts at reduction both by himself and by his medical attendant having failed he was sent to the infirmary. On examination a very large scrotal tumour was found to be present on the left side, extending from the internal abdominal ring to the bottom of the scrotum. The skin of the scrotum and penis was markedly œdematous and ecchymosed The patient was suffering great pain, accompanied by vomiting There was neither any action of the bowels nor did he pass flatus after the descent of the bowel. The swelling was exceedingly tender to the touch, hard, tense, dull on percussion, and apparently irreducible. (No attempt at reduction was made in hospital) There was the well-marked urethral discharge of gonorrhœa present at the time

At 12 30 P.M. on June 1st Mr Connell operated Ether being administered, an incision was made along the left inguinal canal, extending from above the internal abdominal ring to one and a half inches below the external ring. On opening the sac some blood-stained serum with an offensive smell escaped; immediately the exposed region was thoroughly irrigated. The stricture was now divided and the omentum, which was very dark and found lying in front firmly adherent to the sac, was ligatured in several pieces and divided, forceps being attached to the proximal portion in order to [illegible] back into the abdomen. After [illegible] it was withdrawn from the sac [illegible] hout gloss, and on handling it it was very hard and of a leathery consistence. At the point of stricture the gut was considerably damaged and as all pulsation in the mesenteric vessels had ceased enterectomy was performed. The gut, having been clamped above and below by means of Doyen's broad ligament forceps covered with indiarubber tubing, was divided, 16 inches being sacrificed. The mesentery was divided along the line of its attachment to the gut and the bleeding vessels were clamped; little or no blood escaped from that portion of the mesentery corresponding to the blackened intestine. A continuous suture interrupted at intervals now brought the two layers of the mesentery together. The bowel being irrigated and cleaned a second time, the two ends were placed side by side and united by immediate suture—one set of continuous sutures interrupted twice for the mucous membrane and a second set of the same type for the sero-muscular coat The super-abundant mesentery, falling into natural folds on suturing the gut, was sutured after the manner suggested by MacCormac. The parts were reduced after careful overhauling and the operation was completed as for inguinal hernia. Recovery was uneventful, the patient leaving the infirmary on June 22nd feeling quite well. Flatus was passed during the night of the 1st

Remarks by Mr. CONNELL.—One is not often called upon nowadays to operate in such advanced cases of strangulation in external hernia, except, perhaps, in some cases of femoral hernia which are attended with unusually rapid pathological changes, and I venture to place on record this case which was somewhat acute. That the condition of the gut (small intestine) found at the operation after three days' strangulation should be so far advanced was, to say the least of it, surprising, but may be accounted for perhaps by the following factors acting together—(1) the congenital type of the sac; (2) the presence of a large quantity of omentum in [illegible] for strangulated hernia are attended with a high mortality, and it is not surprising when one considers the auto-intoxication which takes place where the vomiting has become stercoral, as in this case Fortunately for this man, his powers of resistance were in evidence and played no inconsiderable part in the recovery. It is a pleasure to me to express my indebtedness to Dr. John Broadley, the house surgeon, for the notes and for the great care and *attention of the patient after the operation.*

Reviews and Notices of Books.

Introduction to the Study of Medicine By G. H. ROGER. Authorised translation by M S GABRIEL, M.D, with additions by the author. London: Henry Kimpton. 1901. Pp 550 Price 21s

THE translation which we have before us is a reproduction in English of the course of lectures delivered by Professor Roger at the University of Paris during the year 1897-98 This course of lectures was instituted by the faculty of the university as a means of introducing to students at the commencement of their professional education the principles and aims which should guide them in the subsequent pursuit of scientific knowledge To read these lectures is to admit that Professor Roger has fulfilled this object in the most admirable manner In view of the remarkable advances witnessed during the last decade in what may be called the technique of laboratory diagnosis it is interesting to note the following pronouncement on the part of the author, who is no less famous for original research in the laboratory than for success as a practical clinician "It seemed to me important to oppose the tendency of some modern authors who think that the solution of problems raised by the examination of patients can be found in laboratory researches. No one is more firmly convinced than myself of the usefulness of experimental pathology; nevertheless, at the bedside the physician can do no better than to depend upon clinical procedures Only in quite rare instances will he be obliged to resort to more delicate methods of investigation. I cannot admit abdication of clinical methods before the rising tide of bacteriology" It is clear to the careful reader that this is the underlying "motive" throughout these lectures and the considerable space—some 200 pages—which is devoted to the examination of the sick at the bedside is convincing proof that the unaided application of the senses can lead to practical results in diagnosis

The arrangement of the various sections is simple and methodical. In the early chapters the student is introduced to the causes which interfere with the physiological processes of life; those that follow explain the reaction of the organism to these external causes and introduce the reader to the essentials of morbid anatomy and the objective and subjective manifestations of disease. From the beginner's point of view it is probable that the chapters which deal with the examination of the sick will prove of the greatest value, while advanced students and practitioners will appreciate more highly the philosophic representation of the processes of general nutrition, the auto-intoxications under normal and abnormal conditions, the significance of diatheses, the pathology of the fœtus, and the influence of heredity. With regard to diatheses, the reader will notice that Professor Roger follows closely the teaching of Bouchard. He rejects the conception of tuberculous, syphilitic, cancerous, and other diatheses, and admits of two only—namely, the scrofulous and the arthritic. He defines a diathesis as a particular mode of nutrition: arthritism as a sluggishness of nutrition, scrofulosis as a failure of carbohydrate and nitrogenous assimilation. The effect of these particular forms of metabolism is to induce morphological characteristics and pathological processes of nutrition which are easily recognisable in individuals who conform to one or other of the above types. Arthritism is the inheritance of civilised people and of the upper classes. Most individuals with a superior intelligence are tainted with it. Scrofulosis is found in children born of parents in bad health suffering from some chronic intoxication; they are weaklings with flaccid muscles, long and silky eyelashes, hypertrophied tonsils, and wide noses. These nutritive disorders, whether the result of infective or autochthonous intoxication, may be transmitted to the children, but the most serious manifestations of such failures of metabolism are not necessarily perpetuated in descent; healthy surroundings for mind and body may retard or even definitely prevent the display of the worst features of such hereditary taint, they may only become apparent under the influence of the appropriate stimulus—in other words, they are preventable.

The few pages which are devoted to the consideration of genius, insanity, and crime are intensely interesting and suggestive. The views of the author are not absolutely in harmony with those of Lombroso and his school on the mutual relationship of these mental conditions. Professor Roger, while admitting that there are affinities between genius and insanity on the one hand and between insanity and crime on the other, will hear of none between criminality and genius. He considers that men of genius are superior degenerates, criminals to be inferior degenerates. Genius and crime are the two converging (or diverging) sides of an angle which has insanity for its apex. This is the only point at which these lines meet; the further they are extended the more divergent they become. These are but a few of the interesting problems which the author tries to solve in words which can be understood by an audience only imperfectly equipped with a knowledge of medicine. But for both student and practitioner this introduction to the study of medicine is, indeed, as the translator expresses it, "a fascinating journey into the regions of medicine where the most important developments have recently been realised." In conclusion, we must congratulate Dr. Gabriel upon the successful manner in which his translation reflects the brilliant literary style of the original text.

The Cambridge Natural History. Edited by S. F. HARMER, F.R.S., and A. E. SHIPLEY, M.A. Vol. VIII.: Amphibia and Reptiles. By Dr. HANS GADOW, F.R.S. London: Macmillan and Co. 1901. Pp. xiii.-668. One coloured plate and 181 figures in the text. Price 17*s.* net.

DR. GADOW has done his best to disprove at least the latter half of one of Linnæus's crisp phrases which he quotes in his preface. "Amphibiologi," wrote Linnæus, "omnium paucissimi sunt nullique veri." Dr. Gadow has in his lengthy volume given us an account of both amphibia and reptiles which should satisfy the expert zoologist and at the same time entertain the reader who is merely interested in the tit-bits of natural history. Much that Dr. Gadow has to say will be new to most readers, and all, so far as we have tested him, will be found to be true. Besides, he is an expert in the groups of which he treats, more particularly of the reptiles; and this is precisely the most satisfactory character about this and the other volumes of the Cambridge Natural History; we can always follow our instructor with confidence, for which we have to thank the editors of the series.

The gentlemen entrusted with the editing of the Cambridge Natural History have been wise in not insisting upon long disquisitions upon toads immured in limestone rocks of the carboniferous period, upon vipers swallowing their young, upon the sea-serpent, and those various topics so intimately connected with the animals treated of in the present volume which appeal so strongly to the "energetically ignorant" In spite of these omissions, or scant and uncourteous references, Dr. Gadow's volume will be found to be in the proper sense of the word "popular." There is not an anecdote told of frog, toad, or lizard that has not a definite and important fact to state or to explain. There is an entire absence of that tiresome facetiousness sometimes supposed to be necessary in dealing with natural history. Instead of this we find an easy and by no means monotonous account of the ways and life histories of a large series of amphibia and reptiles. A considerable portion of the book is naturally anatomical. And here Dr. Gadow is on familiar ground, constantly traversed and retraversed by himself in his own investigations; even those sections which deal with "bionomics" are by no means mere quotations from the observations of others. A large number of amphibians and reptiles of many kinds have been kept by the author and carefully noted and surveyed. The result is a book full of accurate information and pleasant reading. Dr. Gadow does not commit himself much to theory; he deals warily with many controversial points. Fierce and frequent have been the discussions of late concerning the meaning of many facts in animal colouration. In no branch of biology, perhaps, has theory so completely out-distanced fact. It has been asserted that the proteus, that singular blind and white newt-like creature inhabiting the caves of Adelsberg, owes its loss of colour to the absence of necessity for any particular colouration in a locality where there is no one to appreciate it. The useless colour, like the useless eyes, have, it is held, disappeared for this reason. To suggest a plain and homely action on the part of environmental forces was to become the very worst kind of heretic And yet Dr. Gadow quotes Mr. Bles to the effect that the proteus when removed from its caverns and made to live a reasonable out-door life "turns ultimately jet-black." The changes of colour of the chameleon have engaged the attention of naturalists as well as of poets. Some of the former have attempted to insinuate that these changes are mainly, if not entirely, for protective purposes. Excitement, anger, cold, and heat seem to be at least as potent factors in determining a change of hue, and Dr. Gadow thinks that "adaptation to their immediate surroundings takes place to a very moderate degree only."

Much has been written, especially in America and by the late Professor Cope and Professor Marsh, of those often monstrous creatures of the Mesozoic period—the dinosaurs The great interest attaching to these archaic reptiles is naturally their supposed relationship, indeed alleged ancestry, to the modern birds. To the late Professor Kitchen Parker it appeared ridiculous that an 80-feet dinosaur wallowing in oolitic mud should have given rise to that tiny pinch of feathers called a humming bird. But after all the shock to the sense of fitness of things is not very much greater than that inflicted by the certainty that the extinct New Zealand moa towering over the tree ferns is most unquestionably of common origin with the same humming bird. Size is not a difficulty in judging relationships. The real difficulty in this matter is plainly put by Dr. Gadow. The earliest bird—the familiar, even notorious, archæopteryx—is in almost every sense of the word a bird of the most unmistakeable kind. As the dinosaurs antecedent to this bird with its mediæval hand show no indications whatever of an approach to the bird type of structure greater than those shown by dinosaurs contemporaneous with or subsequent to the archæopteryx it seems inconceivable that we are to look for the avian tree in this direction. The dinosaurian suggestion is undoubtedly strengthened by the greater probability that they were warm-blooded and had air-sacs like birds, but it is nevertheless merely tantalising in the present state of our knowledge. This group of reptiles is one of the best instances of a dominant group. They ranged in size from that of a crow to perfectly gigantic proportions and showed much variability of structure and naturally concomitant variability of habit. Why they disappeared is one of those puzzles which there are at present no data to explain. It seems impossible that the tiny mammals which began to appear in their day with their defenceless bodies and slinking ways can have got the better of them in the struggle for existence. In default of any better explanation we must have recourse to such comfort as we can get out of the homely saying, "Every dog has his day."

The chapter on Snakes and their Poison will naturally appeal to many of the readers of this review. The actual symptoms are detailed in the case of several of the more venomous species, and these details are extracted from Professor Clifford Allbutt's "System of Medicine." Dr. Gadow says that several species of birds and mammals are "immune by nature" against the poison of serpents. This matter is one of very great interest, but we had thought that "mithradatism," as it has been proposed to call this fortunate disposition after the unpoisonable king of Pontus, was more usually replaced by special activity on the part of the snake-eating creature. The mungoose, for example, which was imported at one time into Santa Lucia and some other islands of the West Indies to cope with the fell trigonocephalus, is, at least by many, believed to owe its apparent immunity to its agile way of leaping aside from the serpent and then at the right moment leaping with equal agility upon the back of its head. There is, of course, the legend that the mungoose when bitten eats of a particular herb which at once neutralises the venom, but this suggestion does not, we should imagine, demand serious discussion in these columns. A highly disconcerting habit of many of the viperidæ is related by Dr. Gadow. It appears that the common English viper and the asp which bit Cleopatra, cerastes, have the uncomfortable habit, not possessed by other beasts of prey, of being attracted by the camp fire. Dr. Gadow combats the superstition that the rings on the "rattle" of the rattlesnake have anything to do with its age; they are not at all, as some think, comparable to the rings of trees in their significance of age. They are, however, useful to the casual stroller in American forests by warning him of the presence of their deadly owner, a circumstance which might appear at first sight a little too altruistic for adoption by Nature. It must be remembered, however, that the advantage is probably mutual; the snake does not want to be trodden upon although it may bruise the heel of the traveller by way of a retort. Dr. Gadow does not mention an interesting analogy pointed out some years ago by Dr. Günther between the tail of the rattlesnake and that of the porcupine. In both creatures there is a rattling and warning apparatus upon the tail which is in both formed of hardened epidermic structures.

We have picked out a few matters from this solid but easily assimilable volume for the purpose of illustrating its exceedingly thorough nature. Its usefulness and interest to the general reading public is much increased by the numerous figures, many of them new and prepared specially for this volume by the skilful pencil of Miss Bateson who has in most cases drawn her subjects from the life and in characteristic attitudes.

Public Water Supplies, Requirements, Resources, and the Construction of Works. By F. E. TURNEAURE, C.E., Professor of Bridge and Sanitary Engineering, and H. L. RUSSELL, Ph.D., Professor of Bacteriology, University of Wisconsin, with a Chapter on Pumping Machinery by D. W. MEAD, C.E., M. Am. Soc. C.E., &c. First edition. New York: John Wiley and Son. London: Chapman and Hall, Limited. 1901. Pp. 750. Price $5.

IT may be well to give a general outline of the scope of this book which deals chiefly with the conditions found in the northern part of America.

In the preface there is a brief introductory chapter which will be referred to presently. The main body of the work is divided into two parts. Part I. deals with Requirements and Resources and Part II. with the Construction of Waterworks. A study of the book shows that by "resources" the authors refer to the sources of supply, and this part of the book contains chapters on Rainfall, on Evaporation and Percolation, on the Flow of Streams, and on Ground-water. The second section of Part I. deals with the Examination of Water-supplies, with the Quality of Water derived from Various Sources, and with the Connexion between Water-Supplies and Communicable Diseases. In dealing with the quantity of water required the authors give tables showing the amount which is consumed per head in the case of many cities. Although few towns in the United States use any considerable amount of water for ornamental purposes, yet the total amount which is said to be supplied is very great, and it may be not without interest to notice the time of the day during which the greatest amount of water is used. A table is given of the rate of consumption in Boston, Massachusetts. The smallest amount is taken between the hours of from 1 A.M. to 4 A.M., but the rate at which water is supplied during that time amounts to no less than 40·8 gallons per head per day. The greatest amount is used between 7 A.M. and 10 A.M., and during these hours the rate is that of 103·8 gallons per head per day. The average amount taken per day is 73·6 gallons per head. It seems possible that a large proportion of the water is lost in American cities through defective mains, and in favour of this hypothesis it may be stated that the authors of the book under review state that one engineer "specifies" the maximum of "allowable leakage" to be from 60 gallons to 80 gallons per mile per inch of diameter of pipe, and another engineer showed that a leakage of 6400 gallons per head per mile took place from a 24 inch pipe under a pressure of 110 pounds per square inch. It is stated also that cases of breaches of four inch and six inch mains have remained undiscovered for a long time and that the water has flowed away through adjacent sewers to the amount of 100,000 gallons in 24 hours. Another cause of the greatness of the amount of water used in American cities appears to be that taps are often allowed to run continually. This practice is extremely common during the cold weather and it is adopted as a means of preventing freezing of the water in the pipes within the houses.

A table given in regard to the sources of water-supplies in the United States is of some interest. It appears that out of a total of 3356 organised supplies given 33·2 are derived from surface waters, that is to say, from rivers, from lakes, from impounding reservoirs, or by some combination of these different sources. Ground waters are used in 54·2 per cent. of the supplies. This figure is made up in the following way: shallow wells, 25·7 per cent., artesian wells, 10·1 per cent.;

springs, 14·9 per cent.; galleries and tunnels, 1 per cent.; and a combination of these different systems, 2·5 per cent. Surface and ground-waters—that is to say, a combination of the two chief classes given above—are used in 7 6 per cent. of the total organised supplies, and this number is made up as follows: rivers and ground-waters, 6·1 per cent.; lakes and ground-waters, 0 9 per cent.; and impounding reservoirs and ground-waters, 0·5 per cent.

Dr. Russell is responsible for the chapters on the Examination of the Water-supplies, for the one which deals with the Quality of the Water, and for one on the Spread of Communicable Diseases by Means of Water-supplies. In these chapters an account of the methods of physical examination employed in estimating the purity of the water is given and there are details concerning its chemical, bacteriological, and microscopical examination. The importance of sanitary surveys of the sources of supply also receives some consideration. The quality of "meteoric" surface and subterranean waters is discussed and there are remarks on the effect of the storage of water. The chapter specially devoted to the question of the spread of diseases which are usually disseminated by water contains accounts of epidemics of typhoid fever, of cholera, and of anthrax. The author does not show any knowledge of the work which was done by William Budd and by John Snow in regard to the spread of communicable disease by water, and a study of this part of the work lends support to the belief that the English literature on this subject is not generally familiar to American writers.

The part of the book which deals with the collection of water contains chapters on impounding reservoirs, on earthen embankments, on masonry dams, and on timber dams. The means adopted for the purification of water are dealt with at some length in the chapters on Sedimentation, Sand Filtration, Mechanical Filtration, and Miscellaneous Purification Processes. In regard to sand filtration Dr. Russell, who is responsible for this chapter, makes the remarkable statement that it is interesting and valuable to note that this process was developed empirically. As a matter of fact, the work undertaken by Mr. James Simpson for the Chelsea Waterworks Company and the results at which he arrived were by no means empirical. The work which it was desired to do was to remove from Thames water the grosser impurities, and after a series of investigations Mr. Simpson perfected a filter bed which accomplished the purpose he had in view and which formed a model from which but little modification has taken place since. The chapter on Sedimentation contains some account of observations which are of considerable interest. It is said on the authority of Fuller that the sediment contained in the Ohio river varies from one part to 5000 parts per million, that the ordinary range of variation is from 100 parts to 1000 parts, and that the number of bacteria varies from a few hundreds to 50,000 per cubic centimetre. The size of the particles held in suspension varies greatly. Suspended particles when the water is at rest carry down with them a number of bacteria. Dr. Russell remarks that sedimentation as a purifying process has long been known in England. This is true. The process of sedimentation was used for the purification of water in England for centuries before America was discovered by Columbus.

It does not appear necessary to do more than to indicate the arrangement of the information which is given in regard to the Distribution of Water. It is dealt with in chapters which refer to pipes, to conduits, to pumping machinery, and to reservoirs. A few words must, however, be said with regard to the historical sketch with which the book commences. The authors touch upon such interesting subjects as Jacob's Well at Cairo, the wells of Greece, of Syria, of Persia, and of China. They reproduce illustrations of the Roman aqueducts which have already appeared in a book by Mr. Herschel. This engineer, it may be remarked, made a calculation as to the amount of water which was formerly supplied to Rome and his results are adopted by the writers of the present book. It may, therefore, be worth while to state that the data upon which Mr. Herschel formed his conclusions were not sufficient for the purpose. The information given in regard to the water-supply of London is not great in amount—a matter, perhaps, which hardly calls for regret. The authors state that "in London various pumps were erected on the bridge [London Bridge] from time to time which drew their supply from the river and were operated by the current." The pumps were not erected on London Bridge. They were worked ("operated") by water-wheels. In the next sentence it is stated that in 1819 the New River Company was incorporated and laid its pipes throughout the City. It is not correct to say that the New River Company laid pipes throughout the City in that year. At that time the extension of the supply of the company was made from time to time as new customers were obtained. In the next sentence it is stated that "it"—that is to say, the New River Company—"received its supply from the New River." This is true. The authors, however, do not appear to know that the New River was a conduit made for the express purpose of conveying water from Amwell and Chadwell, two Hertfordshire springs, to London. The book is well printed, but the spelling differs from that adopted in this country.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

AN ordinary meeting of the Comitia was held on July 25th, Sir W. S. CHURCH, Bart., the President, being in the chair.

The following gentlemen having passed the required examination were admitted as Members: Thomas Bushby, M.B. Edin.; Arthur Henry Weiss Clemow, M.D. Edin.; John Cecil Mackmurdo Given, M.D. Lond.; Thomas Wardrop Griffith, M.D. Aberd.; Arthur Douglas Heath, M.D. Lond., L.R.C.P.; Thomas McCrae, M.B. Toronto, L.R.C.P.; Frederick Craven Moore, M.D. Vict.; and Harold Douglas Singer, M.D. Lond., L.R.C.P.

Licences to practise were granted to 112 gentlemen who had duly satisfied the examiners, and Diplomas in Public Health were granted, conjointly with the Royal College of Surgeons of England, to 24 gentlemen.

William Joseph Tyson, M.D. Durh., elected April 25th, was admitted to the Fellowship.

The following communications were received:—1 From the secretary of the Royal College of Surgeons of England reporting certain proceedings of the Council on July 11th. 2. From Dr. F. Womack, lecturer on physics at St. Bartholomew's Hospital, suggesting some amendments in the Syllabus of Physics for the first examination.

The PRESIDENT announced that Dr. Norman Moore had been selected as Harveian Orator.

A report was received from the Council in regard to the desirability of the representatives of the College on the Senate of the University being *ex-officio* members of Council, making the following recommendations:—1. That of the two representatives of the College on the Senate of the University of London one be *ex-officio* a member of Council. 2. That each representative serve alternately as a member of Council for a term of two years or for such shorter term as he may remain a representative; and that in the first instance, of the two representatives the senior Fellow be the one to serve.

On the recommendation of the Council the Baly Medal was awarded to Frederick William Pavy, M.D. Lond., F.R.S., F.R.C.P., for his researches on "The Physiology of the Carbohydrates: their Application as Food, and Relation to Diabetes," 1894, but more especially for his original investigations on Sugar Formation in the Liver, which he has carried on during the last 40 years and with unabated enthusiasm during the last two years.

Reports were also received: (1) from the representative of the College in the General Medical Council on the proceedings of that Council during its session in May last; (2) from the Committee of Management; (3) from the Conjoint Finance Committee; (4) the quarterly report of the College Finance

Committee; (5) the annual report of the Library Committee; and (6) the annual report of the curators of the museum.

The REGISTRAR moved that the by-laws in conformity with the revised regulations of the Conjoint Board, adopted May 9th, 1901, be re-enacted for the second time. Books and other publications presented to the library during the past quarter were received and thanks returned to the donors.

The following is a list of the Censors and other officers nominated by the President and Council and elected for the ensuing year 1901:—Censors: Dr. Thomas Tillyer Whipham, Sir Dyce Duckworth, Dr. Thomas Henry Green, and Dr. George Vivian Poore. Treasurer: Sir Dyce Duckworth. Emeritus Registrar: Sir Henry Alfred Pitman. Registrar: Dr. Edward Liveing. Harveian Librarian: Dr. Joseph Frank Payne. Elected Members of the Library Committee: Dr. Samuel Gee, Dr. John Wickham Legg, Dr. Norman Moore, and Dr. William Henry Allchin. Curators of the Museum: Dr. William Howship Dickinson, Dr. Henry Charlton Bastian, Dr. William Cayley, and Dr. John Abercrombie. Finance Committee: Dr. Thomas Tillyer Whipham, Dr. Alfred Lewis Galabin, and Dr. Stephen Mackenzie.

EPSOM COLLEGE: FOUNDER'S DAY.

THERE was, as usual, a large and representative assembly of members of the medical profession at Epsom College on July 27th, when Founder's Day was celebrated, the annual distribution of prizes being also associated with the celebration. The proceedings commenced with a thanksgiving service in the chapel, after which the visitors adjourned to the big schoolroom. The head-master, the Rev. T. N. Hart Smith, presided, and was supported on the platform by the chairman of the council, Sir Joseph Fayrer, Sir Herbert Maxwell, M.P., Dr. C. Holman (treasurer), Colonel Gordon Watson, son-in-law of the founder, and the members of the school staff. The head-master having welcomed the visitors referred to the death of the late Queen and mentioned that she had been a patron of the institution eve [illegible]

always taken a great interest ir

but it was a great consolation,

pleasure of announcing it that day, that the King had kindly consented to take her place and become the patron. His Majesty was present at the opening of the college; he visited it five or six years ago, when the foundation-stones of the lower school were laid; and he had added to his kindness by becoming their patron and continuing his interest in it in that way. He never remembered more entries than they had had that summer term, and certainly, so far as examinations were a test of success, they had never had a more successful time than during the last 12 months. He hoped that this year the result might be improved upon because they had entered no less than 58 boys. Referring to Lord Rosebery's speech at the recent festival dinner he observed that a great many of them sympathised with his lordship's allusion to the rather long adjectives with which their title was burdened. He thought they would be very much amused if he were to tell them some of the results of one of those adjectives. He was often asked by anxious parents if he would train their son, who was going to become a doctor, in anatomy, materia medica, or put him through his bones. Sometimes he received advertisements of strange appliances or gruesome drugs, but what gave him more satisfaction, perhaps, than anything else was to be addressed as the dean of the medical school.—The prizes were then presented.

Sir HERBERT MAXWELL, M.P., afterwards addressed the assembly and in the course of his remarks observed that he had a hobby and that hobby was natural history. He noticed that amongst the prizes was one given for proficiency in that science and he was glad to see that it had its place amongst their studies. But his satisfaction was somewhat damped when he found that that prize was awarded, not for reports of successful research, but for competition collections. He was aware of his boldness in making that criticism, but he would not be quite sincere if he concealed from them the regret that he had that natural science seemed inseparable from competition and from the destruction of the very creatures which naturalists ought most to admire, to revere, and to protect. What did a competitive collection imply—a collection of butterflies, a collection of birds' eggs, a collection of dried plants? Did it not mean the destruction of the specimens, and that those specimens were valued just in proportion to their rarity? They were a populous nation, and as man increased the humbler animals, the humbler organisms, were apt to decrease. Let natural history and that love of open-air pursuits be increased to the utmost—nothing but good could come of them; but would it not be possible, he asked, rather than to bestow prizes upon successful collectors to offer them to stimulate the industry and penetration of careful observers? It seemed to him that the difference between the love of excelling and the love of excellence was the difference between the mere collector, the competitive collector, and the student of nature who loved nature and all its works for their own sakes.

The usual votes of thanks concluded the proceedings.

ASYLUM REPORTS.

Worcester County and City Asylum (Annual Report for 1900).—The average number of patients resident during the year was 1144 and comprised 516 males and 628 females. During the year 247 patients were admitted, 129 being males and 118 being females. Of these 31 were not first admissions. Mr. G. M. P. Braine-Hartnell, the medical superintendent, states in his report that among the admissions there were 160 patients in indifferent health and reduced condition and 69 patients in bad health and exhausted condition. One male patient was admitted suffering from pneumonia which caused his death in four days, and two patients (one male and one female) were admitted with recently-cut throats, both recovering in a few days. During the year 77 patients were discharged as recovered, or 6·7 per cent. of the average number resident. The deaths during the year amounted to 128—viz., 57 males and 71 females—or 11·18 per cent. as calculated on the same basis. 30 per cent. of the deaths were in patients of 70 years of age and upwards. General paralysis was responsible for 17 deaths, pneumonia for 26, and phthisis for 26. These three diseases caused more than half of the total deaths. Post-mortem examinations were made in 110 cases of death. A married woman admitted while pregnant was confined of a daughter. The patient died soon afterwards from pneumonia. An inquest was held on the body of a female patient who had escaped and drowned herself in the reservoir. The jury returned a verdict of "suicide by drowning," and added "that no blame attached to anyone connected with the asylum." This is the first case of suicide which has occurred in the asylum since 1883. Four male patients escaped from the asylum. One was recaptured in four hours and another in three days. Two remained at large and at the expiration of the statutory period were regarded as discharged. Colitis or dysentery still prevailed, being associated partly with overcrowding and partly with feeble health. Two male attendants were called out to join the army in South Africa. Their places are kept open for them in view of their return. Two male attendants were dismissed for striking patients and were prosecuted by the committee. They were each fined 40s. and costs. With these exceptions the conduct of the staff has been satisfactory. The average weekly cost per patient for the year was 8s. 0½d. This is 2¾d. more than last year, and the increased price of coal is responsible for this. The profit on the farm amounted to £533 8s. 0d. "In view of the constant recurrence of infectious disease a good disinfector is urgently needed. The present means of disinfection are antiquated and inadequate and a source of anxiety." The Commissioners in Lunacy state in their report that the wards were bright and cheerful, the dormitories were in good order, and the bedding was very clean. The case-books and other medical records were carefully and intelligently kept. In view of the overcrowding of the asylum a site for a new building has been obtained near Bromsgrove, and the Commissioners recommend that rooms should be arranged in it for idiot children apart from insane adults.

THE LANCET.

LONDON: SATURDAY, AUGUST 3, 1901.

The British Medical Association: The Address in Medicine.

DR. J. F. GOODHART took for his subject the difficulties encountered in the daily practice of medicine, and seldom have we listened to a more eloquent discourse. The first difficulties with which Dr. GOODHART dealt emanate from the patient. In spite of the enormous advances made by medicine and surgery it cannot be said that drugs are less used or operations less frequent. The reason for this lack of diminution of medical treatment is to be attributed to the increased sensitiveness about health displayed by civilised peoples. This has necessarily its good side, and so far as it leads to increased care in the prevention of disease or to greater appreciation of early treatment in serious maladies, it works for good; but the patient is daily becoming more sensitive to many minor ailments which would right themselves without any aid from the pharmacopœia. The patient also wants to know too much, and will have a name for his ailment, even though the name alone can tell him nothing. Should his medical man be unable to give an exact diagnosis it is taken as a proof of ignorance and a practitioner who is more rapid at naming the disorder is called in. Yet there are no departments of medicine where hesitation is so great a proof of knowledge as in diagnosis. It is true that wide knowledge may recognise at once conditions which have puzzled those less learned, but it is also true that he who knows much may hesitate long in coming to a conclusion, while he whose knowledge is limited, having fewer matters among which to choose, hastily makes a diagnosis. Yet this is quite unappreciated by the average patient who estimates the value of an opinion by the certainty with which it is expressed. Dr. GOODHART showed also the mistaken notion that too many patients have of the nature of a consultation—viz., that the second opinion is sought to set the first right; even though the second opinion serves in probably a majority of cases to confirm the diagnosis already given, for nowadays the general high level of medical education makes it rare indeed for any great error to occur. The knowledge of the laity of the names and uses of drugs is not extensive, but yet deserves to be considered of that degree which is dangerous; for the patient with a little therapeutical learning tries all the new preparations on himself, and only when he has tried them in vain does he condescend to consult a medical man.

The patient, however, is not alone to blame for much that is unsatisfactory in the practice of medicine: the medical man himself is responsible for no small part of the attitude of the laity, and Dr. GOODHART does not spare the profession. We are too ready, he told us, to detect disease, for we do not appreciate how wide are the limits of health, how many deviations from what we call the normal are compatible with a good state of health. The two organs with which the statement of this fact was illustrated were the heart and the stomach. The heart is often said to be weak and its owner is cautioned against exertion, and in consequence he leads a useless, indolent life, when the heart would have been all the better for a reasonable amount of work. Indeed it may well be that lack of work may impair the vitality of a heart which but for excessive care would have lasted many years and performed its duties well. The stomach, too, is often needlessly maligned. Catarrh and dilatation are frequently said to be present on insufficient grounds and unnecessary treatment is prescribed for what has never existed. Excessive mobility of the abdominal viscera is often diagnosed nowadays and various stitching operations are recommended. Not rarely the demand for the operation comes from the patient, who knows, or has heard of, someone else on whom it has been performed, and there is often great difficulty in persuading such an one that no operation is needed. And if the patient has a liking for an operation he has a still greater relish for drugs, of which he can consume an enormous quantity. No treatment is thought to be complete unless a prescription is given, and it is, perhaps, because of the universal presence of drugs in some form or other in every case that the laity have got the idea into their minds that the drug is the essential part of the treatment and that the advice as to diet and habits is merely a customary addition of very little importance. The advice may be priceless, yet if it is unaccompanied by the prescription it is thought to be of very little value.

Dr. GOODHART had a word to say on fashion in drugs, and it must be confessed with humility that there is a fashion in drugs which is comparable with nothing so much as with fashion in dress. Drugs which but yesterday were extensively used are to-day almost forgotten. The antipyretics which were prescribed so freely 15 years ago are hardly ever given now for their effect on temperature, though the more important members of the group are given still, but for entirely different reasons. The drugs which at the present moment appear to be at the height of their popularity are animal extracts and antitoxins, yet the discerning eye may even now perceive that many of them have passed their zenith and ere long will be forgotten, or at most will be employed only in rare and isolated cases. There is much excuse to be made for the mental attitude of extreme hopefulness with which we receive each new medicament, for there are still so many diseases and symptoms appealing for help and we have to acknowledge that we can do but little for them. Yet it would be well if we adopted a more cautious attitude in receiving new drugs and new methods of treatment; they deserve to be tried and to be tried thoroughly, but we must not expect too much and must sift carefully the evidence for and against them. When we have tried and proved the value of any treatment let us hold fast to it and not too hastily throw it aside for some more novel, yet possibly less useful, method. In the hands of the medical man rests the power of educating the public mind to appreciate the value of medical advice and the less importance of drugs.

If the medical profession insists strongly on this their patients will in time come to put a higher value on the medical advice of which at present they think but little.

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The British Medical Association: The Address in Surgery.

THE surgical lessons of the campaign in South Africa formed the subject of Sir WILLIAM THOMSON'S Address in Surgery. Many of these lessons have been much taken to heart by the medical profession as they were learned from the communications to our columns and those of the *British Medical Journal*, but the teachings of the war will bear recapitulation for South African experiences have had a revolutionary effect on the tenets of military surgery. Moreover, Sir WILLIAM THOMSON made his points with great clearness speaking with the authority of first hand knowledge. The conditions were novel under which that campaign was fought, so that it was difficult to foretell exactly what surgical lesions would be met with. The chief changes in the conditions were the smaller size of the bullet its greatly increased velocity, and its inclosure in a smooth nickel casing. Experiments made beforehand, and a few accidents enabled surgeons to have some idea as to the results which would be likely to follow, but all the experiments were on dead bodies, chiefly of cattle, and dead tissues do not react to the passage of a bullet in the same manner as living tissues react. The experiences of the Cuban War, fought under somewhat similar conditions were hardly available for very little had been published either by American or Spanish authorities at the time when hostilities commenced at the Cape.

There are two main points which have to be considered before the probable damage inflicted by modern high velocity bullets can be estimated —firstly the distance at which the rifle is discharged and secondly, whether or not the bullet meets with a bone in its passage through the tissues. If the rifle is fired within 200 yards the destruction produced is very great indeed, even if no bone be broken but the vast majority of the shots were fired at a much greater distance than this and these severe results were rare. When the bullet encounters no bone in its passage through the tissues it is marvellous how very slight may be the disturbance. A minute aperture of entry is made decidedly less than the size of the bullet, and the aperture of exit can be barely distinguished from it. So smooth so polished is the surface of the projectile that it makes its way among the structures more by pushing them aside than by tearing through them, so that after the bullet has passed the displaced tissues fall back naturally into position and no channel is left. Therefore if no septic organisms have gained admittance the parts are in the most perfect order for the occurrence of rapid healing. It might be thought that the tissues displaced by the bullet were severely damaged and prone to slough, but a case in which the cartilages of the nose were perforated showed that a mere fragment of tissue nearly cut off from all its vascular connexions by the bullet may survive. Whether the projectile were aseptic or not it is certain that many gunshot wounds healed by first intention. This does not, of course, prove that they were absolutely aseptic but it proves that very few organisms can have been present—no more than the tissues could deal with. The early application of the first dressing Sir WILLIAM THOMSON considers to have been a factor of great importance in the rapid healing of wounds. This first dressing was often applied by the wounded man himself and therefore morbid germs had but little chance of entering except when they were carried in by the bullet. Another cause of great moment in the healing of the wounds was the dry atmosphere by which any blood or other exudation quickly dried into a scab, this condition of the atmosphere was doubtlessly in great part due to the elevation of 4000 feet or more which characterised a large portion of the seat of war. All the conditions for the healing of the less severe wounds could hardly have been more favourable.

Even when the bullet traversed the abdomen the injury done was wonderfully small. It appears to be proved that a Mauser bullet can pass between coils of bowel without wounding them for one case was met with by Mr CHEATLE in which the bullet passed through the cæcum and sigmoid flexure without wounding the intervening small intestine. Other cases however have been recorded in which after the passage of a bullet through the abdomen blood in the motions proved conclusively that the bowel had been wounded. Yet even in some of these cases an uneventful recovery followed without any operative interference. This Sir WILLIAM THOMSON considers was due to the angle of impact being nearly 90 degrees. The inducements therefore to perform primary laparotomies were not great when so many cases of perforating abdominal wounds recovered without operation and the want of facilities for abdominal surgery made it very inadvisable to perform abdominal section except in a small minority of cases. Even where perforation and extravasation have obviously occurred it is generally not possible to operate for the elaborate procedures and the aseptic conditions necessary for the successful performance of a laparotomy are not to be found in most field hospitals and probably will not be found for many years.

The greatest difference however between the injury inflicted by the older large soft, slowly travelling bullets and the modern small hard and rapid projectiles is to be found in the injury sustained by the bones. When a modern small bore bullet meets the shaft of a long bone it comminutes the bone and many of the fragments are carried some distance in the direction in which the bullet was travelling. These fragments tend to cause extensive destruction of the soft parts. If the velocity of the projectile is less the injury to the bone is slighter and may cause only a single fracture. When however, cancellous bone is encountered by the bullet a clear perforation of the bone not infrequently results. The statistics of the American Civil War demonstrate conclusively the very large proportion of cases in which bones are broken in warfare nearly 25 per cent. of the wounded in the Northern hospitals suffered from fractures. Formerly the mortality was appalling and the benefit resulting from amputation in gunshot fractures of the limb-bones was very problematical, for after amputation of the thigh in the Crimean War 73 per cent. died, and in the Franco-German War among the French wounded the mortality reached 90 per cent. The treatment of these cases without amputation was able to show somewhat better results even in the earlier wars, and in the Franco-German War the difference was marked. In the recent fighting in Cuba the general mortality of all cases of compound fractures of the thigh was under 11 per cent. In the South African campaign general numerical results are not yet attainable, but Sir WILLIAM THOMSON tells us that amputation was quite exceptional and only performed when the case was otherwise hopeless, yet the total mortality was exceedingly small. Wounds of joints also have done well. The old teaching was that whenever the knee-joint was penetrated by a bullet, whether the bone was fractured or not, the limb should be amputated, and this doctrine was supported by the experience of the Crimean War and the American War. Yet in the present war the cases did extremely well without amputation; most of them pursued an aseptic course, and by careful occlusion of the openings and keeping the limb at rest, recovery, and in many cases early restoration of normal movement, followed.

The South African War has demonstrated the urgent importance of not exploring wounds on the field of battle, or, indeed, at any time, unless there is a distinct indication for it. It has shown that elaborate operations are not possible with the present arrangements, at least in field hospitals, neither are they needed in many injuries in which formerly they were considered absolutely necessary. The slighter injuries heal readily, simply, and as a rule aseptically, with almost a minimum of treatment. What changes in military weapons time may bring we cannot say, but there has never been a war before in which so large a percentage of the wounded recovered. Possibly in the future this proportion may increase, but even as it is many more died in war from disease than from wounds.

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The Complimentary Dinner to Surgeon-General J. Jameson, C.B.

WE gave last week a brief report of the proceedings at the complimentary dinner given to Surgeon-General JAMESON, C.B., the late Director-General of the Army Medical Service, at the Hotel Cecil on July 24th. But the occasion was one of unusual interest and of notable character, and warrants us in returning to the subject. Sir WILLIAM CHURCH, who presided, was a member of the South African Hospitals Commission, and had had the fullest opportunity of forming an independent opinion as to the nature and extent of the provisions made for the campaign and of the services rendered by the Army Medical Service. Also he had personally inspected the war hospitals and ascertained for himself their condition, the work they had performed in the field, and the difficulties that had to be overcome. It was fitting, therefore, that he should occupy the position he did when a great gathering of the medical profession assembled "from a desire to do honour to one who had deserved well both of his profession and of his country." Sir WILLIAM CHURCH declared that the war was a perfectly unique war, unprecedented in its character, and that the labours of the then Director-General, who had been like the Israelites called upon to make bricks without straw, had been enormous. The success of the organisation of the hospital service in South Africa was largely due to the rapidity and continuity with which Surgeon-General JAMESON was able to supply the *matériel* and *personnel.* The constancy with which he had stuck to his post and work and the exceedingly able manner in which he had kept up a good relationship between his own corps and their civilian brethren were striking and gratifying features in the late Director-General's administration to which Sir WILLIAM CHURCH called proper attention.

Surgeon-General JAMESON, in replying, was listened to with marked attention and his speech in vindication of the Army Medical Service throughout the South African campaign made a great impression; and it well deserved to do so, for it was dignified and admirable in tone throughout. The story of his department, as he told it, was a most creditable one to all concerned. His speech mainly consisted of well-arranged and lucidly expressed statements of fact of a very pertinent kind. Readers of THE LANCET are pretty well acquainted with the medical history of the war, but Surgeon-General JAMESON from his official position was enabled to speak with a knowledge and precision which others have not done, and to furnish many details and figures which were not hitherto attainable. Everybody has long known that neither the Government nor the military authorities had any real idea of the magnitude and formidable nature of the task which they were undertaking. The force considered sufficient and sent out in the earlier months of the war well-nigh exhausted the available medical establishment; yet troops poured into South Africa until the field force was soon increased threefold. Notwithstanding that the strain on the medical service was enormous it was met. The efforts of the Director-General and his colleagues were ably seconded, as he told his audience, by the nation, the colonies, the civil medical profession, and various volunteer societies, and medical and hospital requirements were provided. As an indication of the work that fell upon the Army Medical Service Surgeon-General JAMESON mentioned that 50,000 invalids had been received from South Africa, India, and the colonies since the beginning of the war, none of whom were transferred to civil hospitals; while there are 21,000 beds equipped at the present time in South Africa without counting the field hospitals. He pointed out that the post of sanitary officer had been abolished against the advice of his department and among many other points he made a remark the significance and importance of which will be at once recognised by all military men, and should not be lost sight of in connexion with the occurrences at Bloemfontein. "After the entry into Bloemfontein, when you hear," said Surgeon-General JAMESON, "that for 10 days there was no officer of the ordnance department present, if there is any blame it should not be put to the medical department." The hospital service has, of course, to depend entirely upon the army supply departments.

Surgeon-General JAMESON's words also threw light upon the relations of himself and his service to the Government and the War Office and military authorities. Are we likely with the best medical officers in the world to have a really good and efficient medical service so long as it can be affirmed that the head of it has not access to the Secretary of State for War, is not a member of the War Office Council over which the Secretary of State presides, or of the Army Board presided over by the Commander-in-chief? Surgeon-General JAMESON said that "it had happened that matters relating to his department had been discussed in his absence and he had not known of the decisions till after considerable delay." If the head of an important service can be treated thus what wonder if recruits to the service are hard to come by. Surgeon-General JAMESON might very truthfully and consistently remark in respect of the present war that the officers of his service did not think that justice had been done to them, and we deeply regret that some army medical officer of rank and administrative experience should not have been nominated as a member of the War Office Committee now sitting.

To one other point we wish to make reference. Sir WILLIAM MAC CORMAC, in proposing the toast of "The Public Medical Services," made the following reference to the omission of the bestowal of titular honour on Surgeon-General JAMESON: "No one," he said, "who had not been in the country itself could know of the difficulties under which the medical department had laboured. They had been blamed for that for which those in other departments were responsible, and it was somewhat strange that the Government had allowed Surgeon-General JAMESON to leave the army without the customary recognition given to every one of his predecessors and without one word of thanks or acknowledgment." The medical profession cannot but feel that this is not the way to treat a very able officer who has rendered conspicuous service to the nation and who was the head of a large and important branch of the army. And not only the medical profession, but the public, know that justice has not been done.

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The Results of the British Congress on Tuberculosis.

As with battles so with congresses. There is much smoke or much talk, and only when these have cleared away is the issue apparent. That the Congress, as a congress, was a decided success no one who attended it can doubt. The proceedings were instrumental in eliciting the sympathy and support of a large number of leading men, and the gracious message of His Majesty the KING to the opening ceremony, as well as his reception accorded to the foreign delegates, sufficed to show that the Crown sympathises to the full with the efforts of preventive medicine.

The event of the Congress was undoubtedly the address of Professor KOCH, in which he threw doubt upon the communicability of tuberculosis from animals to man, and it is more than probable that his words will be responsible, as we predicted last week, for the appointment of a third Royal Commission upon Tuberculosis. It must, however, be said that the situation has become markedly modified since that address was delivered. The courteous but trenchant criticism of Lord LISTER and the testimony of Professor BANG, Professor NOCARD, and Professor G. SIMS WOODHEAD, as well as the lucid address by Professor J. MCFADYEAN, have gone far to show that in the opinion of comparative pathologists there are at least other sides to the question. Lord DERBY and Lord SPENCER have as administrators seen the need for caution, while that prince of pathologists, VIRCHOW, has given it to be understood that the last word has not yet been spoken. In this particular aspect, then, the outcome of the Congress cannot be predicted. We may have to wait for the report of a Royal Commission before we are in a position to judge whether Professor KOCH'S statement was justified by the facts or not.

Professor BROUARDEL'S address, although it did not contain a passage of such a sensational character as Professor KOCH'S pronouncement upon bovine tuberculosis, was full of useful information and of encouragement with regard to the utility of preventive measures. The address probably hit the mark when it attributed the decline of pulmonary tuberculosis in this country largely to the better housing of the poor and to the generally improved condition of the labouring classes. There is more to support this thesis than there is that of Professor KOCH to the effect that such decline is due to the erection of hospitals for consumption in this country. We fear that Professor KOCH must have been misinformed as to the number of such institutions and as to the preventive measures which they have, until quite recently, been instrumental in inculcating. Professor BROUARDEL showed what a large amount of work in the direction of popular education as regards the prevention of phthisis is being performed by many nations of the earth, and the valuable part which anti-tuberculous associations and dispensaries are exercising in this direction. With respect to alcoholism Professor BROUARDEL had some very pregnant words to utter, and quoting the words of Sir JOHN SIMON that "the wretched lodging is the purveyor of the public-house," he added "that the public-house is the purveyor of tuberculosis," illustrating his arguments by reference to Dr. TATHAM'S figures. With Chancellors of Exchequers generally Professor BROUARDEL has little sympathy. "They," he remarked, "like to calculate the sum the State get from the duty on alcohol, but they should deduct from it the cost to the community of the family of the ruined drunkard, his degenerate, infirm, scrofulous, and epileptic children who must have shelter." This is sound political economy as well as Christian teaching.

On the last day of the Congress its work was crystallised into a series of resolutions, some of which should have considerable influence in the right direction if adequate and immediate use is made of them. It has to be remembered that several of these resolutions were passed in the State Section where there were present, in addition to a very large number of medical officers of health, Members of Parliament and members of county and district councils. These public workers must see to it that the resolutions which they unanimously passed receive their share of attention when they come, as we take it they will, before the several bodies referred to. The desirability of the notification of pulmonary phthisis attended with tuberculous expectoration was unanimously supported by the State Section; indeed, there were some who wished to make such notification compulsory, and among these were some of our American *confrères* who added so much valuable material to the discussion upon this subject. An expression of opinion such as this cannot fail to have an influence upon the attitude of the Local Government

Board upon this matter. So, too, the expression of opinion that the provision of sanatoria is an indispensable part of the measures necessary for the diminution of consumption will determine the conduct of public bodies who have hitherto been in doubt as to what course they should adopt. The formation of an International Committee to study the behaviour of pulmonary tuberculosis is likely to be attended with useful result, and such a committee might very well take action in respect of steamboats, railway trains, and stations. When we succeed in procuring a uniform system of registration in the several countries we shall have made a great stride towards a proper system of international epidemiology. The other resolutions had concern mainly with the enforcement of home truths, and if these resolutions are made proper use of good results should follow. Among these resolutions there is one which we should like to see thoroughly digested by all local sanitary authorities, not only in this country, but in every other. It was as follows:—

"*That, in the opinion of this Congress, overcrowding, defective ventilation, damp, and general insanitary conditions in the houses of the working classes diminish the chance of curing consumption and aid in predisposing to and spreading the disease.*"

The last resolution of the Congress was proposed by our guest, Professor BROUARDEL, and seconded by Professor CALMETTE of the Pasteur Institute of Lille, and it was to the effect—

> *That while recognising the great importance of sanatoria in combating tuberculosis in every country, the attention of Governments should be directed towards informing charitable and philanthropic individuals and societies of the necessity for anti-tuberculous dispensaries as the best means of checking tuberculous disease amongst the industrial and indigent classes.*

Such dispensaries should, Professor CALMETTE thinks, *precede* and *complete* the foundation of sanatoria, while the enormous amount of good that may be done by them could not have had a more eloquent exponent than Professor CALMETTE.

Looking at the British Congress of Tuberculosis as a whole it seems to us that it has been instrumental in bringing together a large number of workers in the field of preventive medicine both in this country and abroad, and that this act has been attended with a useful exchange of ideas and with a quickening of the public conscience in the matter of State medicine generally and of the prevention of tuberculosis in particular.

Annotations.

"Ne quid nimis."

METROPOLITAN HOSPITAL SUNDAY FUND.

AT a council meeting of the Metropolitan Hospital Sunday Fund, over which the Lord Mayor presided at the Mansion House on July 30th, it was announced that the Committee of Distribution had recommended awards for the present year to 196 institutions. The amount of collections, including interest from the Chancery Division of the High Court, to the present time is £51,000, this sum including £4000 sent by Sir Frederick Cook, M.P., with a request that it might be divided equally between the London Hospital, Guy's Hospital, St. Thomas's Hospital, and St. George's Hospital. That course will be adopted and the money paid to these four hospitals, together with the amount of the award recommended by the committee when confirmed by the council The committee anticipated a further £1500 before the accounts were closed on Oct. 31st. The distribution of £44,534 to 142 hospitals, &c., and to 54 dispensaries was recommended. This year 200 institutions had made applications for grants from the Fund. Of that number it was found necessary to invite the attendance of deputations from the governing bodies of 18. The committee were not able to recommend any awards to two dispensaries and one convalescent home. Deputations from six hospitals and three dispensaries conferred with the committee. The remaining nine replied by letter, leaving the matter in their hands. Explanations modifying the causes of adverse criticism were given in four cases. The serious dissensions between the medical staff and the Board of Management at the National Hospital for the Paralysed and Epileptic, Queen-square, had recently been investigated by a committee of inquiry, the report of which had been followed by the resignation of the secretary-director, and a decision by the governors of the hospital to admit two of the staff to the Board of Management. If that restored harmony between the staff and the board the Distribution Committee would at once report to the council with reference to awards to the National Hospital for the years 1900 and 1901. Five per cent. of the total sum collected—viz., about £2500—was set apart to purchase surgical appliances in monthly proportions during the ensuing year. Mr. George Herring had again most liberally sent a further donation of £10,000 The collections on Hospital Sunday were generally well maintained and showed the confidence that the public had in the Fund. The report was unanimously adopted on the motion of Sir Sydney Waterlow who in the course of his speech asked that a grant to the Royal Eye Hospital might be temporarily withheld pending the investigation of a complaint by the London School Board with regard to the treatment of certain children suffering from ophthalmia. It was also decided that last year's award, together with that for the present year, should be forthwith paid to the National Hospital for the Paralysed and Epileptic.

THE CEREBRAL LOCALISATION OF MELANCHOLIA.

IN a paper which appears in the *Journal of Mental Science* for July Dr. Bernard Hollander makes an attempt to determine the precise area of the brain which is affected in melancholia. Jensen and Tigges had found that the frontal lobes do not show atrophy or loss of weight in melancholia, and hence Dr. Hollander begins by looking for its site in other parts of the brain. Starting from the premise that in melancholia a limited area of the brain is involved because the disease is assumed to be a "morbid condition of the emotional life, affecting an area which is not concerned in intellectual processes," the conclusion is reached that this area is situated in the parietal lobe "particularly the *angular and supra-marginal gyri*." At any rate, the disease is regarded as having its starting-point and as being most intense in these convolutions. It is claimed that in cases of cranial injury involving the parietal eminence and the underlying convolutions—viz., the angular and supra-marginal, as distinguished from other parts of the brain—melancholia is likely to follow. A characteristic case of this was that of a man, aged 28 years who at the age of 17 years fell from a carthorse and sustained an injury of the right parietal *bone (its lower portion)* in the form of a depression from a thrust received by the pole of the cart. He was carried home unconscious. The scalp-wound healed readily but a depression of the skull remained.

Striking mental changes followed. "Patient shunned all association with men, sat for hours brooding in a corner, had daily paroxysms of weeping," and took to bed. He was irritable and would not obey his parents. Dr. Stetter, who was consulted, decided to trephine and the depressed bone was removed. "After the operation the patient returned to social life again and became quite normal."[1] Another case, one of cerebral tumour (cyst) with melancholia was described by Bernhardt[2] as "an extraordinary pathological condition of the brain." The patient was a woman, aged 63 years, who for years had suffered from melancholia with paroxysms of anxiety which increased in intensity so that she made several suicidal attempts. She developed also various hypochondriacal delusions. At the necropsy a cyst was found pressing on the left parietal lobe beneath the dura mater and adherent to it. It produced depression of the greater part of the parietal lobe for about two centimetres below its level. The cyst was of about the size of a hen's egg and filled with serum. There were no entozoic remains in the cyst. Several cases of symmetrical atrophy, or thinning of the parietal bones, are known in association with melancholia. In one of these, reported by Rudolf Bloch, a woman, aged 86 years, was the subject of melancholia and of symmetrical thinnings of the parietal bone, the areas affected by the thinning being 45 millimetres in diameter on the right side and 40 millimetres on the left side. There was a suicidal history in the family. Thirty years previously she had been in an asylum for melancholia and had made several suicidal attempts. The external table and the diploë of the bones were rarefied and thinned out, the bone here being practically reduced to inner table only. In 1854 at a medical meeting in Würzburg, Virchow showed the skull of a man whose chief symptoms were pain, giddiness, and intense melancholy, "and whose facial expression had been observed to be always one of supreme sadness." On both parietal bones, exactly corresponding to the eminences, the bone was so thin as to be perfectly translucent when held against the light. In several cases cited there was a coexistence of "word blindness" with melancholia, especially in lesions of the left side of the brain. Dr. Hollander attempts to give a rational explanation of these facts by stating that the "emotion of fear" is located in the parietal lobe (central part) and that its lesions produce psychical disturbances allied to melancholia.

THE BRITISH DENTAL ASSOCIATION

THE annual general meeting of the British Dental Association will be held in the Examination Hall of the Royal Colleges of Physicians of London and Surgeons of England, Victoria Embankment, from August 2nd to 6th. The proceedings will commence with a reception and entertainment by the Metropolitan Branch of the Association at the Hotel Cecil on Friday, August 2nd, at 8.45 P.M. On August 3rd the first general meeting (members only) will be held at 10.15 A.M. in the theatre of the Examination Hall. At 12.15 P.M. visitors will be admitted and the President's address will be delivered. The second general meeting will be held at 2.30 P.M. From 5 P.M. to 6.30 P.M. there will be a reception by the dean and medical staff of members, ladies, and foreign visitors at the new Dental Hospital, Leicester square. At 8.30 P.M. there will be a reception by the President-elect and Mrs. Hutchinson at the University of London, Imperial Institute road, South Kensington. On Monday, August 5th, the second general meeting will be held at 10 A.M. At 12.30 P.M. Mr. J. Leon Williams, President-elect of the Microscopical Section, will deliver an address on the Use of the Microscope in Dentistry. At 7 P.M. the annual dinner of the Association will be held at the Hot [illegible] Mr. H. G. Howse, President o [illegible] of England, Sir James Crich [illegible] Heath, and Mr. James Smi [illegible] speakers. The fourth general meeting will be held on August 6th. The museum will be open daily from 9 A.M. to 5 P.M.

THE NECESSITY FOR INCREASING THE DOSE OF ANTITOXIN IN CERTAIN CASES OF DIPHTHERIA

AFTER the injection of antitoxin in diphtheria recovery is usually rapid; the general symptoms diminish and the membrane ceases to extend and becomes detached. But in certain cases improvement does not follow and the disease progresses to a fatal termination. This result has been attributed to using antitoxin too late, to associated infections, or to special malignity of the disease. No doubt these are important causes, but there are cases in which the disease progresses because the dose of antitoxin is insufficient and is determined simply by the age of the patient when the gravity of the symptoms necessitates a large dose and its repetition until they regress. At the meeting of the Société Médicale des Hôpitaux of Paris on June 14th, Dr. H. Barbier and Dr. M. F. Lobligeois communicated an important paper on this subject based on cases which they observed in the Hôpital Trousseau in the months of January, February, and March, during an epidemic of diphtheria in Paris of special severity. In some of the cases the symptoms, local and general, did not become worse, but they did not improve. The antitoxin seemed to have simply arrested the progress of the disease. To this form Dr. Barbier and Dr. Lobligeois give the name "prolonged diphtheria." In other cases the symptoms improved and the membrane became detached, then after a variable time the membrane and the toxic symptoms reappeared ("relapsing diphtheria"). The relapses sometimes occurred before the membrane of the first attack had separated, sometimes after it had disappeared, the throat having remained clear for a longer or shorter time. These prolonged and relapsing forms of diphtheria were observed with special frequency in the epidemic referred to and previously in isolated cases. Of 325 cases the membrane persisted in 50 after the third day following the injection. In two the throat was not entirely clear until the twelfth day. The ages of these children varied from 18 months to six and a half years. The dose of antitoxin given on admission varied from 10 to 40 cubic centimetres, usually it was 20 cubic centimetres. The quantity was based on the apparent gravity of the case rather than on the age of the patients. There were 27 cases of "pure diphtheria" to 19 of "associated diphtheria." In most cases a second injection of 10 cubic centimetres given on the second or third day after admission caused the separation of the membrane, sometimes a third and even a fourth injection was necessary. The total quantity of antitoxin given was usually about 40 cubic centimetres. In some cases the dose was increased and from 90 to 140 cubic centimetres were given. In 15 cases the membrane having entirely disappeared, after the injection of antitoxin, which had sometimes been repeated, reappeared. The quantity which had been given varied from 20 to 40 cubic centimetres and in some cases as much as 60, 90, and 140 cubic centimetres were given. The interval between the separation of the membrane and its reappearance varied from one to five days; in one case it was seven days. As a rule an injection of 10 cubic centimetres caused the membrane again to separate in from 24 to 48 hours. In one case the resistance was very great. A child, aged 10 years, for various causes received injections on the first, second, third, fourth, fifth, seventh, and ninth days of the disease, amounting in all to 130 cubic centimetres. Membrane re-formed on the eleventh day, but disappeared under an injection of 10 cubic centimetres. Another indication for increasing the quantity of antitoxin is diphtheritic bronchitis; the dose should be double or treble the ordinary one. Hence the importance of early diagnosis of this complication by careful examination of the chest and of matters expectorated or discharged by the tracheotomy tube. Finally, the persistence of toxic symptoms is an indication to give more antitoxin. Thus a child showed toxic symptoms—prostration and acceleration and feebleness of pulse. The injection was repeated four times and on each occasion there was marked improvement, the prostration diminished, and the pulse became slower and stronger.

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[1] Centralblatt für Chirurgie, 1892.

[2] Allgemeine Zeitschrift für Psychiatrie, 1883.

THE FOURTEENTH INTERNATIONAL CONGRESS OF MEDICINE, MADRID, 1903.

THE Fourteenth International Congress of Medicine will be held at Madrid from April 23rd to the 30th, 1903, under the patronage of King Alphonso XIII. and the Queen Regent. The subscription is 30 pesetas (equivalent to 24*s*.). Ladies accompanying members will be entitled to the privileges of the members in the reduction of fares on the Spanish railways, &c., on payment of 12 pesetas apiece (or 10*s*.). The National Committee for Great Britain and Ireland remains the same as at the Paris Congress, Sir William MacCormac, Bart., K.C.B, K.C.V.O., being the President. The honorary secretaries are Dr. Percival Horton-Smith of 15, Upper Brook-street, Grosvenor-square, London, W., and Mr. D'Arcy Power, of 10A, Chandos-street, Cavendish-square, London, W.

EPHEMERAL MENTAL DISORDER AND ITS MEDICO-LEGAL ASPECTS.

DR. CHARLES ALDRICH, neurologist to the Cleveland City Hospital, in the May number of the *Philadelphia Medical Journal* deals with the important subject of ephemeral mental disorder (mania transitoria) and refers to its medico-legal aspects. The occurrence of such a condition having a duration of a few hours or a few days—15 to 48 hours according to Kellog—is usually followed by many hours of deep sleep, and owing to its brief duration only symptomatic treatment is possible. The disease usually occurs in young persons and has close affinities with certain forms of psychical epilepsy. Dr. Aldrich records the following two cases. Case 1.—A young woman aged 18 years, with a good family history and free from epileptic attacks or mental aberration, was employed as a domestic servant. She was of steady and religious habits and never addicted to alcohol or narcotics. One morning about 4 o'clock her mistress was aroused by someone beating at her door and loudly calling to her to come out. She opened the door and saw the servant standing in her night-clothes with a Bible under her arm urging her mistress to come with her. She was saying that "the world was about to end and Christ had sent her to save her mistress." The mistress realised that the girl was in a delirium, soothed her, and told her to dress. The girl retired and reappeared dressed, ate a hearty breakfast, meanwhile talking incoherently on religion and the threatened destruction of the world. She then went with a friend to see a procession, keeping her Bible under her arm and maintaining perfect silence for over an hour. Then she said that she felt tired, and on returning home immediately undressed herself and went to bed, sleeping soundly for five hours, after which she awoke "with a dim recollection of the street pageant." She was free from somnambulistic traits and has since the above occurrence never manifested any other symptom of mental aberration. Case 2.—A man aged 40 years, married and in good health, was employed as a workman. He had been always free from mental aberration. "One day while at work ...... he went to his foreman and complained that two of his fellow-workmen were plotting to kill him, and that one of them had a knife concealed in his clothing." The man seemed so sincere and had always been such a sober, industrious, and peaceful workman that the foreman called the other two men to account, who being innocent were perfectly astounded. The patient, however, insisted vehemently on their guilt, and said he had heard their plotting and seen the knife. Of this there was no proof and he was taken home and thence to the Cleveland City Hospital and remained in bed a few days and was discharged. Before his discharge he realised he had been the victim of a delusion and seemed surprised and could assign no cause for it. He had not, says Dr. Aldrich, had a recurrence of any mental symptoms since then or any disturbance of the nature of insanity or of epilepsy. Kellog states that such cases of ephemeral mental disorder are of great judicial interest, "since responsibility cannot exist where consciousness is in abeyance." The treatment was devoted to relief of symptoms and included the administration of hyoscine and morphia as cerebral sedatives, and careful supervision to prevent criminal or suicidal acts during the period of impaired and abnormal consciousness.

UNIVERSITY OF LONDON.

A MEETING of the Faculty of Medicine was held at the University on Friday, July 20th, at 5 P.M. Although the business was specially important less than 30 members were present. An interim report from the Concentration Committee was first presented, but its consideration was postponed until a final report is laid before the members of the faculty early next winter session. Reports were also received from the Boards of Preliminary and Intermediate Medical Studies. The consideration of the reports was also deferred until October, as there was much division of opinion as to whether there should be separate examinations at the Preliminary M.B. Examination in botany and zoology, or whether these subjects should be taken collectively under the general term of biology. The Senate has decided to publish a gazette as a record of matters connected with the University.

THE DIETETIC TREATMENT OF EPILEPSY.

THE dietetic treatment of epilepsy, one of the most hopeful and effective of the more recent therapeutic methods introduced, is dealt with in a recent issue of the *Berliner Klinische Wochenschrift* (June 10th, 1901), by Dr. Rudolf Bálint who contributes an important article based upon observations made by himself at the Clinic of Professor Koranyi in Budapest. The work was undertaken in consequence of the theory advocated by Richet and Toulouse that "salt-starvation" and the administration of alkaline bromides constituted the most effective form of treatment. Dr. Bálint treated 28 epileptic patients who were the subjects of idiopathic epilepsy (*petit mal* and *haut mal*) with a diet from which all chlorides were as far as possible removed, after which a small amount of bromides was added. A number of preliminary trials were made and eventually the following daily diet table was adopted as one satisfying the necessary conditions—viz., from one to one and a half litres of milk, from 40 to 50 grammes of butter, three eggs, and from 300 to 400 grammes of bread and fruit. The bread was specially prepared without common salt and with the addition of three grammes of sodium bromide per loaf. Living on the above diet a patient would consume altogether only about two grammes of sodium chloride per diem, a quantity very much below the average consumption of the salt in every-day diet, while at the same time he would be unconsciously taking about three grammes of sodium bromide daily in his food. The results obtained were highly satisfactory in all the 28 cases. There were a reduction of the epileptic attacks in both frequency and intensity, an improvement as regards mental clearness, and a disappearance of the mental confusion and stupidity so often characteristic of epileptic patients. The general bodily health rapidly rose and "bromism" was never produced. The salient feature was that the sedative action of the bromide was enhanced. Dr. Bálint points out that the treatment is not difficult to carry out and is especially useful and practicable in large institutions where a regulated diet can be enforced. It was a method of treatment attended with no danger and it was especially likely to be useful in epileptic farm colonies and institutions of a like nature.

THE first general meeting of the International Dental Federation will be held in Cambridge on Wednesday, August 7th, the day after the conclusion of the meeting of the British Dental Association in London. Trains for Cambridge leave King's Cross at 9 A.M., Liverpool Street at 9.10 A.M., and St. Pancras at 9 15 A.M. Conferences and committee meetings will occupy the day from 11 A.M. to 5 P.M., when there will be a garden party at Merton Hall, followed by a banquet in Downing College. All members of the British Dental Association and other British dental societies are entitled to attend.

IN consequence of the great pressure on our space, owing to the extensive reports of the British Congress on Tuberculosis and of the annual meeting of the British Medical Association at Cheltenham, we are compelled to hold over the publication of many articles and communications of interest and importance, including our comments on the Interim Report of the Royal Commission on Sewage Disposal.

IMPORTANT VIEWS ON THE RELATIONS BETWEEN HUMAN AND BOVINE TUBERCULOSIS.

AT the present juncture the views of the following three eminent men will be read with interest.

Lord Lister's View.

The following is the full text of Lord Lister's speech made at the second general meeting of the British Congress on Tuberculosis:—

He said that the discourse they had listened to was full of profound interest from the beginning to the end. But what had chiefly riveted their attention had been the startling thesis that bovine tubercle could [illegible] This was a matter of enormous prac- [illegible] were sound it would greatly [illegible] would be a very serious and [illegible] rce for securing purity of milk-supply should be relaxed and it should turn out after all that the conclusion was erroneous. For his own part he thought the evidence adduced by Dr. Koch to show that *human tubercle could not be communicated to bovine animals* very conclusive. At the same time he agreed with him that in a matter of such great importance further inquiry was desirable. But even if that were established it would by no means necessarily follow that bovine tubercle could not be communicated to man. He took in illustration the case of variola. Attempts to inoculate human small-pox into the calf had been so very rarely successful that eminent pathologists had concluded *that small pox and cow-pox were two entirely different* diseases. We now knew that this was an entire mistake; that cow-pox was small pox modified by passing through the cow. He referred to some very instructive experiments by Dr. Monckton Copeman, who entirely failed to inoculate human small-pox into the calf but invariably succeeded in inoculating it into the monkey, and was as invariably successful when he intro- [illegible]

tudes of tubercle bacilli swallowed by them in milk. Even if it were [illegible]

argument fell to the ground. As regarded the experiments which Koch had referred to of inoculating bovine animals with material from the glands of children affected with tabes mesenterica, the result being negative, these experiments had been but few; and even were they more numerous, they would not, to his mind, be quite conclusive. It might be that tubercle from milk in the intestines might be so modified by passing through the human subject that the bacilli in the mesenteric glands, though derived from a bovine animal, might be no longer those of true bovine tubercle but bacilli having the characters of human tubercle little disposed to develop in cattle. The Congress would probably require a more searching inquiry into the subject before accepting this doctrine of the immunity of man to bovine tubercle.

In the evening issue of the *Berliner Lokal Anzeiger* of Friday, July 26th, there appeared a report of interviews which a representative of that journal had had with Professor Virchow and Professor Heubner on the receipt in Berlin of the particulars of Professor Koch's pronouncement as to the difference between bovine and human tuberculosis. The following is a free translation of their remarks.

Professor Heubner's View.

Professor Heubner, who was first to be interviewed, said:—

If Koch in his address in London expressed the opinion that heredi- [illegible]

Professor Virchow's View.

Professor Virchow expressed himself as follows:—

I have for many years opposed the theoretical belief in hereditary transmission of tuberculosis in [illegible] with Koch. In a discourse whi [illegible] Berliner Medicinische Gesellsc [illegible] standpoint on this matter, for [illegible] which Professor Koch enunciate [illegible] I would point out that Koch [illegible] *investigations, disregarded* t [illegible] indebted to the Copenhagen school. In order to ascertain what was best that could be done for the health of the people, and particularly what foods and liquids they should avoid, the Danish Government appointed a Commission which, it appears, consisted mainly of medical officers and was known as the Council of Health. Among the many questions which the council paid careful attention to was, of course, that of bovine tuberculosis, and for the purpose *of settling the question* in a scientific manner the most minute investigations were made and the results of these investigations form practically the basis upon which all subsequent public health acts are founded. I may refer to our enactments concerning quarantine, for instance, in illustration of the extent of our indebtedness to the scientific work of the Copenhagen school. The conclusions arrived at by the Danish scientists are very different in character from those of Professor Koch. The question is anything but settled.

EDINBURGH UNIVERSITY.—At the summer graduation ceremonial of Edinburgh University, which took place on July 27th in the M'Ewan Hall, the degree of Doctor of Medicine was conferred on 61 candidates, six of whom were awarded gold medals for their theses. The gold medallists were James Martin Beattie, Thomas Hastie Bryce, Evan John Howat Fraser, Alfred Charles Sandstein, Sutherland Simpson, and Donald Bremner Waters. The Ettles Scholarship was awarded to Caleb Williams Saleeby. The degrees of M.B., C.M. was conferred on 11 candidates and the degree of M.B., Ch.B. on 147. The address to the graduates was delivered by Professor John Wyllie.

THE BRITISH CONGRESS ON TUBERCULOSIS.

His Majesty the King received at Marlborough House on Thursday afternoon, July 25th, the foreign delegates to the Congress. His Majesty shook hands with each delegate in turn and then made the following speech :—

"Gentlemen,—Let me express to you the great pleasure and satisfaction it has given me to ask you to come here to-day, and I only regret that you should have arrived during such a severe thunderstorm.

It has been a source of great concern to me that owing to circumstances over which I had no control I was prevented from presiding at the opening of your important Congress and attending its meetings, but I can assure you that though not present I take the deepest interest in its proceedings and that I follow, through the medium of the daily press, with much interest the papers which are read and the discussions on the subject.

There is no more terrible disease than that known as consumption, and I only hope and trust that you may be the means of minimising its evil effects and thereby receive the gratitude of the whole world.

There is still one other terrible disease which has up to now baffled the scientific and medical men of the world, and that is cancer.

God grant that before long you may be able to find a cure for it or check its course. I think that to him who makes the discovery a statue should be erected in all the capitals of the world

In taking leave of you I trust that your stay in London, and in England, has been an enjoyable one, and that you will one and all carry away pleasant recollections of your visit to my country."

The Fourth General Meeting.

The fourth general meeting of the Congress was held in the Queen's Hall on July 25th, at 3 P.M., to hear an address from Professor **J. McFadyean**, M.B., M.R.C.V.S., on Tubercle Bacilli in Cow's Milk as a possible Source of Tuberculous Disease in Man. This will be found in full on p. 268. Much interest was taken in the delivery of this paper, as it was an open secret that it would be a direct answer to the views of Professor Koch.

The chair was taken at the meeting by Lord **Spencer** who, before he called upon Professor McFadyean to deliver the address, pointed out that though he himself was a layman and did not imagine he could give an opinion regarding the scientific view of the matter, still for the pronouncements of scientific men to be of use they must have the support of public opinion. In his judgment he still considered that the public should be protected from the sale of milk from diseased sources. The agriculturists had a great deal of risk in this matter and though he had great sympathy with the views expressed by Mr. Chaplin he felt confident that the agricultural world would give its support to the regulations required to prevent infection from tuberculosis.

Sir **James Crichton Browne** informed the meeting that the official delegate of the State of Wisconsin (Dr. Brown) had received an answer from his Government to a telegram which he had despatched giving Professor Koch's statements and the answer was that they would "begin experiments to-morrow." He considered that further consideration was necessary before accepting Professor Koch's views and that the Government should undertake an investigation.

The next two speakers were Professor **Nocard** and Professor **D. J. Hamilton** (Aberdeen), who declared that bovine tuberculosis was a source of danger to the human race.

Dr. **M. P. Ravenel** (Philadelphia) instanced several cases where bovine tuberculosis had occurred in man from accidental infection

Professor **E. M. Crookshank** said that in consequence of the publication of Professor Koch's opinion the measures that had been devised for the safety of the public might be paralysed. At that Congress a great variety of interests were represented and they would all agree that free and open discussion was the only way to secure the truth. His own opinion was that Professor Koch was quite wrong in consequence of a too precipitate generalisation from the facts before him. He protested against Professor Koch's view that no measures should be undertaken for the prevention of infection of man from bovine tuberculosis.

The proceedings closed with a vote of thanks to Professor McFadyean.

The Final General Meeting.

Under the presidency of Lord **Derby** the fifth (and final) general meeting of the Congress was held at Queen's Hall on July 26th.

Lord **Derby** said they had reached the last stage of their official proceedings at the Congress and it became their duty to submit certain resolutions which had been arrived at in the sections. He thought the Congress had achieved a success which would render it one to be remembered among the history of similar congresses in the world.

Mr. **Malcolm Morris** proposed :—

> That tuberculous sputum is the main agent for the conveyance of the virus of tuberculosis from man to man and that indiscriminate spitting should therefore be suppressed.

He said it was not a particularly pleasant subject, but it was the key to the whole question, and they must come boldly to the point and carry the motion.

Mr. **Harold Swithinbank** seconded the resolution and said that it was time that they prevented the indiscriminate distribution of tuberculous poison in sputum in the streets.

The motion was put and carried.

Professor **G. Sims Woodhead** proposed :—

> That it is the opinion of this Congress that all public hospitals and dispensaries should present every out-patient suffering from phthisis with a leaflet containing instructions with regard to the prevention of consumption and should supply and insist on the proper use of a pocket spittoon.

Sir **William Broadbent**, in seconding, said that a measure of that kind was of the first necessity to prevent the out-patients' departments becoming centres of infection.

The motion was carried.

Dr. **J. Niven** (Manchester) proposed :—

> That the voluntary notification of cases of phthisis attended with [illegible] the increased preventive action which [illegible] of [illegible] in all districts in which efficient [illegible] possible to adopt the consequential measures.

He said that in dealing with such a large subject as the notification of phthisis he could not do wrong in saying that the way in that practical measure had been shown to them by their American cousins in New York where they had carried on in ever-increasing efficiency a large measure of notification of phthisis.

Professor **T. Clifford Allbutt** (Cambridge), in seconding the motion, which was duly carried, said that it was possible by the means proposed to enable working men to attend to their work while under treatment.

Sir **John Burdon Sanderson** (Oxford) proposed :—

> That the provision of sanatoria is an indispensable part of the measures necessary for the diminution of tuberculosis.

He urged that sanatoria were of great value to all classes of the community, but especially for the poor workman whose earnings were only sufficient to cover his expenses, but who was too poor to make proper provision against the great calamity of sickness.

Sir **Richard Douglas Powell**, in seconding the motion, which was carried, said it was quite unnecessary for him to add any words to the eloquent remarks of the proposer.

Sir **Herbert Maxwell** proposed :—

> That in the opinion of this Congress and in the light of the work that has been presented at its sittings medical officers of health should continue to use all the powers at their disposal and relax no effort to prevent the spread of tuberculosis by milk and meat.

He said that those who had heard the magnificent oration of Professor Koch on the one hand, and of Professor McFadyean on the other hand, would perceive that, like other questions, it had two sides.

Lord **Spencer** seconded the motion, which was carried, and said that he would like to urge on all those who have to act in that matter the advisability of judicious methods of administration with a certain amount of elasticity and a great deal of good sense in their regulations.

Dr. **G. A. Heron** moved, and Mr. **F. J. Lloyd** seconded, the following :—

> That in view of the doubts thrown on the identity of human and bovine tuberculosis it is expedient that the Government be approached and requested to institute an immediate inquiry into this question, which is of vital importance to the public health and of great consequence to the agricultural industry.

Dr. R. FARQUHARSON, M.P., said that though they could not ignore such an authority as Professor Koch he thought they had done well to keep to the *status quo ante.*

The motion was then put to the meeting and carried unanimously.

Sir JAMES CRICHTON BROWNE moved that—

> The educational work of the great national societies for the prevention of tuberculosis is deserving of every encouragement and support. It is through their agency that a rational public opinion may be formed, the duties of public health officers made easier of performance and such local and State legislation as may be requisite called into existence.

He said that the work of the Congress could be summed up in the one word "enlightenment"

Dr. ALFRED HILLIER seconded the motion which was put and carried.

Sir WILLIAM BROADBENT moved the following:—

> [illegible] of prevention This Congress is further of opinion that such a [illegible] be elected by the great [illegible] of tuberculosis and also [illegible] nents It is further of [illegible] great national societies [illegible] s should be invited to coöperate

He said [illegible] work in exciting [illegible]

Profes[illegible] aid that the work [illegible] struggle against tuberculosis

The motion was carried.

Professor CROOKSHANK proposed:—

> [illegible] predisposing to and spreading the disease.

He said that they must not confine their attention to the tubercle bacillus alone but must consider the other factors in the production of tuberculosis

Dr. C THEODORE WILLIAMS seconded the motion and explained how the depressing conditions under which they lived caused the milliner, the tailor, the printer, and others to become liable to the attacks of the disease.

The motion was carried.

Professor BROUARDEL submitted the following motion which was seconded by Professor CALMETTE and duly carried:—

> That while recognising th[illegible] bating tuberculosis in ever[illegible] should be directed towards [illegible] individuals and societies of [illegible] saries as the best means of [illegible] industrial and indigent classes

The last motion was proposed by Professor ROBIN and seconded by Sir WILLIAM BROADBENT and carried:—

> That the following question be submitted to the consideration of the next Congress:—The constitutional conditions of the individual which predispose to tuberculosis and the means whereby they can be modified

The CHAIRMAN, after replying to a question from Mr. BOWEN-JONES (Shrewsbury), who spoke from the back of the hall and to whom he explained that the resolutions of the Veterinary Section were not submitted because they were unsuitable for discussion at that particular meeting, congratulated the members of the Congress on the successful termination of their labours

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THE SECTIONS.

SECTION I.

STATE AND MUNICIPAL.

THURSDAY, JULY 25TH.

DIVISION IV., THE INTERNATIONAL ASPECTS OF TUBERCULOSIS.

A general discussion upon this subject was opened by Dr. ALFRED HILLIER (London). Having dealt with the conditions essential to the establishment of tuberculosis in man Dr. Hillier proceeded to discuss the measures which had been taken by science to check the introduction of the bacillus. Could they doubt that protection from the indiscriminate distribution of sputum would result in tuberculosis becoming more completely under control than small-pox? He then considered what was being done in the civilised States of Europe and America to check the disease and then in general terms mentioned what they were called upon most urgently to do. The movement for [illegible] any was ahead of that in [illegible] for all classes The Uni[illegible] way in practical downright measures of prevention. To France must be accorded the honour of having done more for the education of public opinion [illegible] It was worth noting that [illegible] making notification of tub[illegible] compulsory. Denmark als[illegible] struggle against the disease. He suggested the formation of a committee in which all civilised countries should be represented and its work should be to formulate the principles on which all were agreed and to define the broad line of action which should be taken. Legislation could never terminate by itself many of the abuses associated with the spread of tuberculosis, but if fortified by public opinion it could and would do so

Dr. F. MONTIZAMBERT (Canada), *Director-General of Public Health, Ottawa, Canada, Delegate of the Canadian Government,* read some

Notes on Tuberculosis in the Dominion of Canada.

He said: Tuberculosis in the Dominion of Canada, as elsewhere, has heretofore levied a heavy tax upon the well-being and the lives of the people. Some 8000 deaths per annum in Canada are attributed to this disease. Some of these are, of course, amongst native-born Canadians; others are amongst those who have brought the seeds of the disease with them from other countries Here, as elsewhere, the knowledge of the true nature of the disease and of the methods of its spread has advanced *pari passu* with the advances of medical science With this extension of knowledge in the medical profession have come also wiser counsels to patients and their friends and to the public This was until recently only the action of boards of health, of medical societies, of individuals, and of comparatively small local associations. This year, however, Lord Minto, the Governor-General of Canada, has organised a national movement for the prevention and cure of this disease—the Canadian Association for the Prevention of Tuberculosis Of this association his Excellency is the honorary president. The first meetings were held in Ottawa in February last and the work of this general national movement was begun—the work of endeavouring to rouse to a sense of their danger the mass of the people, whilst at the same time a knowledge of the possibility of prevention and cure is brought home to their [illegible] nd they are thus both encouraged and urged to [illegible] practical measures necessary to attain the great [illegible] view—the limitation, if not, indeed, the extinction, of this preventable disease Already some of the municipalities are moving in the matter. If there be anything in climatic influences in the prevention and cure of tuberculosis Canada offers a wide field for choice She stretches from ocean to ocean and her vast inland tablelands and mountain ranges offer all the elements of dryness, altitude, and clearness of atmosphere, with absence of strong penetrating winds, that may be desired And this with a variety of grandeur of scenery and full opportunities for outdoor sports, hunting, fishing, &c., for those who seek them; and for all the pleasant summer weather and the dry and invigorating cold in winter render life and rest out of doors a possibility and a benefit at all seasons of the year by night as well as by day

Professor ROBINSON (America) referred to the measures which had been taken in the State of Maine to combat disease and which were attended with some success. The first [illegible] cation of the people in reference [illegible] This great work of education [illegible] e result was really remarkable. [illegible] n a lessening of the mortality in seven years [illegible] rate due to phthisis of more than one-fourth. Sanatoria were being built by voluntary contributions.

Dr VAN RYN (Belgium). General Secretary of the Belgium National League against Tuberculosis, having passed in review the Present Position of the Crusade against Human Tuberculosis in various countries.

Dr HOLGER RÖRDAM (Denmark), *Chief Physician of the First Class of the Denmark Naval Marine,* described the

Measures taken against Tuberculosis in Denmark.

Compared, he said, with many other countries in Europe, Denmark remained for a long while behindhand in the struggle against tuberculosis, but during the last few years the inhabitants had taken up the matter with considerable energy. The oldest hospital for tuberculous patients was situated in the peninsula Refsnaes. It was founded in 1874. It was arranged at first for 100 patients; later, it was increased to accommodate 130, without reckoning 12 beds in the establishment for patients suffering from epidemic complaints and 16 beds in the ward for ordinary diseases. The hospital only admitted scrofulous children. The construction of the whole establishment had cost about 500,000 francs, and the fitting of it up about 60,000 francs. The money for the construction and the working of the hospital had been furnished up to a certain point by private benefaction, but the State and the municipalities had also contributed their quota. The municipality of Copenhagen possessed, in addition, a small hospital for scrofulous patients at Snogebeck, in the island of Bornholm, where 70 children were treated last year, this costing 10,000 francs. The Society for Children's Hospitals in Copenhagen and its Suburbs, which was formed 10 years ago, now possessed an establishment at Hellebock, at which 197 children were treated in 1899. The aim of the society was to found a sufficient number of small hospitals situated on the sea-coast, where weakly, and above all scrofulous, children should be admitted without pay. The Finsen Institute was founded at the initiative of Professor Niels Rigberg Finsen, in 1896, for the purpose of making experiments, and of contributing to the progress of research on the effect of light on living organisms; above all, with the intention of utilising the rays to the benefit of practical medicine. The institute, the administration of which was under the presidency of M. Blagemann, manufacturer and municipal councillor, had received numerous private donations, and by the Financial Act of 1900 it had been voted a sum of 350,000 francs as a loan without interest. The institute was established at Rosenvaenget in Copenhagen. The number of lupus patients who had been cured was very considerable. A large hospital for scrofulous children at Juilsmind was in course of construction; the treasury had supplied 80,000 francs, and Prince Carolath had made a present of an excellent site. As a hospital for phthisis properly so called there existed but one at the present time, situated on the fjord of Vejle à Fakkegrav; it was opened on March 1st, 1900, with room for 92 patients. The hospital was founded under the name of "Hospital for Consumptives" by a society the aim of which was philanthropic. The dividend on shares being limited to 4 per cent. the subsequent profit would be employed to lessen the payments of those in straitened circumstances. Danish physicians had contributed a sum of 60,000 francs, and private persons 300,000 francs. The treasury had given 150,000 francs, and for non-paying rooms a donation of 30,000 francs had been received. The sanatorium was situated on the fjord of Vejle and possessed considerable forest land. All expenses included, the hospital had cost about 1,100,000 francs—that was to say, 12,000 francs per bed. During the 10 months March to December, 1900, 206 patients had been treated at the sanatorium. The payment for Danish subjects per day was from 10 to 11 francs for a separate room and from eight to 10 francs for a common room. To foreigners the highest fee was five francs daily. The hospital was under the management of Dr. Sangmann, the head of the staff. The municipality of Copenhagen were having a sanatorium for consumptives constructed in the forest of Boscrup, near Roskilde. Up to the present day this was all that had been done in Denmark in the way of constructing sanatoria. In 1898 the Association of Danish Physicians presented a petition, supported by an address signed by 200,000 of the population, to the Government and to the National Assembly having as an object the construction of sanatoria for consumptives as well as the founding of hospital establishments and the supply of aid to the families of patients. For this purpose they demanded the nomination of a commission, and the relief organisations in cases of sickness had in 1900 presented an address, supported by 250,000 signatures, requesting the establishment of three State sanatoria. On grounds of expense the Government had not ventured to include this item in their Budget. On Jan. 19th, 1901, at the instigation of the speaker and of M. Karl Loventsen, doctor of medicine and editor of the Danish journal of hygiene, the National League to Combat Tuberculosis was founded and was received with great enthusiasm on the part of political personages of the highest distinction, physicians, civil servants, and financiers. The minimum annual subscription was three francs, and the league now numbered 10,000 members, this giving an annual income of 100,000 francs. The aims of the league were the establishment of popular sanatoria for the poor, public lectures to enlighten people as to the nature of tuberculosis, and the giving relief to the families of patients. As to precautions established by law against tuberculosis, there were very few of them in Denmark. Gratuitous disinfection after cases of death due to tuberculosis was enjoined and apprentices before being admitted to manufactories were bound to show a medical certificate declaring that they were in good health, while by a new law relating to labour in factories decreed last year some regulations as to cleanliness in these establishments had been enacted. But that was all that had been done on the part of the Legislature. The Sanitary Commission of Copenhagen had enacted that practising physicians might have sputum examined for tubercle bacilli free of charge in doubtful cases of phthisis. Receptacles required for the receipt and transmission of the sputum were to be had from all the pharmaceutical chemists in the city, and were delivered up for examination at the laboratory of the Sanitary Commission, 12, Norrevaldgada. The laboratories, in their turn, would send a written report on the result of the analysis to the physician concerned at the earliest possible moment. In almost all the towns of Denmark control over meat-supply was established, but it was solely an affair of the town whether it elected to put such control in force. In regard to tuberculosis among animals, thanks to the efforts of Professor B. Bang, Denmark occupied a position among the most advanced nations. In almost all the principal towns there were private associations which were charged with controlling the wholesomeness and the price of milk. All things considered, it appeared that Denmark had not progressed badly in the battle with tuberculosis. The mortality caused by tuberculosis was diminishing in a marked manner.

M. DA SILVA ARNADO, as a representative of Portugal, spoke of the anti-tuberculous movement in that country.

Control of Milk Supplies.

Professor **S. DELÉPINE** (Manchester) was set down in the programme to open a discussion upon the Exact Statistics of the Tuberculin Test. Those who know the enormous amount of accurate and expensive work that has been done in Manchester by Professor Delépine and his colleagues will regret that this communication should have been crowded out.

Professor **DELÉPINE** proposed, and Dr. **J. ROBERTSON** (Sheffield) seconded, a motion against accepting Professor Koch's conclusions and proposing that further inquiry should be made into the subject and that the matter should be brought before the Local Government Board and the Board of Agriculture. This motion, which was carried unanimously, was introduced by Professor Delépine in the following manner:—

I feel it necessary to allude to the statements of Professor Koch two days ago regarding the relations of human and bovine tuberculosis. On reading the newspapers yesterday I was much pained to find that Professor Koch had made a statement which would undoubtedly deal a great blow to the work of those who were responsible for the public health of this country. Such a blow seemed to me unnecessary and unjustifiable under the circumstances. It is hard to disagree with the discoverer of the tubercle bacillus and of tuberculin, and the task is as ungrateful as it is hard. I feel, however, that Professor Koch, before making statements challenging the accuracy of facts which, to all competent observers, are well-proved facts, should have given us the means of finding how it was that we had been deceived by scientific observation which appeared to be reliable. He should have opened our eyes and shown us that what seemed facts, and which I still believe to be facts, were not facts at all, but erroneous interpretations. I think that Professor Koch's great authority and high position do not justify his disturbing public opinion by expressing views unsupported by evidence; on the contrary, his position should make him more careful than any other man, for his statements are bound to have a considerable influence upon those who have no means of testing his views by their own experience. I have said that I still believe in the evidence proving the unity of human and bovine tuberculosis. The evidence is, I believe, very clear. 1. We have cases of veterinary surgeons becoming infected with tuberculosis as a result of wounds received during the necropsy of tuberculous cattle. Several such cases are fully recorded as authentic and their existence cannot be denied. We have much post-mortem evidence to support the idea that bovine tuberculosis can produce tuberculosis in children by ingestion. 2. We have evidence that human tuberculosis can be communicated to most of our domesticated animals. 3. In certain animals used as test animals—e.g., the guinea-pig—inoculation with products from human and bovine tuberculous subjects produces a disease which has all the chief characteristics of tuberculosis in either man or cattle. This tuberculosis can be almost invariably obtained and follows a very definite course, as I have been able to satisfy myself by some 3000 personal experiments. 4. Tuberculin which contains specific chemical products generated by the tubercle bacilli can be obtained from tubercle bacilli of various origins, and tuberculous cattle react to tuberculin prepared with these various bacilli. Before all these facts can be explained I think that it will be impossible for us to admit the view that human and bovine tuberculosis are essentially different, as was formerly believed before the experiments of Villemin. I think, therefore, that the authorities will do well not to relax their efforts and should continue to combat bovine tuberculosis as strenuously as ever. I will therefore move the proposition, which has the support of your President, Sir Herbert Maxwell, and of Dr. J. Niven, Dr. A. Newsholme, and Dr. H. T. Bulstrode.

A proposition was then read against accepting Professor Koch's conclusions and passed unanimously. Slightly shortened, it was passed unanimously at the fourth general meeting on Friday, July 26th.

Next came Mr. J. S LLOYD, whose paper on the Veterinary Work in Connexion with the Milk Clauses in Manchester will be found on p. 274.

Dr. P. BOODBYER (Nottingham) proposed, and Mr. JAMES DICK (Glasgow) seconded, a motion urging that the Local Government Board should issue a circular or memorandum with regard to this question, which was carried unanimously.

Dr. MALM, a delegate of the Norwegian Government, then submitted the following aphorisms with regard to the use and value of tuberculin:—1. The tuberculin *employed as* diagnostic should be a tuberculin produced on the same principles as that of Professor Koch in 1890. Its strength should be uniform and it should be of such toxic strength as to kill with certainty guinea-pigs infected from six to eight weeks previously within eight hours in doses of from 20 to 30 centigrammes subcutaneously. 2. Such a tuberculin produces unfailingly in tuberculous animals a febrile reaction of a distinct type. It is recommended that large doses should be *given, even to young animals*; there is no danger or inconvenience in always employing doses of from half a gramme to one gramme. 3 Tuberculin may at times also produce fever in non-tuberculous animals, but this fever is not typical and does not attain such a degree as in tuberculous cases. 4. If typical tuberculous reaction appears in an apparently healthy animal, and on dissection nothing tuberculous is found, it is the fault of the dissector. 5 To determine with certainty whether reaction exists or not it is necessary to take the temperature from the sixth to the twentieth hour, after injecting hourly or at least every second hour. 6. The fact that tuberculin in a few isolated instances produces fever in non-tuberculous animals is of no importance when the question is its usefulness as a means to eradicate tuberculosis, and in this respect it is decisive, as tuberculin invariably causes reaction in tuberculous animals. 7. The foregoing refers to animals treated for the *first* time. Most animals become more or less accustomed to the tuberculin, but this is uncertain and unreliable and can be overcome by the use of an increased dose or a tuberculin of greater toxic strength. 8. The practical combating of tuberculosis concerns administrative, economical, and social spheres and the answer must vary in different countries according to the prevalence of the disease and its extent, the system of farming and cattle-trade, and the pecuniary means available.

Mr. DROOP RICHMOND, F I C. (London), *read a paper on*

The Relative Advantages in the Prevention of Tuberculosis of the Use of Sterilised Milk, Pasteurised Milk, and Milk obtained from Herds free from Tuberculosis,

of which the following is an abstract:—*Efficiency of the three methods.*—All the methods, if properly applied, would yield milk free from tuberculous infection. *Chemical changes on heating milk.*—Changes take place in milk at the following temperatures. At about 60° C.—Formation of skin on the surface, if exposed to air. At about 70° C.—Conversion of the albumin into its less soluble form, and alteration of taste of the milk. At about 80° C.—Destruction of the substance in milk which reacts with the phenylenediamines and hydrogen peroxide (? *enzyme, and substances* conferring immunity from Barlow's disease). At higher temperatures, especially at 100° C. or above.—Caramelisation of the sugar, fusion of the fat globules, and marked alteration of taste; possibly slight change in the proteids or their combinations with salt manifested by the reactions towards rennet and litmus being modified. *Discussion of commercial methods.*—(*a*) Pasteurisation.—This term was applied to heating milk to any temperature between, say, *50° to nearly 100° C.*, for a short period (not exceeding 20 minutes). The work at the Wisconsin station had shown that it was important to keep the milk agitated. Pasteurisation in bottles or in the ingenious apparatus of Hewlett was not always to be depended on. The Lawrence pasteuriser did not provide for a sufficient length of heating to be absolutely safe. Pasteurisers consisting of jacketed pans with a revolving stirrer were the most efficacious and convenient. They could be so arranged that the milk ran through continuously and could be kept at the required temperature for any length of time. Pasteurised milk was scarcely distinguishable in taste from ordinary milk; the cream did not rise so rapidly if the milk had been heated over 70° C. (*b*) Sterilisation.—As the object of sterilisation was to kill all micro-organisms milk must be protected after sterilisation; this was secured by sterilising in vessels which were closed immediately after sterilisation was complete. Commercially intermittent sterilisation was not practicable, as the cost of handling the vessels several times was great and the cream had a tendency to fuse more and more at each successive heating. Two sterilisations were the utmost practicable; temperatures of 100° C. or over might be used and the length of heating depended on the temperature. Higher temperatures were more effective than lower ones. Sterilised milk was distinctly changed in taste and was deprived of anti-scorbutic properties; also, unless efficiently sterilised, *highly resistant spores* might be left undestroyed and as infantile diarrhœa was due to this class of organisms the milk might be dangerous. (*c*) Protection of milk by veterinary inspection.—The whole of the cows from which the Aylesbury Dairy Company's supply was derived were individually examined and periodically inspected by qualified veterinary surgeons with regard to the existence of any condition likely to render the milk harmful, and especially with regard to evidence of tuberculous disease Every *animal* showing the *slightest* suspicion of tuberculosis was not only submitted to the tuberculin test and condemned if found to react, but its milk was also microscopically examined. The herds were placed under the personal supervision of local veterinary surgeons, who, in the same manner as the local medical officers had done for many years past, visited the farms frequently and regularly.

FRIDAY, JULY 26TH.

DIVISION V., THE PROVISION OF SANATORIA.

Sir JAMES CRICHTON BROWNE, F.R.S., gave an address on the Best Means of Promoting the Erection of Sanatoria for Phthisical Patients in which (1) the curable may have the best chance of recovery afforded to them; and (2) the incurable, whilst ceasing to be a source of danger to the community, may have their lives prolonged and receive the comfort necessary to their condition. He showed that the pathological and clinical evidence of the curability of consumption was convincing. The invaded lung was largely able to take care of itself, but stubborn though the resistance was to the ravages of the disease, yet the bodily powers required some reinforcement from without, and the medical world had come to the conclusion that this extraneous help was best afforded by the establishment of sanatoria He did not claim finality, for the time might come when some sovereign remedy might be discovered to put an end to this disease. It was too early to form any numerical estimates of the good results of the sanatorium treatment. He concluded by dividing the patients into three classes: (1) the affluent, (2) the competent, and (3) the indigent, and laid down the lines of treatment for each class. The affluent class on the whole were best treated at home with the proper care which their circumstances allowed them, but the two latter classes were best treated at sanatoria. He believed that sanatoria once built and started would be self-supporting, and the cost to the patient would be such as the means of his class would [illegible]

Mr. E. W. BRABROOK, C.B., Chief Registrar of Friendly Societies of Great Britain and delegate of the Royal Statistical Society to the Congress, spoke next. If the liability of friendly societies, he said, to claims for sickness and or would be diminished by the establishment of sanatoria it would be to the interest of such societies to contribute to a certain extent towards their construction and maintenance. This the societies had the legal power to do, under certain conditions, by Sections 22 and 37 of the Friendly Societies Act, 1896. The extent of their interest was not so great as might be supposed. The liability of their members to phthisis was not so great as was that of the general population. Again, early mortality relieved the society from its liability to future sick pay. Where children were admitted members they were required to pass a second medical examination at the age of 16 or 18 years. The ages of 3,699,804 members of friendly societies were recorded, 7 per cent. being under 16 years; 7 per cent. between 16 and 20 years; 67½ per cent between 20 and 50 years; 14½ per cent. between 50 and 65 years; and 4 per cent. over 65 years. Trade unions might also, under certain conditions, join in the establishment or maintenance of a medical society. In four of the larger of these bodies the deaths from phthisis were from 10 to 13 per cent. of the total number of deaths, and the average age at death from phthisis varied from 35½ to 39½ years and from all causes from 43 to 52 years. The conclusion at which he arrived was that while theoretically the question put must be answered in the affirmative the financial interest of the societies was too small to allow of its being reduced into practice to any material extent.

Sir JOHN BURDON SANDERSON then made certain propositions in respect of Sanatoria for Working Men and Women. In Germany, he said, more than 50 sanatoria, affording accommodation for about 4000 working men, were in operation. The success of the experiment had been such as to afford ground for believing that by the timely admission of the consumptive workman into a sanatorium his life might be prolonged. In Germany the funds required for maintaining workmen's sanatoria were chiefly derived from the system of compulsory insurance against illness which existed in that country. It might be assumed that no such system could be established in England. It must, at the same time, be admitted that the expenditure required for the maintenance of the working man when incapacitated by sickness must be principally derived from his earnings; in other words, some form of voluntary insurance against disease must be regarded as the best substitute for the compulsory system as it existed in Germany. A system of sanatoria supported by voluntary insurance (as, for example, by the industrial insurance societies which existed in this country) could not be as efficient as a means of diminishing the frequency or spread of pulmonary tuberculosis as a system dependent on compulsory insurance. As regarded the individual contributor it would no doubt be more advantageous, because its benefits would not be extended to the inferior class of workmen who were most liable to phthisis. But for the same reasons it would be less advantageous to the health of the community, for in this relation the degree of advantage arising from the prompt removal of an infected person from his dwelling and its insanitary surroundings was proportional to his poverty. A system which would provide for the well-to-do workman, excluding the toiler whose earnings were not more than sufficient for bare maintenance, would be unsatisfactory unless it were largely supplemented by funds derived from other sources.

Herr BIELEFELDT (Berlin) gave a description of the battle against consumption as carried on in Germany with the aid of the German workmen's insurance. He expressed the conviction after several years' experience that an effective battle against consumption among the working classes would have been impossible without the workmen's insurance in Germany, with its powerful pecuniary resources and its legal and social regulations.

Mr. FREDERICK L. HOFFMAN, statistician to the Prudential Insurance Company of America made a communication to the section, by invitation, upon Industrial Insurance in Relation to the Prevention of Tuberculosis. By numerous interesting charts he showed that the deaths from tuberculosis in the United States of America amounted to about 200,000, but that the death-rate was gradually, if slowly, coming down. The Prudential Insurance Company of America, while recognising that the interests of industrial insurance companies in the prevention of tuberculosis were coincident in America with those of the population at large—for in the United States four-fifths of the population were insured somewhat on the industrial plan—did not consider that it would be expedient for them or any similar corporation to erect and to maintain sanatoria for the treatment of their policy-holders. If they were to entertain such a project they would at once be confronted with requests to make equal provision for other sufferers and even for the injured from accidents, and if they acceded to such requests the interests of their healthy policy-holders would be sacrificed to those of the sick.

Mr. Hoffman was followed by Dr. T. E. HAYWARD, medical officer of health of Haydock, who read a statistical paper on Mortality from Phthisis.

Lieutenant-Colonel MONTEFIORE, secretary to the Medical and Convalescent Committee of the Charity Organisation Society, read a paper on the Provision of Sanatoria, with Reference to Some of the Difficulties which Arise in Assisting the Phthisical Poor. He said that so much had been written on the development of sanatoria and by those abler than himself that he thought it well only to touch briefly upon the subject. Dr. Boddington's attempt in 1840 was the first institution of the kind in this or any other country, and it was more than 19 years after that time that the Brehmer Sanatorium in Görbersdorf was opened and to Dr. Brehmer must be given the honour of being the first to systematise the so-called "open-air" treatment of consumption. Dr. Dettweiler, in 1874, followed with the Falkenstein sanatorium. In 1888 the celebrated Nordrach Colony was opened under Dr. Walther. Now there were sanatoria in nearly every part of Germany, both for patients able to pay as well as for the poor. The recent development of the sanatoria in Germany was partly due to the action of the insurance companies who found it economical to erect these institutions for the treatment of the consumptives. In this country they had many recently built sanatoria for paying patients, but as regards the poor they were certainly far behind the Germans and the Americans. The French, too, had several institutions building, or complete, for their poor, and the Sanatorium d'Agincourt, built by l'Assistance Publique, with 50 beds, was opened last year. It was stated at the Berlin Congress on Tuberculosis in 1899 that phthisis had increased in every European country except Great Britain during the last 40 years, and that in Great Britain the mortality from this disease had declined by 50 per cent. within that time. Notwithstanding that decrease, it was stated by Dr James Alexander Lindsay, in his address on the "Problem of the Consumptive Poor" at the opening of the session of the Ulster Medical Society in 1897, that there were in these islands 200,000 persons suffering from phthisis who might seek hospital relief, and there was only one bed for every 200 phthisical patients who might be expected to demand and require hospital relief, and in order to prove that he had not exaggerated he quoted from Sir Hermann Weber, that "well-arranged special hospitals for the treatment of consumption have accommodation only for one sufferer in a thousand." Dr. Walters, in his "Sanatoria for Consumptives," estimated the total number of beds for poor consumptives in hospitals and homes at 1270, which would be one bed to 1590 people, if they accepted the figures given by Dr. Lindsay, but they knew that their hospitals admitted other diseases than phthisis to their wards, which fact much reduced the available accommodation for the consumptive poor. When they looked for the special sanatoria to which to send their poor sufferers they found how few they were and how difficult it was to get admission for a patient to them. If there were an adequate number of sanatoria the special hospitals would be much relieved, their position would become readjusted, and they might become more in the nature of clearing houses, the patients being sent either to the wards for observation and treatment or direct to the country sanatoria. An exception must be made in the case of the North London Hospital for Consumption, Mount Vernon, Hampstead. They hoped the poor-law guardians of Metropolitan unions would carry out their intentions of erecting suitable sanatoria where such patients under their charge who were at all likely to benefit from the open-air treatment, might be sent, whilst separate wards in the infirmaries might be maintained where in the less hopeful or the hopeless cases the patients might be kept apart from the other inmates. This had been done in several urban Poor-law districts. The National Association for the Prevention of Consumption and Other Forms of Tuberculosis, to which the whole nation should be most grateful, had awakened the public of this country and it was fervently to be prayed that this International Congress, which they had so wisely convened, might be the means of provoking further public efforts to eradicate the scourge of phthisis, which they had now been taught was not one of an hereditary nature to which they must calmly submit, but one that might be tackled and subdued. Lieutenant-Colonel Montefiore endeavoured to point out in his paper that the "colony" system was the wisest upon which to establish sanatoria for the poorer sufferers, and he mentioned what had been done to give the poor the benefit of the open-air treatment by the London hospitals for consumption and by private philanthropic endeavours. He also showed some of the difficulties which beset the charitable worker in assisting the phthisical poor under the new condition.

Dr. BONNET-LÉON (Paris) explained the function of the anti-tuberculous dispensaries in France which as far as possible gratuitously provided to the poor—(1) education for the prevention of tuberculosis; (2) medical advice in as early a stage as possible; and (3) necessary assistance, especially in the proper providing of food. The results of these were highly satisfactory.

The Rôle of the Consumption Hospital in the Prevention and Treatment of Consumption.

Dr. J. EDWARD SQUIRE, physician to the North London Hospital for Consumption, communicated a paper upon this subject in which he said that for the cure of tuberculosis of the lungs hospitals for consumption were useful in proportion as admission was not restricted to the early cases. The hospital, to be complete, should provide for all stages of the disease—for those persons who with medical assistance could continue at work and also for those who were past work and past cure. To fulfil these requirements the hospital should have several departments: 1. Dispensaries or out-patient departments situated in the more crowded districts where tuberculosis was prevalent. The prophylactic rôle of this department in teaching patients how to prevent infection was as valuable to the community as the treatment was to the individual patient. 2. In-patient departments in some healthy situations removed from, but within easy access of, the poorer districts from which cases would be derived. Here amelioration rather than cure was the main aim, but the temporary isolation and the education of the patient in preventive requirements were valuable in prophylaxis. 3 Sanatoria in the country to which curable cases could be drafted for more prolonged stay than could be permitted in the hospital itself. The education in practical hygiene which patients received during residence in the sanatorium had far-reaching influence in prevention. 4. Homes for advanced consumptives which were practically isolation hospitals for the most dangerous class of cases who from poverty would otherwise be living under conditions in which the risk of infection would be greatest or who would be admitted into general hospital wards or poor-law infirmaries to the danger of other patients.

Dr. CALMETTE (Paris) communicated a paper upon Urban Dispensaries for the Prevention of Tuberculosis among the Working Classes, and was followed by Dr. L. PETIT (Paris) who described the Sanatorium of Mont des Oiseaux. Dr. SIEGMUND MORITZ (Manchester) detailed the [illegible] Treatment at the [illegible] Diseases of the [illegible] F.R.I.B.A., who laid down the main lines on which a sanatorium should be constructed with regard to site, elevation, and sewage disposal, and described the buildings at Harlaching (Munich), Falkenstein, Rupertshain, the Nurnberg Heilstätte (Engelthal), the Volksheilstätte Krailing (Planegg), Nordrach, Crookesbury Ridges, and Pine Wood. He also gave a description of the new sanatorium which is about to be erected at Frimley from his designs in connexion with the Brompton Consumption Hospital.

SECTION II.

MEDICAL, INCLUDING CLIMATOLOGY AND SANATORIA.

THURSDAY, JULY 25TH.

Sanatoria for Consumption.

The work of the section was punctually resumed by the delivery of an opening address by Professor CLIFFORD ALLBUTT (Cambridge) on the subject of Sanatoria for Consumption. The speaker began by pointing out that though the modern open-air treatment of phthisis might, perhaps, be successfully accomplished at home the method needed the supervision of a medical man with practical experience of the treatment as carried out in sanatoria. The effect of cold air was to increase the appetite and it did away with the necessity for forced feeding. The valuable scientific work carried out at sanatoria should be systematically calculated and utilised. The degrees of cure were three—arrest, obsolescence, and *restitutio ad integrum.* Obsolescence required two winters and one summer and was out of the question for the poor. To secure what might be called an "economic cure" six months would be necessary in the majority of cases. The dulness and emptiness of the lives of patients at sanatoria should be remedied by tranquil occupations and suitable forms of amusement. Professor Allbutt put the following questions to the meetings: Can mixed infections be inferred from fever curves? Is it possible to distinguish between economic cure and complete cure? How long is a febrile patient to be kept in bed in the reasonable hope of recovery? What can be based upon physical signs alone in regard to prognosis? Is multiple tuberculosis a condition too far gone for treatment in a public sanatorium? Of what use, if any, is massage or hydrotherapeutics? Are pulmonary gymnastics of use, if so, when and how?

Dr. J. KINGSTON FOWLER (London) said that the treatment of the tuberculous patient could not be carried on at home. Further researches on metabolism were requisite to enable them to say definitely what should be done in feeding patients. Early treatment was advisable and this was shown from the large proportion of post-mortem examinations disclosing tuberculosis arrested in the early stages and the small proportion found where a cure had taken place in the advanced stages of the disease.

Dr. R W. PHILIP (Edinburgh) pointed out that the temperature of the ward was best kept not too high. As a matter of fact patients did better in the winter than in the summer. The study of the temperature and pulse should guide the amount of exercise. Patients, if possible, should be treated in their native air.

Professor SCHRÖTTER (Vienna) explained that in Austria before sending patients away they were kept under observation at a central sanatorium and then their ultimate destination was decided upon.

Dr. DVORAK (Prague) urged that tuberculous patients should be relegated to isolated pavilions.

Dr. JANE WALKER (London) insisted that the mental con[illegible] be considered as well as their [illegible] patients could be employed in [illegible]stitution.

Professor JANEWAY (New York) said that it should be the duty of the State to prevent infection from tuberculous patients sent into the country. More exactness in the diagnosis of the early signs and symptoms of phthisis was required from the medical man.

Sir HERMANN WEBER (London) advocated a system of [illegible] sanatoria and discussed the subject of gout being a [illegible] disease.

[illegible] read a paper entitled a [illegible] for Children especially for [illegible] of Scrofulous Complaints. In former times, he pointed out, the so-called scrofulous diseases were much discussed by the medical profession and the public, but now comparatively little attention was paid to them, while the more fatal pulmonary tuberculosis commanded general attention. Yet there was good reason why scrofulous affections should in an equal measure engage their sympathy and attention, firstly, because they were likewise of tuberculous nature and intimately allied to other forms of tuberculosis, and often led to pulmonary or to acute meningeal tuberculosis; and, secondly, because they caused infinite suffering and misery to the patient and often death or invalidism or a crippled state for life By treating scrofulous affections they therefore not only endeavoured to cure the existing diseases but also to prevent pulmonary tuberculosis The principal means of cure were life in the open air, good food, hydrotherapeutic measures, active or passive exercise, and surgical treatment. These measures could not be carried out at the homes of the children of the poor, and frequently even not at the hospitals of large towns; but in the pure air of the seaside (and also of inland places, especially at high elevations) the treatment, if commenced early, almost always resulted in complete cure. Those who were rich could make the most necessary arrangements in private houses or establishments, but the children of the poor had no chance excepting in sanatoria, and for the majority of them sanatoria at the seaside were preferable to those inland, on account of the more vivifying effect of the sea air, which underwent constant changes by the regular local currents of air and by the stronger general winds, and on account of the facility of bathing in the open sea or in tepid sea-water. The poor children who were most benefited and who specially required the sanatorium treatment were those recovering from acute fever, those affected with deficient nutrition, anæmia, rachitis, scrofulous and tuberculous swelling of the lymphatic glands, a scrofulous inflammation of the skin or joints, including hip-joint disease and Pott's disease, and sufferers from adenoid affections of the throat and nose. For the treatment of the majority of these cases it was not sufficient to use any ordinary house—a properly arranged sanatorium was required. The number of children who required sanatorium treatment at the sea-side was very large, and the number of beds available for them in England was very small. There were perhaps 300 beds in the sea-side sanatoria of England, while 5000 would certainly not be too many. Every hospital for sick children ought to have a sea-side branch. It was almost incredible that there should be this strange defect in the hospital accommodation of England, especially when they reflected that the whole of the United Kingdom had such splendid sea-coasts and when they further considered that England was the first country to awaken to the great importance of this matter by establishing, on the suggestion of Dr. Lettsom and Dr. Latham, the General Sea-bathing Infirmary at Margate in 1791. The crying need for help and the possibility of affording this help must be unknown to the philanthropists of this country. If they were aware of the great sufferings which the poor children affected with Pott's disease of the spine, with hip-joint disease, with caries of bones, or with tuberculous inflammation of joints underwent in their wretched homes and how large a proportion of them became consumptive later or cripples for life, or died after protracted misery, and if they knew at the same time that the majority of them could be cured entirely and that many of the others could be restored to such a condition that they could earn their bread and could enjoy life, provided that they were sent early enough to sea-side sanatoria, many philanthropic persons would surely assist in supplying means to found numerous such establishments.

Dr. KNOPF (New York) recommended that patients should not be sent to sanatoria too far away from home because homesickness was a factor in delaying recovery.

Dr. W. V. SNOW (Bournemouth) advocated the treatment of tuberculous patients in sanatoria before any attempt was made at home treatment because of the advantage of learning discipline and proper management.

Dr. ROSENTHAL (Copenhagen) suggested that country hospitals should be utilised for the open-air treatment while sanatoria were being erected.

Dr. BURTON-FANNING (Norwich) discussed the value of rest for tuberculous patients; this with good nursing and attention to diet resulted in 92 per cent. of the cases in an institution which he was interested in gaining weight. One of the most unfavourable signs was frequency of pulse without fever.

Dr. WOLLF BECHER (Berlin) said that in Berlin there was provided for the poor a day sanatorium in the woods outside the town.

Mr. C. BRAINE-HARTNELL discussed the importance of noting the temperature after exercise and how long it remained high, stating that it should fall within 30 minutes. The rectal temperature was very useful as it showed variations which might otherwise be overlooked.

Dr. A. R. PARSONS (Dublin) put forward his views in regard to the possible inutility of the sanatorium treatment for the very poor. The value of the treatment depended to a certain extent upon the amount of time given to it.

Sir R. DOUGLAS POWELL, in the absence of Professor Clifford Allbutt, closed the discussion and commented on the necessity of recognising the fact that tuberculous patients required something in which they could take a little human interest.

FRIDAY, JULY 26TH.

There was no discussion in this section on Friday, but several papers of interest were read, of which we give *résumés*.

Dr. E. SYMES THOMPSON, consulting physician to the Hospital for Consumption, Brompton, read a paper with the following title:—

The Open-air Treatment in Institutions and in Nursing Homes.

He pointed out the difficulty, often insurmountable, of carrying out the "open-air treatment" in the houses of the patients, giving reasons for this want of success. He showed that balconies and "shelters" were superior to rooms even when the windows were reversed. He gave suggestions and details of treatment as regulated (1) by temperature charts by which the rectal and mouth temperatures were compared, because the mouth temperature was not an adequate guide for treatment; (2) by watchful consideration of respiratory movements; and (3) by discriminating attention to the digestive system. Whilst affection of the larynx was a late manifestation of tuberculous disease, pharyngeal affection was an early, often the earliest, symptom. Indeed, in very many cases the tubercle thus gained access to the system, and it was in cases of tuberculous pharyngitis prior to the development of lung affection that careful local and constitutional treatment in a nursing home often proved of the greatest prophylactic value. Whilst foreign health resorts retained their value in many cases English resorts for open-air treatment, and especially those at the sea-side, were, he considered, of equal value in some, and of greater value in other, conditions. The paper concluded with a condensed record of a series of 16 cases, from which the deduction was reached that in rapid cases (galloping consumption) nursing home treatment was the best. In many slight cases the evil was arrested in such homes more successfully than in other ways, and in advanced cases of long standing lasting benefit was often thus recorded.

Dr. W. EWART, senior physician to St. George's Hospital and to the Belgrave Hospital for Children, read a paper entitled—

Time-saving Methods of Treatment, with a Preliminary Note on the "Silver Treatment" of Phthisis by Intravenous Injections of Protargol.

A strong plea, he said, should be entered in the interest of the rate-paying public as well as of the patients for an adequate inquiry into the comparative capabilities of the various "cures" now available. Early and mild cases in strong subjects were practically self-curable with an open-air life; but with the large group of pyrexial, sub-pyrexial, or more or less chronic phthisis the open-air treatment, at any rate in this country, and also the climatic treatment, it would seem from Alpine experience, were not the shortest ways to a cure. A good deal of catarrh was remediable by what may be termed the hospital treatment, or "thorough" treatment, the object of which was to rid the case as soon as possible of its dangerous complications—bronchitis, catarrh, caseation, and suppuration—whilst utilising the period of unavoidable confinement in bed, in the ward, or in an even temperature for the application of every therapeutical influence which in the individual case might be profitably resorted to. This idea had been recently carried out with an encouraging degree of success in a limited number of cases. The favourable results obtained had demonstrated to his satisfaction the advantage of not sending the patients to the open air prematurely, but only in a convalescent state. He was not acquainted with the latest development of Dr. R. Maguire's formaldehyde injection treatment, but some of the results obtained with the original method were very favourable, although neither by this nor by any other method had a permanent clearance of the bacilli from the tissues been obtained. He was led to substitute protargol for formaldehyde by the conspicuous success of the administration of nitrate of silver in pneumonia (Caccianiga) and of its subcutaneous injection in phthisis (Mays). Pending the discovery of some better remedy he had provisionally adhered to it in preference to formaldehyde because of its more decided, of its more rapid, and of its more lasting action. The clinical effects resembled those obtained by Dr. Maguire with formaldehyde—viz., a remarkable subjective feeling of improvement coinciding with manifest improvement in aspect and in strength, a rapid diminution in the cough and in the expectoration, and a more or less rapid change from the dense sputum of phthisis to simple catarrhal sputum and ultimately to hyaline mucus The *ultimate effect was to lower the temperature*, but meanwhile the level might be disturbed by elevations incidental to the treatment More often than not the injection was followed after one hour by a chilliness or even a rigor and a sharp rise lasting about half an hour After this had passed off the patient felt and continued to feel remarkably well; no untoward symptoms of any kind had followed the injections A short attack of nephritis occurred in one patient, but this seemed to have been occasioned by a chill Pre-existing albuminuria of long standing was much reduced in one of his cases, in another the first injection succeeded in stopping a rebellious hæmoptysis The injection consisted of 40 cubic centimetres of saline solution containing from one and a half to two and a half grains of protargol, and this was preceded and followed by an injection (through the same needle) of a few cubic centimetres of pure saline solution to obviate leakage of irritating fluid into the tissues, from 12 to 15 injections generally sufficed. It was best to administer them at intervals of one day, but in some cases they had been given daily The protargol injection method had yielded by itself satisfactory results, but it did not claim to be more than the first and most important instalment in an extensive system of active treatment His present practice was to combine with it as soon as the case had lost all acuteness, general massage, gentle exercise, and particularly respiratory exercise for the expansion of the lung, strong diet and nutrient adjuncts, local and general treatment of the skin, and suitable internal remedies, among which he had obtained specially good results from ichthyol, originally recommended by Wertheimer This combined treatment had enabled some patients with originally unfavourable prognosis to become, after a very few weeks' stay in the hospital, quite suitable for the open air treatment, and to return, after a short period in the country, greatly improved and with a promising forecast of ultimate recovery

Dr A. BÉCLÈRE (Paris) read a paper on

The Technique of the Application of the Roentgen Rays in the Diagnosis of Tuberculosis

The subject under examination should recline on his back or be seated on an elevated chair, the height of which could be regulated like a music stool, and having the shape of a bicycle saddle, so as to permit of almost complete extension of the thighs over the pelvis The observer, to be in possession of a high degree of sensibility to the light, should stay some minutes in the dark before commencing radioscopic examination Precise measurements had taught him that after staying for ten minutes in darkness the sensibility of the retina to the light of the fluorescent screen became from 50 to 100 times greater than it was before, it became about 200 times greater after 20 minutes' darkness, and when this time was passed it increased still more. It was desirable that the generator of electricity for supplying the Crookes's tube should have a certain power, but it was not necessary that this power should be very great He used a small Wimshurst's static machine with four plates The machine could be put in motion by the hand, with a crank, and being not too large it was very easily transportable, it was good enough to furnish to an eye, sufficiently prepared by darkness, an excellent representation of the thoracic organs on the fluorescent screen. On the other hand, it was indispensable that the power of penetration of the Roentgen rays, varying as it did with the electrical resistance of the Crookes's tube, should, all things being equal, be exactly adapted to the luminous sensibility of the observer In the course of prolonged radioscopic examination the electrical resistance of the tube should diminish in proportion as the luminous sensibility became greater Measured by the duration of the equivalent spark by means of the *spentermètre* (the small instrument he had had constructed for this purpose), it would diminish from about nine centimetres to three centimetres or less For this reason the tubes furnished with a vacuum regulator were preferable to others, for in these a person could vary at will, according to the degree of vacuum the electric resistance and consequently the penetrating power of the rays. It was equally indispensable that the tube should be easily moved and capable of being placed over any part of the thorax which the observer wished This condition was fulfilled by the frame for carrying the tube which he had had constructed for the purpose But it was necessary, above all, to be able to restrict at will the divergent bundle of Roentgen rays which traversed the thorax so as to confine the surface illuminated by the screen, by this means were increased considerably the sharpness of outline and the definition of details in the radioscopic image of the region which the observer particularly wished to examine To this end he had had constructed a disc of lead with a variable aperture, which was a simplification of the iris-diaphragm of microscopes This diaphragm, close in front of the Crookes's tube and moveable with it, was completed by a small instrument—the incidence indicator—which showed at each instant in the course of radiographic examination, what was the position of the tube and the attitude of the patient and the point of the screen on which the rays impinged at right angles; it was in the immediate neighbourhood of this point, called the *point of normal incidence*, that the radiographic image approached most closely in form and dimensions those of the corresponding organ Thus in the radioscopic examination of a patient attacked by, or suspected of, tuberculosis they commenced by taking a general view of the thoracic organ, by enlarging to the maximum the opening in the diaphragm, then they pulled out the tube in such a way that the normal ray of incidence traversed the apex of the chest, then they narrowed the opening in the diaphragm until no more could be seen on the screen than the supra clavicular regions of the two lungs Lastly, he varied the electric resistance of the tube, and consequently the penetrating power of the rays, so as to obtai[illegible] the clear and obscur [illegible] were the conditions [illegible] the diagnosis of incipient pulmonary tuberculosis more exact and more certain.

Dr BONNET LÉON (Paris) read a paper on

The Use of Roentgen Rays for Diagnostic Purposes in Pulmonary Tuberculosis,

in which he presented the results of more than 600 personal observations Most of these cases were examined from 1897 up to the present time and had been as a preliminary submitted to the auscultation of various of his colleagues. By the use of the fluorescent screen alone the diagnoses were confirmed in 98 cases out of 100 and very frequently even at *the very outset of the disease*. He recommended the method when a large number of patients were to be examined at a time in noisy places and described a new process by which, he said, an easy and almost general diagnosis could be made in the pre tuberculous period when neither screen examination radiography, auscultation, nor the microscope revealed the least opacity, the smallest modification of the vesicular murmur, or the bacillus He laid stress on the diagnostic importance of anomalies in the synchronism and amplitude of movement of the two halves of the diaphragm in their rise and fall, and concluded by expressing an opinion that a radioscopic examination should be made of all patients predisposed to tuberculosis by heredity, alcoholism, contagion, or surroundings From a therapeutic point of view he would prescribe the methodical exercise of the diaphragm and the muscles of inspiration by respiratory gymnastics in accordance with the results of the radioscopic examination.

Dr ESPINA Y CAPO (Madrid), Professor in the Provincial Hospital of Madrid and Inspector of Public Health read a paper on the same subject in which he said that radioscopy as a means of diagnosis in tuberculosis constituted one of the means of which the greatest hopes had been formed. In the Congress held in Paris they could not speak so affirmatively as they could now because they were not then in possession of positive instances which would leave no room for doubt Radioscopy, in the case of tuberculosis, served as a potent means of settling the topography of the lesions Also by radioscopy the movements of the diaphragm, both in inspiration and expiration, could be appreciated. These movements under normal conditions were not so rhythmical and symmetrical on both sides in tuberculosis In tuberculosis the diaphragm did not rise to the same height on the sick as on the healthy side, and when the two lungs were affected the ascension was shorter on the worse side Dr Espina y Capo concluded by pointing out the different uses to be made of radioscopy and radiography and explaining the technique that he preferred.

Dr ALLEN T HAIGHT (Chicago) made a communication upon

Tuberculosis of the Eye,

in which he pointed out that the history of tuberculosis in the various parts of the eye was very interesting Ocular disease he considered to be often the earliest manifestation of tuberculous affection, and in support of this view he quoted numerous authorities and conclusions, with many tabulated and published cases. He concluded that in some cases early enucleation of the affected organ would save many lives.

Dr. **ALBERT JOSIAS**, physician to the Hôpital Bretonneau at Paris, and Dr. **JEAN CH. ROUX**, ex-intern of the Hospitals of Paris, communicated a paper on

The Treatment of Pulmonary Tuberculosis in Children by Raw Meat and Muscle Serum, according to the Method of M. Ch. Richet and M. Héricourt.

They had carried out the treatment by raw meat and muscle serum, as described by M Richet and M. Héricourt, in a series of tuberculous children. Each of the patients received daily the expressed juice of 500 grammes of raw meat; cooked meat was banished from their diet and an equal quantity of raw meat was substituted. Treatment was strictly maintained for months, and in some cases for nearly a year. Sixteen cases of pulmonary tuberculosis were investigated in this way, but of this number four had been left out of account, as they had only been under treatment for a few weeks. The course of the remaining 12 had been followed with great care, observations being made almost daily, and the results were very accordant. In only one case was the patient in the first stage of the disease (consolidation of the apex with some crepitation, but no breaking down). This patient was at present cured, her weight had risen by 10 kilogrammes; in seven months she increased from 29 to 34 kilogrammes. Four patients were in the second stage of pulmonary tuberculosis (more or less extensive infiltration, with softening, but no cavities). Two of these could be considered as cured after four months of treatment. In these patients all the signs showing a tuberculosis in process of evolution had disappeared. The condition of one was stationary from the point of view of pulmonary lesions; another patient improved, but left too soon. Seven patients were in the third stage of pulmonary tuberculosis (infiltration with softening and cavities). The general condition of six of these was bad, and they were near the terminating period of the disease In spite of treatment they grew worse, and death supervened in a period of time varying from one to three months after the inception of alimentation by raw meat. One little girl only, in spite of advanced lesions and a cavity in the left lung, maintained a good general condition. After 10 months of uninterrupted treatment she was evidently on the way to improvement. Their conclusions could but confirm what they had said in a preceding paper. So long as they had to deal with a purely tuberculous lesion the patient markedly improved under the treatment; auscultation revealed an arrest of the tuberculous process, and the patient recovered. While saying, however, that the cure could become permanent, it must be remembered that the future of the patients was the sole criterion of their complete recovery. But when the tuberculous lesion was invaded by microbes which grew in the softening lungs and in the cavities, when the organism was radically affected by toxins circulating in the blood, treatment such as they had carried out had no longer any therapeutic effect in the large majority of cases.

Dr. **R. MAGUIRE** (London) then read a paper upon

The Inhalation of Formic Aldehyde in the Open-air Treatment of Pulmonary Tuberculosis.

A great amount of experimental work, he said, had been carried on on the continent, in America, and in England, which went to prove that formic aldehyde was a powerful antiseptic and germicide, its bacterial action being equal to, if not greater than, that of bichloride of mercury. It was, he thought, rapidly superseding the older antiseptics, such as carbolic acid, perchloride of mercury, and others. Its advantages were: (1) it was non-poisonous and non-corrosive; (2) it could be used in the form of vapour, which, being of low specific gravity, was diffusible and mixed well with the air; (3) it had no action on clothes, textile fabrics, leather goods, and general household articles, or on metals, except iron and steel; and (4) it was easy and clean in its application, could be used as a general antiseptic and deodorant, and in the disinfection of rooms. About two years ago in the course of some experiments the author made the following observations. 1. Linen strips dipped in broth cultures of staphylococcus pyogenes aureus and exposed in a sealed room with a capacity of 2000 cubic feet to the vapour generated from 20 paraform tablets showed no growth after six hours. 2. From ½ to 1 per cent. formalin solution killed a pure culture of staphylococcus pyogenes aureus, bacillus anthracis, bacterium coli commune, and bacillus typhosus within from 30 minutes to an hour. And ever since he had found formaldehyde to be most efficient and reliable in the disinfection of rooms in the sanatorium with which he was connected. He began treating his patients, he said, with the drug in 1899, and had published the results of seven cases of which three were cured, two were benefited, while in two others the results were not conclusive. He now wished to record the results of 15 cases. Of these 15 patients five (all men) were completely cured. No physical signs or bacilli were found when they left. They had ever since continued to be in good health. Seven (six men and one woman) were almost cured—i.e., a few dry crepitations and a few bacilli remained when they left, but they had been in good health and had followed their different avocations. One (a woman) was slightly benefited. In the rest it had very little effect. Of the five who were completely restored to health three had affection of one lung, one had a large cavity in the left apex, and the other had marked signs of breaking down of both lungs. Of the seven who were nearly cured two had cavities of one lung and consolidation of the other, one had empyema complicating pulmonary tuberculosis, and the rest had more or less extensive affection of both lungs. After describing the technique employed Dr. Maguire concluded as follows:—1. The results of the treatment to his mind had been very satisfactory, and he would strongly urge that the drug should be given a fair trial in every sanatorium where the open-air treatment was carried out. 2. It should be systematically and persistently used and someone enthusiastic in the treatment should take charge of the apparatus—for the apparatus required to be kept clean and the lamp, &c., needed careful supervision every day; any neglect would bring about indifferent vaporisation and the results would be more or less a failure. 3. Though formaldehyde was non-poisonous it hastened coagulation of blood. Hence the injection of formalin directly into the veins and tissues of the body complicated the process of treatment and added a certain amount of risk. Besides, it was not necessary as the efficacy of the drug could be equally obtained by simpler methods of some form of inhalation already discussed in the paper.

Papers were also read by Dr. **CERVELLO** (Palermo), on the Value of Igazol, a preparation containing Formaldehyde; by Dr. **CHOWRY MUTHU** (London), on the Therapeutics of Formaldehyde; by Dr. **HUGH WALSHAM** (London), on the Use of the Roentgen Rays in the Diagnosis of Tuberculosis; and by Dr. **STCLAIR THOMSON** (London), on the Treatment of Tuberculous Laryngitis.

The closing incident in the last session of this section arose from the sad loss lately suffered by the President, Sir Richard Douglas Powell. After Dr. **THEODORE WILLIAMS** had made a sympathetic reference to the calamity that had befallen their President, Sir **J. W. MOORE** (Dublin) proposed and Dr. **DENISON** (Colorado) seconded the following motion which was unanimously adopted:—

> That Section II. desires to express its high and grateful appreciation of the able, dignified, and courteous manner in which Sir Richard Douglas Powell has discharged his presidential duties under most trying and regrettable circumstances; and the Section would convey to Sir Richard and Lady Douglas Powell an expression of its deep sympathy with them on the occasion of the death of their soldierly and heroic son in the South African campaign.

SECTION III.

PATHOLOGY, INCLUDING BACTERIOLOGY.

THURSDAY, JULY 25TH.

This section resumed work under the chairmanship of Professor **G. SIMS WOODHEAD**.

Professor **C. BENDA** (Berlin) opened a discussion on

The Varieties of Tuberculosis.

These, he said, depended first upon the character of the organism and secondly on the mode of dissemination. Tuberculous periangeitis began outside contiguous vessels. Endangeitis was from within and spread longitudinally. The fresh tubercles arising in the course of the chronic disease were from chance tubercle bacilli carried by the blood.

Professor **D. HAMILTON** (Aberdeen) said that it had to be decided whether the mucous membrane of the stomach was able to absorb the bacilli and to pass them on to the glands without itself becoming tuberculous.

Dr. **HABERSHON** (London) said that two of the chief paths of entrance were the tonsils and the lower part of the small intestines. Differences in appearance of the tuberculous lesions were from a difference in virulence of the bacilli.

Professor **OSLER** (Baltimore) felt certain that the frequency of tuberculous pericarditis was directly in proportion to the care with which it was sought.

Sir **CHRISTOPHER NIXON** (Dublin) thought that the virulence of the bacilli caused the different pathological conditions known as tuberculosis. Occasionally tuberculosis arose in man from cattle

Professor **ADAMI** (Montreal) thought that there was a constant physiological passage of bacteria through the tonsil and intestine. This explained how tubercle bacilli could be absorbed.

Professor **MUIR** (Glasgow) said that pulmonary lesions did not necessarily indicate that the disease was produced by inhalation, nor did the absence of lesions in the intestinal mucous membrane prove that infection had not occurred by that mode of entry.

Professor **HEYMANS** (Ghent) gave his experiences upon the diazo reaction in cases of tuberculosis in animals which were not altogether satisfactory.

The Comparative Virulence of the Tubercle Bacillus from Human and Bovine Sources.

Dr. M. P. **RAVENEL** (Philadelphia) then read his communication based upon three years' experiments with bovine and human tubercle bacilli. The experiments were of a very exhaustive nature and carried out with extreme care and efficient control. His conclusions in view of the statement of Professor Koch are extremely important and are as follows. The bacilli from the two sources had in culture a fairly constant and persistent peculiarity so that they could be tentatively differentiated. The bovine bacillus was for all experimental animals with the exception of swine more virulent than was the human bacillus. It was a fair assumption from the evidence which he produced, and in the absence of any definite evidence to the contrary, that the bovine tubercle bacillus had a high degree of pathogenic power for man which was especially manifest in the early years of life. In justification of the last deduction he quoted five cases of tuberculosis in human subjects which were directly derived from bovine sources.

Professor **SIMS WOODHEAD** thought that as the time for terminating the meeting had come and as the communication of Dr. Ravenel was of such great importance he should defer the discussion on the paper until the following (Friday) morning.

FRIDAY, JULY 26TH.

The Temperature Required to Kill Tubercle Bacilli in Milk.

Professor **BANG** (Copenhagen) addressed the section on the subject of the temperature required to kill tubercle bacilli in milk. His view was that anything under 85° C. was not certain to destroy the bacilli though it might be possible He concluded his very remarkable communication by explaining how the froth on the milk was below the temperature of the milk itself and thus the chance of infection might still remain.

Professor **RUATA** (Italy) took up the point that tuberculosis was admittedly a chronic malady, and that being so he came to the conclusion from the fact of the great number of deaths recorded from tuberculous enteritis and meningitis before infants had reached the age of two months that therefore [illegible] being so common a cause in [illegible] to sterilise milk they must use a temperature of 90° C and this did not in any way interfere with the making of butter and cheese.

Professor S. **DELÉPINE** (Manchester) considered that the necessary temperature was near 100° C. By experimental inoculation it could be shown that lower temperatures only caused delay in the symptoms of tuberculosis becoming manifest.

Dr. **MARMOREK** (Paris) gave it as his opinion that tuberculous meningitis must be secondary to some preceding tuberculous lesion and discussed the comparative immunity of the dwellers among the Alps who used large quantities of milk, but that milk came from the purest sources.

Mr. H. A. **KINGWELL** (London) said that much American meat arrived in this country infected with tubercle and with cysticerci, but Dr. **RAVENEL** did not agree to his statement that it was not difficult to find cysticerci in pig's flesh.

A discussion on

Mixed Infection in Tuberculosis

was opened by Mr. A. G. R. **FOULERTON** (London), bacteriologist to the Middlesex Hospital, who pointed out that the influence exerted by secondary infections on the course of tuberculosis began to attract attention as soon as the identification of the specific parasite enabled the pathology to be studied. In chronic pulmonary tuberculosis and in chronic pulmonary phthisis there could be no question as to the cardinal part which the bacillus tuberculosis played as a primary or original factor, but its importance as an ultimate factor in the mortality was not by any means so well established. The terms "chronic pulmonary tuberculosis" and "chronic pulmonary phthisis" were used in clinical medicine as if they were synonymous, but pathologically the two conditions differed widely. In chronic pulmonary phthisis the action of the bacillus tuberculosis had added to it the more acute influence of pyogenic organisms, the potentiality of which for evil was incomparably greater. By uncomplicated chronic pulmonary tuberculosis Mr. Foulerton understood the condition in the lungs which was brought about, usually in adults, by the presence of the bacillus tuberculosis alone and in which a limited number of granulomata were present. In such cases physical signs were most frequently absent and the discovery of the infection by the finding of bacilli in the sputum was usually a matter of accident. This condition must, however, in reality be extremely common, and its frequency might be estimated from the number of instances in which the lesions of arrested tuberculous infection were found in the lungs of adults dying from other causes. With respect to the secondarily infecting bacteria of chronic pulmonary phthisis, practically all who had worked at the subject were agreed that various species of cocci were the predominating organisms, streptococcus pyogenes, staphylococcus pyogenes aureus, staphylococcus pyogenes albus, diplococcus pneumoniæ, and micrococcus tetragonus being found most frequently. The pathogenic action of the secondarily infecting bacteria consisted chiefly in local destruction of the tissues, the production of perinodular pneumonia, and the setting up of toxæmia. The treatment of secondary infections in pulmonary phthisis should be the chief object aimed at. Under the influence of rest, and in an atmosphere of pure air, such as might be found at moderate altitudes, the virulence of pyogenic bacteria became attenuated and tended to die out.

Professor **WILLIAM OPHÜLS**'s (San Francisco) paper on the same subject was then read to the meeting. He had succeeded in finding pure cultures of tubercle bacilli in seven out of 13 cases of large cavities. Tubercle bacilli alone could be found in 25 cases of tuberculous pneumonia. In 12 cases of recent mixed infection there were tubercle bacilli with pneumococci, streptococci, or staphylococci. There was a general infection in six cases of mixed infection, where the pyogenic cocci were held to have caused acute septicæmia, being the immediate cause.

Dr. W. **BULLOCH** (London) suggested a joint committee of research by clinicians, pathologists, and bacteriologists to investigate and to report.

Dr. F. F. **FRIEDMANN** (Berlin) gave details of some experiments proving that a fœtus could contract tuberculosis from the paternal side without the mother being affected.

Dr. **HUGH WALSHAM** (London) read a paper on

Excretion Tuberculosis of the Kidney.

Excretion tuberculosis of the kidney, he said, was defined as the occurrence of secondary tuberculous foci by a process of excretion through the glomeruli and the bacilli had become arrested at some point in the tube, most often in the medulla of the kidney. 13 cases of disseminated miliary tuberculosis had been examined in proof. All tubercles that had advanced to the stage of giant-cell formation had to be rejected. In the vicinity of the giant cell the action of the bacilli appeared weakest and the bacilli found in the neighbourhood of giant cells were usually few on account of the phagocytic action of the giant cell on the bacilli (Metchnikoff and Stschastny) The view that giant-cell formation in renal tuberculosis was derived from renal epithelium was untenable. Very little was said by the authors of text-books on pathology as to the exact position of the bacilli in miliary tuberculosis of the kidney. The only British pathologist who mentioned the position of the bacilli was Hamilton whose description was very accurate. Details were given of the microscopical examination of tuberculous kidneys by serial section in four cases. The bacilli which gave rise to the process were found in the urine tubes only, or in process of expulsion through the tubes. It seemed probable that other pathogenic bacilli and cocci were excreted by these organs. Horton-Smith had admitted the possibility of a typhoid bacillus finding its way through the kidney to multiply in the bladder. Plate 10 of his (Dr. Walsham's) series illustrated a case of septicæmia. Two of the urine tubes were seen to be stuffed with micrococci; the surrounding tissue was free from them, but was infiltrated with pus cells. The experimental production of renal tuberculosis was discussed, especially Borrel's and Wyssokowitsch's experiments. One of the speaker's own plates (Plate 11) seemed to show a glomerulus in process of excreting the bacilli. Tubercle bacilli arriving by the renal artery either became arrested in the capillaries of the glomeruli or in a small twig of the renal artery, and here in most cases tuberculous changes arose. A possible cause of the non-excretion of bacilli (evidence of excretion being found only in four out of 13 cases) was the hindrance caused by large caseous foci of tubercle. If, as frequently happened, large foci of tubercle were found enclosing apparently normal urinary tubes which contained no bacilli, notwithstanding the quantity in the neighbourhood, it might be assumed that the bacilli had been conveyed by the blood or lymph-vessels. If, on the other hand, tubercle bacilli were found in a urinary tubule with little surrounding caseation the conclusion was that the bacilli did not enter the tube from the surrounding tissue, but produced the tuberculous nodule while in process of excretion by the kidney. The following conditions had therefore been shown. 1. The presence of tubercle bacilli within the glomeruli of the kidney without any visible change in the vessels of the glomeruli in the surrounding tissue. 2. The presence of bacilli in the urine tubes. 3 The presence of tuberculous changes in the neighbourhood of the bacilli in the tubes (tubercles of excretion). 4 The presence of bacilli in the urine of a patient who died from acute miliary disseminated tuberculosis.

The subject of the Transmission of Tuberculosis by Sipping Wine from the Same Vessel at the Communion was mentioned by Mr. **HERBERT MORGAN** and the Danger of Infection from Railway Carriages was dealt with by Dr. **BROOK HUNT**.

SECTION IV.

VETERINARY (TUBERCULOSIS IN ANIMALS).

THURSDAY, JULY 25TH.

Tuberculosis and the Milk-supply.

The discussion on this subject was opened by Mr. **JAMES KING**, Chief Veterinary Inspector to the Corporation of the City of London, whose important paper will be found in THE LANCET of July 27th, p. 245.

Sir **GEORGE BROWN** spoke on the necessity of stimulating the authorities to further legislative action, but he did not know how to do it, and if anyone possessed the secret he would like to hear it. The majority of meat inspectors throughout the country had not even read the reports of the Royal Commission with its recommendations, and therefore could not be accused of wilfully neglecting them.

Mr. **BOWEN-JONES** put forward a few propositions which he believed would lead to practical legislation without any great disturbance of the existing law. In order to get that the views approved of must be endorsed and supported by all. No legislation would be founded on any controvertible fact. He thought it absolutely useless to think that tuberculosis could be scheduled under the Contagious Diseases Act. He then detailed his propositions dealing with the meat laws in England. All confiscation should be paid out of the Imperial purse. Preventive measures other than those contained in the propositions should be voluntary.

Mr. **HOPKINS** praised the manner in which meat inspection was carried on in London, and if it was carried on in the same way everywhere else there would be nothing to complain of. He also thought that compensation should follow confiscation, and this was a great principle which should be demanded in Parliament thoroughly and without any tinkering.

Dr. **JAMES CAMERON** (Leeds) said that tabes mesenterica was often produced in children from the drinking of tuberculous milk. He also advocated a more thorough disinfection of the byres and other surroundings in which the cows were placed, and concluded with a wish for more unanimity of inspection, referring to the utter incompetency of some of the present inspection. All inspectors should be up-to-date, *bonâ-fide* veterinary surgeons.

Mr. **HEADLEY** (Northumberland) thought that Professor Koch's announcement had put the clock back 20 years. The county which he represented was the county which suffered most from the ravages of tuberculosis. Northumberland was the biggest cattle producing county, but there was no *bonâ-fide* inspection of meat. He also referred to a local association which compensated the owner by giving him two-thirds of the price of the animal.

Mr. **MATTHEW BRECHIN** (Glasgow) said that the compensation just referred to could not possibly be adequate. It was as well to remember that Professor Koch might be right and the treatment of this subject should not be too drastic. It was a remarkable fact that Glasgow lost far more meat by condemnation than London did, totally out of proportion to the population. Every butcher should be allowed expert evidence before meat was condemned and no obstacles should be put in his way provided he was carrying on business in a perfectly honourable way.

Professor **RUARDI** (Italy) said that tuberculous meat must produce first intestinal tuberculosis and secondarily pulmonary tuberculosis. However, an extensive examination of statistics showed that intestinal tuberculosis came on at a time when meat was not eaten—i.e., in infancy. He supported his contentions by referring to English statistics for 1899. In adults tabes mesenterica was secondary to phthisis, and yet meat formed the chief food of the adult. There must be no scientific doubt on any question on which they asked Parliament to legislate. They must remember that in experimenting upon animals the results were not necessarily similar in man. In his opinion inoculation was not of the least importance.

Mr. **COOPER** (London) said that the population of London had taken every care to see that their inspectors were highly qualified men. In some detail he called attention to the present condition of the law regarding seizures whereby the butcher was practically without means of defending himself from those who probably knew nothing about the matter. He suggested that medical officers of health throughout the country should have a conference and should arrive at a common line of action with regard to the inspection of meat which should be enforced throughout the United Kingdom. At present the law acted very badly and there was a premium for concealment. He showed the folly of following the example of foreign countries, for large quantities of foreign meat exported from abroad were seized as unfit for human food. He also advocated a more natural open-air life for the cows and cattle as being conducive to the best health. In England they might be kept out much longer than they were. At any future conference he suggested that all parties should be properly represented which certainly had not been the case with the Royal Commission.

Mr. **PEARSON** (Sheffield) said that London was very well circumstanced as regards meat inspection. If the British agriculturist fed his animals he would be at the loss, nor could the butcher afford to buy a "dead" animal. It must be admitted that when the agriculturist interest of the country was good the general trade of the country also was good. He insisted on the necessity of inspection.

Mr. **WILLIAM FIELD**, M.P., from an exhaustive study of statistics found that tuberculosis as a human disease had decreased by 50 per cent., whereas the amount of meat during the same time that had been consumed by the population had been trebled and he could not see much communicability of tuberculosis through the agency of meat in the face of that fact. The qualifications of meat inspectors had been improved to certain extents since he had brought the notice of the country in Parliament to their total lack of qualification, but the British law on the subject was in a state of confusion at the present time. He regretted that there was no representative of the trade on the Royal Commission To get effective legislation public opinion must be educated and Parliament must be shown that behind them they had the weight of that public opinion. It would, to insure speedy legislation, be necessary that the cost involved should be as small as possible.

Mr. **L. F. COGAN** (Northampton) said that the law as regards seizure was just as necessary in the case of pigs, though those animals had not been mentioned. He insisted very strongly on the necessity of the support of the press throughout the country. The choice of action lay between two things: either compensation must be given for destruction of animals in the public interest or the farmer would have to guarantee that the animals were sound when they were sold.

Councillor ANDERSON, M.D., (Glasgow), said that the principle of compensation was a very serious one, and if once admitted in the meat trade it might be taken as a precedent and applied to a great many other things. Full compensation would have a tendency to create a new class of men who might take unfair advantage of it. In Glasgow they had instituted a meat inspection committee and had made full provision for the defence of the owner of the diseased meat. The public should be protected with as little injury as possible to the trade.

Professor OWEN WILLIAMS (Edinburgh) said that there was not sufficient uniformity of inspection. The veterinary profession was of the opinion that the inspectors should be appointed by Government and not by the municipal authorities. It should be possible for the inspectors to be changed from town to town to avoid local influence. All slaughter-houses should be public. Compensation should not be permanent but gradually diminished and then abolished and finally confiscation should be made punishable after a certain number of years.

The AGENT-GENERAL OF NEW ZEALAND said with regard to the open-air treatment of cattle that tuberculosis was a great pestilence in Queensland and New Zealand, where the herds were out of doors all the year round. In those countries closest Government inspection was required by its veterinary inspector and it was made law that every town of 2000 inhabitants should erect public abattoirs. After slaughtering the meat was subjected to Government inspection. They paid the farmers for the value of the beast if diseased and its flesh was reduced by a steaming process to manure and was not given to pigs, the hoofs and the hides became the property of the Government and were sold for what they would fetch. This arrangement resulted in the farmers inviting the inspection of their animals if they were suspicious.

Mr. W. HUNTING (London) said that the only way to protect the public against tuberculous meat was to make the meat regulations part of a more uniform scheme under the Board of Agriculture for the stamping out of the disease at its source. It was illogical for the butcher to receive full compensation, for if he did there would be no necessity for him to try to control the disease. He thought that Parliament could only be moved in the face of a general election.

FRIDAY, JULY 26TH.

The Legislative and other Measures to Combat Tuberculosis amongst Animals.

The discussion was opened by Professor DUNCAN MCEACHRAN reading a paper on this subject which will be found at p. 279 of our present issue.

Mr. WILLIAM DUTHIE (Collynie Tarves) said that there was nothing more important than the yearly cleansing and disinfection of the byres. A proper system of ventilation was not yet generally understood. He thought that Aberdeen did not allow the cattle sufficient open-air and out-of-door exercise, but better arrangements in this respect were now beginning to obtain. If a cow had udder disease no calf was allowed to suck that animal. He strongly objected to the plan of condemning a valuable carcass for some very small tuberculous lesion, for there was no danger from the meat of such a carcass. If a carcass was destroyed it should be because of general diffuse tuberculosis. The fact that Canada did not give compensation was no reason why the British Government should not give it on a reasonable system.

Professor NOCARD (Alfort) then read a paper on

Tuberculosis in Bovine Animals: its Dangers, its Progress, its Prophylaxis,

in which he came to the conclusion that tuberculosis was one of the diseases of cattle which caused most loss to agriculture in all countries; that everywhere the disease was on the increase, forming everywhere a menacing danger to public health as well as to public wealth; and that infection being the only formidable cause of the increase of tuberculosis there was need for the adoption of legal measures prescribing (1) the complete separation of unhealthy from healthy animals; (2) the slaughtering without delay of those sick animals which showed clinical signs of the disease, and especially of cows attacked with tuberculous mastitis; (3) the interdiction from selling tuberculous animals for a destination other than the slaughter-house; and (4) the pasteurisation of all the sub-products of butter and cheese manufactories. On the risks involved to man from tuberculous animals he came to the following conclusions as to the best means of guarding against them: 1. That the resemblance of tuberculosis in men and in mammals was no longer denied. Healthy cattle-sheds had been infected by lengthened occupation by consumptive cattlemen The converse was equally possible, at least theoretically. 2. That meat obtained from tuberculous animals was rarely dangerous, and when it was dangerous it was only slightly so. The established regulations for the inspection of tuberculous meat would be sufficient to prevent even the shadow of danger if such regulations were applied always and everywhere, but unfortunately this was not the case. 3. That the milk given by tuberculous cows was rarely dangerous, but when it was dangerous it was most often so in a very high degree; hence the necessity of submitting cow-houses to a periodical inspection when the milk yielded was destined for public consumption. Cows being really only dangerous when they had a tuberculous udder the inspector's attention should be drawn to the state of the udder. Any cow showing clinical signs causing suspicion of the existence of a tuberculous mastitis or of serious visceral tuberculosis ought to be isolated at once pending the making of a diagnosis, this being easily and rapidly done by the present process; the milk should be boiled before being sold or consumed even by the animals on the farm.

Professor THOMASSEN (Utrecht), who spoke in French, cited four cases in which he had inoculated animals with cultures of tubercle bacilli from man, and he ventured to differ somewhat from the statement which had been made by Professor Koch. He also gave a *résumé* of some proposed legislation which was to be carried out in Holland with reference to tuberculosis. Animals affected with tuberculosis were to be destroyed and "reacting animals" were to be segregated. The importation of affected animals was to be interdicted.

Colonel NUNN (London) referred to the universal acknowledgment that it was desirable to eradicate this disease, leaving the matter of communicability out of the question. To an ordinary person the legislation on the matter was misleading. There appeared to be ample Parliamentary powers and it was their duty to educate the people to the point of moving the executive power.

Professor W. A EDGAR (Dartford, U.S A.) said that some of the colonies were beyond us in attempting to suppress diseases of animals, although the veterinary profession in this country had long been advocating the enforcement of enactments against tuberculosis. The possibility of accurately diagnosing the disease by tuberculin had removed the great obstacle to the placing of tuberculosis under the Contagious Diseases (Animals) Act and the suppression of the disease. They must take legislative steps without any further delay. Restrictive measures must be universal and uniform and not left to the "may if they think fit" of local authorities To ensure promptness and to stimulate local interest in the suppression of the disease the powers they had should be administered by the local authorities He could not agree that it was harmless to allow the skin of a condemned animal to be sold, as it was then used for manure.

Professor DEWAR (Edinburgh) made some remarks in connexion with the suppression of tuberculosis apart from legislation. There was a very exaggerated idea of the expense incurred by any individual breeder who was likely on his own initiative to start to clear his herds of the disease. It was the most profitable thing that a breeder could attempt and he gave figures proving this. Very little faith was now put in the hereditary transmission of tuberculosis.

Mr. W. HUNTING (London) said that there was some but very little legislation against tuberculosis, confined entirely to the protection of man There was supposed to be some protective legislation against tuberculous milk and meat, but it was not properly carried into execution. Four-fifths of the inspection were done by men who knew nothing about it and the remaining fifth was done by those who knew too much If it was particularly dangerous to keep a cow with a diseased udder in the shed, was it not more so to leave a lot of "wasters" in the sheds who were emitting bacilli from both ends the whole of their lives? This required legislation just as much as udder disease. The greatest obstacle to legislation was the ignorance of the laity regarding the causation of the disease. At the present time the butcher and the cowkeeper had to pay or be fined for all the tuberculosis which was put into their hands by the breeder and feeder.

Mr. POTTER (Paisley) wanted to know, in view of the vastly different opinions held by authorities, what education they were going to give the people?

Mr. F. J. LLOYD (London) said that it was absolutely impossible to make cheese from sterilised milk, as had been implied by a previous speaker. With reference to Denmark and the system of pasteurisation the object was to obtain a butter which would be of better and uniform quality for the British market. Persons were always too ready on insufficient evidence to attribute tuberculosis to the milk-supply. but the sterilisation of milk was not only a safeguard against tuberculosis but also against scarlet fever and other infectious diseases, though this was not frequently mentioned. In large towns want of sanitation was a more potent factor in the causation than the quality of the milk. There would not be the present difficulty of teaching the farmers that it was their duty to rid the herds of the disease if the veterinary profession had been of one mind in the past.

Mr. J. S. LLOYD (Sheffield) referred to the difficulty of seeing that ventilation was properly carried out. Meat inspectors should have a thorough training in their duties and should not hold simultaneously such a post as the inspector of nuisances. He regretted that the Meat Traders' Federation had joined issue with the agriculturists in asking compensation for diseased udders, which, in his opinion, with certain restriction was not fair or necessary.

Dr. C. PORTER (Shrewsbury) then read a paper on

The Measures Necessary for Improving Cowsheds and Insuring the Health of Milch Cows.

He pointed out that general legislation was urgently necessary for the following purposes:—1. To empower urban and rural sanitary authorities to inspect, in regard to tuberculosis and any other disease, cows and cowsheds, wherever situated, from which milk was supplied to their districts. 2. To endow county councils with concurrent powers. 3. To amend and to extend the provisions of the Dairies, &c., Order of 1885 so as to make applicable to tuberculosis its regulations concerning the inspection of cattle; to prohibit the use of milk from tuberculous udders as food for animals unless first boiled; and to provide for a sufficiency of moving air at the heads of milch cows kept in cowsheds. 4. To empower the Board of Agriculture to provide free tuberculin for testing the stock of all assenting owners. 5. The application to the kingdom generally of powers on the lines of the tuberculosis clauses of various local Acts, with the further powers of prohibiting the removal of suspected animals and of applying the tuberculin test. 6. The compulsory slaughter of all reacting animals, as it was impossible, except by an almost impracticable system of espionage, to insure their isolation and the disuse of their milk. 7. The payment of full compensation when the slaughtered animal was found to be free from tuberculosis and of substantial partial compensation when the disease was localised, but only in such cases. 8. Penalising the fraudulent use of tuberculin for "fortifying" purposes. 9. Protecting from personal liability sanitary officers acting *bonâ fide*, as per section 265 of the Public Health Act, 1875 Dr. Porter also considered that there should be reference in the model regulations to some cubic space requirements for cowsheds in sparsely populated localities; that periodical veterinary inspection of milch cattle was required; and that information in regard to bovine tuberculosis, and especially in reference to the value of the tuberculin test and the importance of feeding calves on wholesome milk, should be disseminated amongst farmers and cow-keepers.

Sir GEORGE BROWN, in concluding the business of the section, expressed his great satisfaction at the very large and enthusiastic audience which the section had attracted. He hailed with delight the oft-repeated statement that the traders, meat salesmen, and the farmer were all convinced of the great importance of taking every possible precaution for the purpose of getting rid of the disease in the lower animals. He sympathised with the butchers in the injustice to which they had occasionally to submit in regard to the question of seizures. He had called the attention of the Royal Commission to the waste of good meat unnecessarily in this matter owing to seizure by untrained men.

Mr. B ST. JOHN ACKERS proposed a hearty vote of thanks to the chairman, which was seconded and carried unanimously.

THE PATHOLOGICAL MUSEUM.

The museum of the Congress had been arranged under the auspices of the Museum Committee to give as far as may be a complete ocular demonstration of the disease of tuberculosis. An elaborate catalogue was drawn up and edited by Dr. W. Jobson Horne, the honorary secretary to the committee. It is a well-printed volume of some 200 pages, illustrated with plates, plans, and diagrams. The frontispiece gives a plan of the museum, which was held in the small Queen's Hall. Around the hall were arranged the morbid anatomy exhibits, at the platform end was the microscopic collection, and on the floor of the hall were photographs and drawings, together with an exhibit of bacteriology and experimental tuberculosis. Charts and diagrams hung on the walls.

In the bacteriological section the most interesting exhibits were those of the various bacilli allied to, or simulating, the bacillus tuberculosis. Such was Dr. Moeller's exhibit of the timothy bacillus, the grass bacillus, the butter-and-milk bacillus, and the excrement bacillus. Dr. Lydia Rabinowitch showed a very complete collection of acid-fast bacilli simulating that of tubercle, and Mr. Harold Swithinbank showed a set illustrative of "the hitherto supposed different varieties of the tubercle bacillus, acid-fast bacilli, and organisms of pseudo-tuberculosis and pathogenic streptothrices at different stages of growth." As regards experimental tuberculosis the most striking in view of Professor Koch's speech were the series exhibited by him of preparations illustrating the effects of inoculating cattle with the bacilli of bovine and of human tuberculosis. They certainly show that cattle, including pigs, are resistant to human tuberculosis. On the other hand, there was a series of water-colour drawings illustrating the results of experiments by the late Dr. William Marcet, details of which may be found in his communication to the Royal Medical and Chirurgical Society on May 14th, 1867, in which reference is made to Dr. Villemain's discovery that tuberculosis can be inoculated from man to animals.

The exhibit of the morbid anatomy and pathology of tuberculosis was very complete. The specimens were naturally for the most part taken from British museums, but there was a set of preparations illustrating tubercle of the cardiac valves, of the blood-vessels, and of the thoracic duct exhibited by Professor C. Benda of Berlin. Dr. Haushalter and Dr. Spillmann of Nancy showed 50 photographs illustrative of infantile tuberculosis. Dr. Hugh Walsham and Dr. Ernest W. Martin both showed some excellent skiagrams of the thoracic cavity mainly dealing with tubercle, but in one or two instances with pneumothorax and other non-tuberculous morbid conditions.

The Royal Veterinary College of London and the Royal College of Surgeons of England exhibited preparations showing the effects of tuberculosis in animals, while Dr. George Newman exhibited 23 microscopic slides showing the comparative pathology of tuberculosis in the animal kingdom The organs producing the specimens came from the Royal Zoological Society.

The remainder of the exhibition was taken up with charts and diagrams, photographs showing the effects of the open-air treatment, and sanatorium fittings. Dr. T. Glover Lyon showed a working model of his ventilating apparatus, Messrs. Maw and Son and the Sentinel Company of Cambridge exhibited sterilisers for milk, while Messrs. R. A. Lister and Co. of Dursley showed their filtering and pasteurising plant. The architectural section, which had been collected and arranged by Mr. Thomas Cutler, F.R.I.B.A., included photographs, plans, and drawings of various sanatoria. Altogether the exhibition was very complete and we think that the Museum Committee may be congratulated on the fruit of their labours.

THE SOCIAL SIDE.

A reception of the members of the Congress was held by the Council of the Sanitary Institute in the Parkes Museum on July 25th. Over 300 members availed themselves of the opportunity of visiting the Museum of Hygiene, including many of the foreign delegates attending the Congress. The visitors were received by Sir Joseph Fayrer, Professor W. H. Corfield, Mr. A. Wynter Blyth (chairman of the council), Dr. H. R. Kenwood (chairman of the Museum Committee), and other members of the council, and full information was given on all points of interest by the secretary of the institute, Mr. E. White Wallis.

The Earl and Countess of Derby received the members of the Congress at an At Home held in the Victoria and Albert Museum, South Kensington, on the night of July 25th. The reception was numerously attended and was characterised by the presence of an unusually large number of the leading lights in the scientific world. The wonderful specimens of the various schools of art were naturally the subjects of much admiration and the enjoyment of the evening was greatly enhanced by an excellent programme of music played by the band of the Grenadier Guards In another part of the building Karl Kap's Viennese Band was stationed and it was not until a late hour that the guests departed

Sir J Whittaker Ellis and Lady Ellis gave a most enjoyable garden party and river picnic at Buccleuch House Richmond, on the afternoon of July 26th The weather was not ideal, but the members of the Congress were able to avail themselves of a commodious electric launch which conveyed parties of the visitors up and down the lovely reach of the river Thames at the foot of the classic Richmond Hill Lady Ellis had made every arrangement for the comfort of her guests in case of bad weather and the company fully appreciated the hospitality of their hosts

The Duke and Duchess of Northumberland, in response to an invitation issued by them to the members of the Congress, received a very large company of guests at their mansion at Syon generally known as Syon House, on the banks of the Thames near Isleworth, on July 27th The Duke and Duchess had made the most elaborate plans for the convenience of their many guests, carriages were waiting at the various railway stations in the vicinity to convey the visitors to Syon The Duchess received the members of the Congress at the entrance to the long library overlooking the park and river The great beauty and elegance of the apartments traversed did not fail to excite the admiration and praise of the foreign visitors In the grounds commodious tents amply provided accommodation for refreshments, and a military band station [illegible]
audience [illegible]
great pleasu[illegible]
the afternoo[illegible]
careful of the guests made a speedy departure for London and they were wise indeed in their generation, for just before 6 P.M the rain fell in torrents and necessarily occasioned some discomfort

The Dinner to the Foreign Delegates

Lord Derby presided over the banquet given at the Hotel Cecil London in honour of the foreign vice-presidents and foreign delegates and also of the delegates representing the Indian Empire and British colonies The dinner took place on July 26th and was attended by about 300 guests Among those present were Lord Lister, Lord Reay, the Lord Mayor of London Sir William Church (President of the Royal College of Physicians of London) Sir Christopher Nixon (President of the Royal College of Physicians of Ireland), Sir Henry Norbury (Director General of the Medical Department of the Royal Navy) Dr J Dunsmure (President of the Royal College of Surgeons of Edinburgh) Dr J Andrew (President of the Royal College of Physicians of Edinburgh), Dr J Finlayson (President of the Faculty of Physicians and Surgeons of Glasgow) and a very large number of the best known medical and scientific men in the kingdom

The Chairman proposed the toast of The King and acknowledged the great debt which the Congress owed to His Majesty for the interest he had displayed in the campaign against tuberculosis which was due to his initiative He claimed that the King had been foremost in that movement in this country

The Chairman in proposing the toast of "Our Foreign Guests" said The toast which I now propose is one to which I hope and am sure that all Englishmen will do the greatest honour When we drink to the health of "Our Foreign Guests and when we consider who these guests are, surely nothing more is required to stimulate your enthusiasm and for once to let people see that the Englishman is not so cold a person as he is supposed to be All those who have come, possibly at inconvenience and who have brought to this Congress the tribute of their knowledge the result of their experiments, the help which they can afford by suggestion and by example to the brethren of their profession to these indeed we worthily pay honour We are glad to think that this Congress is not that of one but of many countries, and that it is a great international movement in which all can join with freedom and at the same time with a sense of comradeship and of relative support which must help on the movement in which we are all engaged We recognise, as we are bound to do in common candour, that we were somewhat behind in the race at first, that we had to borrow many of our ideas from foreign countries, that we had to copy much which was done, and that we had to try to emulate those undertakings which had been successful elsewhere In sanatoria, in the arrangements of hospitals in the separation of patients, and in the separation of those who hardly come within the description of patients we have learnt as we hope, many lessons From this Congress we trust that the combination of talent which has been brought together, that the friction of the various wits and intellects which have been brought around our council board will produce that result to which we look forward and that the conference will not be barren but will leave behind it an abiding good When I look on the formidable list formidable in numbers only, of the gentlemen whom I shall have to call upon to reply for their respective countries I feel that I must not take up too much of your time This however you will allow me to say, that while we thank our foreign guests for having come to us we are not satisfied only with that, but we would ask them—and we say it from our hearts as well as from our lips—to remember the cordial invitation we extend to them to come again We are cold, perhaps as some say phlegmatic, our 'Good bye' conveys a wish only for the future happiness and welfare of the individual to whom we say it, and we must go to other countries where emotions are better understood or better expressed for the *au revoir* or "*auf wiedersehen* that we all in our hearts desire to utter We hope that you who have come among us will on some future occasion once more cross the seas and I am sure on behalf of those who succeed me that you will on all other occasions experience the same hearty welcome which we have endeavoured to give you at the present time I must not sit down without making on behalf of our council my own and their own humble apologies for some of the shortcomings which may have taken place at our Congress My colleagues one and all have been fairly overpowered with work and if everything has not been as perfectly arranged as clockwork you will in the kindness of your hearts overlook our omissions and recognise that the will was there, however imperfect the performance Let me thank you not only for ourselves, but on behalf of our country and on behalf of the world for the magnificent array of scientific men of distinction who have accepted our efforts and come to help us in our councils It is with a feeling of pride that I find myself here addressing men whose names are household words in Europe and throughout the world We shall be able to look back to the time when we spoke to them face to face and in our humility we hope that they when they return home will not entirely have forgotten us We only wish our foreign guests what in the words of our American cousins we have tried to give them here—that is "a good time" We wish them all a fortunate journey home and trust that they may gather there further honours and that in time to come we may once more meet in the capital of our country when I am bound to say that we will give them the very heartiest reception that they have ever had. In saying farewell we wish our guests all possible good which may attend the happiness of man — The toast was responded to by Professor E G Janeway (America) Professor L R von Schrotter (Austria) Dr Martin (Belgium) Dr Mikailovsky (Bulgaria) Professor B Bang (Denmark) M Félix Voisin (France), Professor O Gerhardt (Germany) Professor Pel (Holland) Councillor Raiz (Hungary) Professor Cervello (Italy) Dr [illegible] zmo (Roumania) Señ[illegible] Dr Klas Linroth (Swe[illegible] and M Malm (Norway) M Voisin whose wonderful elocution allowed of his being understood though speaking in French all over the vast hall intimated that the President of the French Republic authorised him to invite the coöperation of those present in a similar Congress to be held in Paris in 1902 or 1903

The toast of Greater Britain' was in the absence of Sir James Crichton Browne, proposed by Sir Herbert Maxwell and was replied to by Surgeon General Harvey (India) Sir David Tennant and Sir John Cockburn

'The Health of the Chairman was given by Sir William S Church who said that they were all aware how admirably Lord Derby had presided over the Congress and over that banquet but they were not all equally aware of the debt that the Congress owed him since he had undertaken the presidency of the organising committee and of the council — The Chairman in reply dealt with the question of the desirability of establishing sanatoria for the poor and concluded with an acknowledgment of the services rendered by Mr Malcolm Morris and Dr StClair Thomson.

Correspondence.

"Audi alteram partem."

PROFESSOR KOCH'S ADDRESS AT THE BRITISH CONGRESS ON TUBERCULOSIS.

To the Editors of THE LANCET.

SIRS,—I desire to call attention to an apparent omission in that portion of Professor Koch's address in which he deals with the results of his experimental feeding of swine with bovine tuberculosis. The animals, he says, which "had eaten bacilli of bovine tuberculosis had without exception ...... tuberculous infiltration of the greatly enlarged lymphatic glands of the neck and of the mesenteric glands and also extensive tuberculosis of the lungs and spleen." But although the swine had been infected by the method of feeding no mention is made as to whether tuberculous lesions of the intestine were found in any of the experimental animals. This omission appears to be the more remarkable seeing that in discussing the reasons for his assumption that bovine tuberculosis cannot be conveyed to man by the ingestion of milk or butter containing "living and perfectly virulent bacilli" Professor Koch makes the definite assertion that it is "only when the intestine suffers first" that a case of tuberculosis can be assumed with certainty to have been "caused by alimenta." It may be that although in Professor Koch's address, as reproduced in THE LANCET, no mention of the fact is made, nevertheless, tuberculous lesions of the intestine were really present in addition to those which he enumerates, but in view of the importance which Professor Koch evidently attaches to this condition in the case of man the publication of full details of the post-mortem examinations of these pigs would be of considerable interest.

I am, Sirs, yours faithfully,

July 30th, 1901. S. MONCKTON COPEMAN.

THE SALE OF DRUGS BY MEDICAL GRADUATES.

To the Editors of THE LANCET.

SIRS,—I am instructed to send you the annexed copy of a resolution recently adopted by the Senatus Academicus of this University and to request that you will kindly give it a place in the next issue of THE LANCET.

I may mention that a similar resolution has been adopted by the University of Edinburgh.

I am, Sirs, yours faithfully,

DONALDSON ROSE THOM,

University of Aberdeen, July 29th, 1901. Secretary of Senatus.

(COPY.)

"Whilst it is admitted that the exigencies of practice in certain localities may sometimes render it unavoidable for a medical practitioner to supply to his patients the remedies which he prescribes—the Medical Faculty of this University is of opinion that it is undesirable and detrimental to the position of medical graduates of the University that this custom should be followed under other circumstances; and further, it regards the sale of objects other than remedies by its medical graduates as, under all circumstances, to be strongly deprecated"

THE HIGH ALTITUDE TREATMENT: A CORRECTION.

To the Editors of THE LANCET.

SIRS,—In reference to my paper read at Section II. of the Congress on Tuberculosis (on the Physiological Principles of High Altitude Treatment) the table of comparison of the results of different climates, which you have published in THE LANCET of July 27th, p. 239, is Dr. Theodore Williams's and not mine.—I am, Sirs, yours faithfully,

Dr. O. AMREIN (Arosa, Switzerland).

"THE PROPOSED LEGISLATION ON BAKEHOUSES."

To the Editors of THE LANCET.

SIRS,—The calm and rational tone of the annotation in THE LANCET of July 27th. p. 221, on the proposed legislation on bakehouses contrasts most emphatically and most favourably with the wild and whirling words which appear in the daily press on the subject. This is the first reflection that occurs to one in reading your remarks and the next is some regret that you should even appear to give the weight of your authority and influence to the proposal to abolish all underground bakehouses. A great many of these bakehouses are quite insanitary and their suppression is a consummation devoutly to be wished, but there are other underground bakehouses which are as perfect—from a sanitary point of view—as any above-ground bakehouses can be. And further—and this is perhaps still more important—there are a great many basements which might be occupied as bakehouses and could be made perfect models of sanitation. At present the fatuous clause in Mr. Asquith's Bill prohibiting the opening of any new underground bakehouse stands in the way, so that the occupiers of insanitary bakehouses are practically compelled to go on as they are. You are doubtless aware that some of the finest public buildings in London—such as the Queen's Hall and the Victoria suite at the Hotel Cecil—are underground in the sense that their floor is below the street level. The fact that it would be illegal to convert any of these places into a bakehouse is the *reductio ad absurdum* of the clause over which Mr. Asquith and Mr. John Burns are congratulating themselves.

Your proposal for a committee of experts is one which I advocated some time ago, and is the first step which an enlightened Government would take. Let such committee settle what is necessary for sanitation, and let the results of their working be taken as a basis for legislation; but do not let us impose upon the baking trade a restriction which is neither necessary nor desirable and condemn all underground bakehouses because some are worthy of condemnation.

I am, Sirs, yours faithfully,

EDITOR OF "THE BAKER AND CONFECTIONER."

July 29th, 1901.

ISOLATION HOSPITALS AND SCARLET FEVER.

To the Editors of THE LANCET.

SIRS,—There were so many who wished to speak in the discussion on this subject at Eastbourne on Friday, July 26th, that I held back, feeling sure that someone would take up three points which to me seem to demand consideration. As they were passed by with little or no notice perhaps you will allow me to state them briefly.

1. The more completely isolation is carried out in a given district, of any infectious disease liable to importation, the larger must be each year the number of children not protected by previous attacks and therefore liable to infection. No district has ever managed to isolate more than a part even of the notified cases, and there remain in addition to those known cases left at home all the unrecognised cases as well as the importations from other districts. Outbreaks of measles show what this involves.

2. Isolation, even if partial, is of great value to individual families, not only in enabling them to pursue their occupations with less interruption, but also because it enables them, if not to save their other members from the disease altogether, at any rate to postpone the age at which they take it and so to reduce the risk of mortality.

3. The experience of small-pox (and I probably might say of plague) shows that no serious epidemic of very infectious disease can be controlled by hospital isolation alone. At Middlesbrough, Glasgow, and I think at Gloucester, the spread of the disease was not really checked until general revaccination was introduced. Yet no one seems to question the value of isolation hospitals in small-pox, and I am convinced that in at least two cases, and probably five or six, outbreaks of that disease have been rendered harmless in my own neighbourhood by isolation hospitals. It is the mild and unrecognised cases that will always make complete isolation impossible and incomplete and inefficacious in stamping out small-pox. Why should we expect better results in the case of scarlet fever where as yet we have nothing like vaccination to help us? And is it wise to unsettle public opinion by expressing doubts of the value of isolation hospitals from one point of view without mentioning their advantages in other aspects?

I am, Sirs, yours faithfully,

MICHAEL THOMAS SADLER, M.D. Lond.,

Medical Officer of Health of Barnsley.

Barnsley, July 29th, 1901.

"THE TIMES ARE TROUBLOUS."

To the Editors of THE LANCET.

SIRS,—I can fully bear out your correspondent, "G. P.," in his reference (in his letter in THE LANCET of July 27th, page 229) to the out-patient department as far as my experience goes. Being one of those members of the profession who are devoid of capital I have held an appointment for nearly two years in a hospital and dispensary where the care of the out-patients is entirely in my own charge. The population of the town where this institution is situated is only 12,000, yet we receive an average of over 200 recommendations per month. Many of the patients are in a much better worldly position than myself. I am paid £100 a year or so to treat all comers; the majority are single men with wages of from £1 to 25s per week and married couples with from 25s. to £2. A not inconsiderable number have a much higher income, some owning businesses, horses, and fair house property, and in one instance a good farm of 90 acres. I "jibbed" at this a little at first, but was sharply pulled up by my committee. A rigid wage-limit should be fixed, in my opinion, as the practice of giving so much medicine and advice free, not to speak of attendance at home and luxuries provided by "charitable" people, only encourages thriftlessness and a habit of spending all surplus money in the small public-houses that infest every back lane in this and other towns. At the very least the home-visiting system should be kept within very narrow bounds as it is greatly abused. I am, Sirs, yours faithfully,

July, 1901. SWEATED.

WALES AND WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

The Gelligaer Medical Officer of Health.

THE sanitary district of Gelligaer is really the Merthyr rural district and is contiguous to the town of Merthyr. For many years the late Mr. T. J. Dyke acted as medical officer for Gelligaer and he held the same position in Merthyr. Upon Mr. Dyke's death last year Dr. W. W. Jones, who had been deputy medical officer of health for several years, was appointed medical officer of health for Gelligaer and retained his private practice in Merthyr. When the resolution formally to re-appoint Dr. Jones was before the district council on May 2nd last it was decided by a small majority to insist upon his residing within the area of the Gelligaer district. Dr. Jones having placed before the Local Government Board definite reasons against the proposal, and the district council having stated that they were following the example of the metropolitan boroughs, the Board sent a communication to the council pointing out that the metropolitan medical officers of health are required to devote their whole time to their duties and are paid fa[illegible] uncil propose to pay; and, furthe[illegible] nsist upon a medical officer of [illegible] strict there could be no combine[illegible] one official. There is no very definite centre in the district of Gelligaer which is made up of colliery villages with populations varying from 2000 to 3000 persons, and as each village has already its own colliery surgeon Dr. Jones would be deprived of his present private practice in Merthyr and the district would, in point of fact, obtain his whole services at the salary of a part-time medical officer of health.

Glamorgan Lunatic Asylum.

In his recently issued annual report the medical superintendent (Dr. H. T. Pringle) states that among the 485 patients who were admitted to the Glamorgan County Asylum at Bridgend during the year 1900 there were 13 who were under 15 years of age and several of these were almost infants. He suggests that a special idiot asylum should be established where these children could be cared for and trained to much greater advantage than when associated with adult lunatics whose language and conduct are not good examples for them. Dr. Pringle also urges upon the asylum committee the desirability of founding a benevolent fund for the assistance of those patients who return to their homes recovered but who, in the case of men, find it difficult for a time to secure employment. The county borough of Cardiff is entitled to 475 of the 1560 beds for which the Bridgend Asylum has accommodation. It is not anticipated that the asylum to be erected at Whitchurch, for which plans are now being prepared for the Cardiff corporation, will be ready for occupation before the end of 1904, and in the meantime patients are being sent from Cardiff to Carmarthen, Hereford, *and other places owing to the lack of accommodation at* Bridgend.

Delegates to the British Congress on Tuberculosis

If the interest which is taken in the public health service by the sanitary authorities of Wales is to be measured by the number of delegates who were appointed to the British Congress on Tuberculosis the principality must be in a bad condition. The University of Wales elected four delegates, but there was no representative from a single Welsh county council, not even excepting Glamorgan or Monmouthshire, and among the large towns, Cardiff, Swansea, and Newport alone sent delegates, while of rural districts that of Llandaff and Dinas Powis was the only one represented.

Cardiff Sanatorium.

It has hitherto been the custom for the Cardiff Corporation to treat all patients at the sanatorium free of charge with the exception of those cases sent in by the board of guardians The Health Committee has now decided to make no charge to the board when the patient sent in by a Poor-law medical officer is merely in receipt of medical relief, but when receiving such relief as to constitute him a pauper a charge of 6s. per week will be made to the board.

Dr. Thomas Young.

A portrait of Dr. Thomas Young, from the painting by Sir Thomas Lawrence, has been placed in the Victoria Hall, Milverton, Somerset, with the following inscription: "Thomas Young, M.D., F.R.S., &c, born at Milverton 1773, died 1829, physician, natural philosopher, and master of many languages. He first established the undulatory theory of light, and translated the Rosetta Stone, which is the key to our understanding of the Egyptian hieroglyphics."

July 29th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

University of Aberdeen.

AMONG those who were "capped" at the summer graduation ceremony were 28 candidates who had passed the final examination in the medical faculty.—At the last meeting of the university court gifts of human skulls, &c., to the university museum, from Professor R. W. Reid (Professor of Anatomy in Aberdeen University) and Mr. Ian Rose, medical officer of the Uganda Railway Company, were intimated. Additional examiners for degrees in medicine, &c, were also appointed.—Lord Strathcona is to [illegible] £25 000 to the University Extension [illegible] balance required (£20,000) being [illegible] Of this latter sum £2000 has already been promised and the special committee are forthwith to issue an appeal for subscription of the £18,000 still wanted. At the graduation ceremony above mentioned eight medical practitioners were promoted by examination to the degree of M.D. and the honorary degree of LL.D. was conferred on Surgeon-Major Alfred William Alcock, I.M.S., Professor of Zoology in the Medical College of Calcutta, and Professor Rudolph Virchow, Berlin.

July 30th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Belfast Water Board.

AT the present time anything but cordial relations exist between the Belfast Water Commissioners and the Public Health Committee in reference to the origin of the epidemic of typhoid fever The matter is being a good deal discussed at present from the fact that in a pending vacancy at the Water Board one of the candidates, who is also a medical man (Dr. John Barron), believes that the cause of the frequent—I may say, almost annual—outbreaks of typhoid fever in Belfast is to be found in the polluted subsoil, the result of defective drainage. Dr. Barron says that if he is elected to the Water Board he will retire from the City Corporation.

Sanatoria for the Poor.

Mr. Robert Hall, medical attendant at the Belfast Union Hospital, has recommended the guardians to build a sanatorium in the county for their numerous tuberculous patients, but they have declined on the ground that the poor rates could not be devoted to such a purpose.

Medico-Psychological Association of Great Britain and Ireland.

The sixteenth annual meeting of the above association was held in the Queen's College, Cork, on July 25th and 26th. At the commencement of the proceedings the chair was occupied by Dr. Fletcher Beach, the out-going President, who introduced the President for the coming year, Dr. Oscar T. Woods, medical superintendent of the Eglinton Asylum, Cork. Dr. Woods in the course of his presidential address pointed out that the first public attempt to provide for the treatment of the insane poor in Ireland was made in the year 1728, and he gave an interesting history of the progressive improvements in the treatment of insanity. Between 60 and 70 members attended the meetings and some valuable papers were read. On July 25th the President gave a banquet to the members and several friends at the Imperial Hotel. On the following day Dr. and Mrs. Woods were "At Home" and a large number of guests assembled in the charming grounds of the Eglinton Asylum.

July 30th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Institute of Colonial Medicine.

THE competition which I have already referred to in one of my previous letters[1] between the various towns as to which should have the honour of organising an official course of instruction in colonial medicine still continues. The partisans of this school being created in Paris have collected a sum of money which although considerable is nevertheless insufficient unless Government grants come to their aid—an event which is exceedingly improbable. The Minister concerned with the affair has decided that the instruction shall be given at Bordeaux where the local faculty has already created the organisations necessary and has founded a special diploma in colonial medicine. On the other hand, there is Marseilles to be considered. This city is the port of departure of all the French steamship lines in connexion with the great colonies and receives annually from the colonies on an average 1300 military and naval invalids and 600 civilian invalids. Marseilles offers a magnificent field for study and the clinique has a perfect installation far superior to that which might have been arranged in Paris. Since 1899 the municipal council has created at the School of Medicine five new chairs, one in the bacteriology and pathology of foreign countries, one in colonial hygiene, climatology, and epidemiology, one in colonial natural history, one in tropical clinical medicine, and one in colonial materia medica and bromatology. The professors holding these chairs deliver lectures in colonial medicine to doctors of medicine who reside for three months in the school and who have a special examination which comprises a written paper, for which four hours are allowed, dealing with the pathology of tropical diseases, the hygiene of hot countries, and sanitary police matters. There are also a *virâ voce* examination in tropical medicine and practical examinations in microbiology, in the laboratory diagnosis of tropical diseases, in parasitology, and in anthropology and urology as far as they deal with points in tropical pathology. Marseilles also possesses in addition to the School of Colonial Medicine a general colonial department organised at the expense of the Chamber of Commerce under Professor Henkel. This has about 200 students and seven special chairs dealing with the following subjects: vegetable and animal products, parasitic diseases of plants, mineral products, physical geography and geology of the colonies, colonial hygiene and commerce, colonial economics, jurisprudence, and agriculture.

The Chair of Ophthalmology of the Faculty of Medicine.

The faculty has just nominated by election a new professor of ophthalmology to replace M. Panas who has handed in his resignation. The election has given rise to a great deal of discussion. It is always the custom to choose the professors of the faculty of medicine of Paris among those medical men who have been nominated as *agrégés* at a former competition. The only exception to this course is at the creation of a new chair, which is very rare, and even then it is almost always an *agrégé* who is chosen to fill it. In the present case among the *agrégés* of the faculty of Paris there was only one medical man practising as an ophthalmic surgeon, and he could have been chosen as successor to M. Panas, but the professors of the faculty saw that with one candidate there was no opportunity of making a selection, and so they admitted various *agrégés* and professors from the provincial faculties as candidates—amongst others M. Lagrange of Bordeaux and Professor de Lapersonne of Lille. The generality of medical men in Paris and the press were anxious that the faculty should be still more liberal and should allow the candidature of some of the Paris ophthalmologists, several of whom are not *agrégés* of the faculty, a circumstance which is explained by the fact that the chair of ophthalmology which was occupied by M. Panas was a comparatively new creation and that at the age when the Paris ophthalmic surgeons begin their career as specialists they have no particular interest to present themselves for examination as *agrégés*. Throwing open the competition to men of distinction would have been a very popular measure, but the faculty preferred to maintain its ancient traditions and after a severe contest appointed the professor from Lille, passing over the Paris *agrégé* and the Paris medical men who are not *agrégés*.

Prevention of Ophthalmia Neonatorum.

Whilst certain legislative measures relative to public health were being discussed in the Senate a senator who was also a medical man proposed the introduction of a clause making it compulsory for midwives and accoucheurs to bathe a new-born child's eyes at once with solution of permanganate of potassium in order to prevent ophthalmia. The Minister of the Interior consequently requested the Academy of Medicine to supply him with an outline of the instructions which ought to be given to midwives in this respect. M. Pinard, to whom the question was referred, was of opinion that permanganate of potassium ought not to be ordered specially and exclusively, as it is by no means the only substance efficacious in the treatment of ophthalmia. The recommendations of M. Pinard were as follows: (1) the distribution in all *mairies* of short descriptions of the causes, symptoms, and dangers of ophthalmia in new-born infants; (2) immediate notification of purulent ophthalmia everywhere and in all cases; and (3) the appointment in connexion with lying-in establishments (clinics and maternities) of ophthalmologists to superintend the treatment of purulent ophthalmia and to give the requisite instructions to the pupils, medical men, and midwives.

July 29th.

THE SERVICES.

ROYAL ARMY MEDICAL CORPS.

SURGEON-CAPTAIN A. MACDONALD, Army Medical Reserve, assumes temporary medical charge of the troops, Station Hospital, Edinburgh Castle. Captain C. Dalton, at Hounslow, is ordered to West Africa for service. Surgeon-Major Crooke-Lawless joins at Aldershot for duty. Lieutenant J. B. Clarke has joined at Aldershot, and has been posted to the Depôt for a course of instruction. Lieutenant-Colonel M. D. O'Connell is appointed principal medical officer, North-Eastern District, vice Colonel W. E. Saunders, posted to India.

IMPERIAL YEOMANRY.

18th Battalion: The under-mentioned officer relinquishes his commission, dated July 16th, 1901: Temporary Captain H. W. Whyte, Medical Officer.

SOUTH AFRICAN WAR NOTES.

Civil Surgeons Tucker, John Burton Rudduck, and Davies have been discharged from hospital for duty. Civil Surgeon C. R. Hodgson is on passage home.

VOLUNTEER CORPS.

Artillery: 1st City of London (Eastern Division, Royal

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[1] THE LANCET, June 15th, 1901, p. 1716.

Garrison Artillery). George Johnston to be Surgeon Lieutenant. Dated July 27th 1901. *Rifle*: 2nd (Prince of Wales's) Volunteer Battalion the Devonshire Regiment: Surgeon-Lieutenant A. R Rendle to be Surgeon Captain. Dated July 27th, 1901. 1st Volunteer Battalion Princess Charlotte of Wales's (Royal Berkshire Regiment): Surgeon-Lieutenant W. G. Heasman to be Surgeon Captain. Dated July 27th, 1901.

His Majesty the King held an Investiture at St. James's Palace on July 25th and conferred the Distinguished Service Order upon the following officers:—Surgeon Captain W. Fletcher and Staff Surgeon E. C. Lomas, R.N.

Major R. P. Bond, R.A.M.C., was amongst the recipients of war medals presented by the King at Marlborough House on July 29th.

Surgeon Major General W. A. Thomson, A.M.S. (retired), Honorary Physician to the King, has been selected for a Good Service Pension of £100 a year.

Obituary.

CARSTEN HOLTHOUSE, F.R.C.S. ENG., L.S.A.

MR. CARSTEN HOLTHOUSE had truly reached a ripe old age when almost at the end of his ninety-first year he closed his earthly career on July 18th. He was little known to the present generation of the profession, but 30 years ago, as senior surgeon to the Westminster Hospital and lecturer on surgery in its school and as a frequent attendant at the medical societies, he was a familiar figure. There are many who will remember the short, spare, well-set man, brisk in his movements, somewhat brusque and dogmatic in the enunciation of his own views, yet always kindly and conscientious in his criticism of the opinions of others, and keen and enthusiastic in the interest he ever took in surgical practice and in the progress of surgical knowledge. His enthusiasm and absence of self-seeking were notable and could not fail to gain for him the respect and esteem of his contemporaries.

Mr. Holthouse was born on Oct. 14th, 1810, at Edmonton, being the eldest son of Mr. Carsten Holthouse of that place. After an education at private schools he in his fifteenth year, became the articled pupil, as was then the custom, of his uncle, Mr. Le Gay Browerton of Bawtry, in Yorkshire. Later he entered at St. Bartholomew's Hospital and was a dresser under the late Sir William Lawrence. As was usual at that time he sought the double qualification and became a Licentiate of the Society of Apothecaries in 1832 and a Member of the Royal College of Surgeons of England in 1833. After a visit of some six months to the Paris hospitals he commenced practice in his father's house in Keppel-street and industriously attended the out-patient department of St. Bartholomew's Hospital. We next hear of him as being appointed lecturer on anatomy and physiology at the Aldersgate-street School of Medicine in succession to, and at the instigation of, Mr. Skey. It was whilst holding this appointment that Mr. Holthouse became known as a teacher and made a reputation which led to his election as one of the original Fellows of the College in 1843. At the time of his death he was the senior of the very few surviving original Fellows.

In 1849 Mr. Holthouse was the successful candidate for the Lectureship of Anatomy of the resuscitated Medical School of Westminster Hospital. His valuable services on taking up this appointment were very inadequately appreciated at the time. Dr. Hunter, his predecessor in the chair, had a few years before carried away with him the greater part of the anatomical preparations, probably his own private property, and a month after Mr. Holthouse had begun his first course of lectures the College of Surgeons condemned the deficient remains of the anatomical museum as insufficient for the proper teaching of the subject, and the school would have been closed had not Mr. Lane of the Grosvenor-place School offered to take over the anatomical pupils. Mr. Holthouse at the same time undertook, if £30 were granted to him for the purpose, to provide before the end of the year all the anatomical preparations required by the College. He was at once appointed curator of the museum, the amount was voted, and before the end of December, by making good every one of the deficiencies, he satisfied the requirements of the College authorities and obtained permission for the students to resume their attendance at his anatomical lectures. The school, however, did not prosper, and after lecturing for five years without remuneration Mr. Holthouse was so dissatisfied with the condition and management of the school that he sent in his resignation of the chair of Anatomy. This brought matters to a head, and Mr. Holthouse was induced to continue to hold his chair by being unanimously appointed sole manager of the school with a free hand to make the necessary improvements. In this way Mr. Holthouse saved the school from destruction and was the energetic means of establishing it on a more satisfactory basis. Mr. Holthouse was appointed assistant surgeon to the Westminster Hospital in April, 1853. In the following year, a base hospital for the sick and wounded from the Crimean war having been established at Smyrna, he went out as one of its surgeons in company with Hulke and Streatfeild and others. On his return to London he took a house at Storey's-gate and resumed his work at Westminster. At the same time he took up the study of ophthalmic surgery and soon after assisted in the founding of the South London Ophthalmic Hospital, an institution which has recently been rebuilt and has discarded all local association from its name. In 1857 he was promoted to the full surgeoncy of Westminster Hospital, a post which he held until 1875, when by the rules of the hospital he retired to the office of consulting surgeon. For some years, too, he held the chair of Surgery in the school, a post from which he retired in 1873.

Mr. Holthouse's published writings show best the versatility of his mind. In 1838 he wrote three papers on the "Acarus Scabiei" which attracted some attention. In 1854 he published "Six Lectures on the Pathology of Strabismus and its Treatment by Operation." Four years later appeared a book on "*Squinting, Paralytic Affections* of the Eye, and Certain Forms of Impaired Vision." In the same year, in 1858, he published "Practical Observations on the Radical Cure of Inguinal Hernia." In 1870 he gave to the profession his more mature views on this subject in a larger volume "On Hernial and other Tumours of the Groin and its Neighbourhood, with Practical Remarks on the Radical Cure of Ruptures." The article on the lower extremities in the second volume of Holmes's "System of Surgery," which appeared in 1870, was from his pen. A year later he published a *brochure* "On the Proper Selection and Scientific Application of Trusses." After his retirement he took great interest in the question of the treatment of inebriates and wrote letters and articles on the subject which conduced much to a more healthy public opinion on the subject.

Mr. Holthouse possessed a sound practical knowledge of surgery and was in many ways a good teacher. If he failed to make his mark as a successful competitor for the confidence of the public it was probably the natural result of the versatility of his mind on the one hand and of a certain want of concentration on the other. As has been well said, success would seem to be almost impossible without a power of concentration and a habit of attention to minute details and it was doubtless owing to defects of this kind that Mr. Holthouse failed to secure the public appreciation which his talents deserved. Mr. Holthouse was twice married—in 1853 to Agnes, the daughter of Mr. Samuel Kent of Clifton, and in 1869 to Martha, daughter of Dr. John Inglis Nicol of Inverness. Of his children by his first wife three sons survive him.

THOMAS LIVINGSTONE, M.D., M.S. GLASG.

DR. LIVINGSTONE passed away at London on July 16th at the age of 52 years on his return from Germany where he had been staying for the benefit of his health. For the last two years he had been suffering from angina pectoris and on the recommendation of his medical advisers he went seven weeks ago to Bad-Nauheim for the Schott treatment. His health, however, did not benefit from the visit and it was on his way home to Stanhope, Co. Durham, that he suddenly expired at a London hotel. The deceased gentleman had acquired a large practice at Stanhope. Not only did he gain distinction by his medical and surgical skill but by his kindness and geniality he became not only the medical adviser but the friend and counsellor of all classes, but more especially of the poor and needy. He also interested himself in local affairs and at various periods of his life held all the important local public offices. He became a member of the Stanhope School Board at its formation, and for the last 23 years, until his untimely death, was its chairman. He also took an active part in Poor-law affairs, and he became a member of the board of guardians, being chairman from April, 1885, to February, 1894, when he resigned. For some years he was medical officer of health of one of the Stanhope rural districts. In educational matters he took a very deep interest. The best instruction that was obtainable he wished to place at the disposal of the people, and it was chiefly due to his efforts that the School Board, finding that small wages were unproductive of good results, decided to remunerate their teachers more liberally. On the establishment of the county councils Dr. Livingstone was elected a member of the Durham county authority. His services in connexion therewith were highly valued and he was elected an alderman eight years ago, which position he held at the time of his death. He was also chairman of the Health Committee of the county council and had occupied that position for the last 10 years with great ability. He took a very lively interest in the St. John Ambulance Association and in the volunteer forces he occupied the position of surgeon for many years. He was also a magistrate for the county of Durham, being appointed some 10 years ago. As evidence of the esteem in which the late Dr. Livingstone was held by his friends and neighbours of Stanhope and the dales two years ago he received a handsome presentation, the outcome of public subscription, on the occasion of his silver wedding. His funeral, which took place on July 18th, was largely attended, genuine sorrow being evinced by all classes. He leaves a widow (a sister of Mr. Joseph Walton, M.P.) and two sons to mourn their loss.

CHARLES DAGNALL CLARK, M.B. LOND., M.R.C.S. ENG., L.R.C.P. LOND.

THE death is announced, at the early age of 45 years, at Sydney, N.S.W., of Dr. C. D. Clark, eldest son of the late Mr. Alfred Clark, Cross Deep, Twickenham. He was educated at Uppingham, and on leaving that school decided on entering the medical profession. He matriculated at the University of London, first in honours with scholarship. As a student of St. Bartholomew's Hospital, London, he obtained the Kirkes gold medal and was appointed resident gynæcologist under Dr. Matthews Duncan. His health failing he left for Australia, where he shortly afterwards obtained the appointment of resident surgeon at the Prince Alfred Hospital, Sydney. After three years' service he entered upon private practice and was appointed on the staff of the hospital. His death will be mourned by a large circle of patients and friends. He leaves a widow and four children.

"SALTPETRE."—At the Devizes Borough Petty Sessions held on July 18th, a firm of provision merchants were summoned at the instance of the Wilts County Council for selling as saltpetre an article which was not of the quality and substance demanded. The county analyst stated that the percentage composition of the sample sent to him as saltpetre consisted of sodium nitrate, 97·2 per cent; potassium nitrate, 1·8 per cent.; chlorides and sulphates, 0·7 per cent.; and water and insoluble matter, 0·3 per cent. For the defence it was stated that hundreds of tons of this substance were sold for bacon-curing purposes. The magistrate inflicted a fine of 10*s.* in addition to 8*s.* 6*d.* costs.

CARMARTHEN JOINT COUNTIES LUNATIC ASYLUM.—The thirty-sixth annual report of this asylum, which accommodates the lunatics of the three counties of Carmarthen, Cardigan, and Pembroke, has just been issued. During the year 116 cases (67 males and 49 females) were admitted. The discharges amounted to 57. The deaths numbered 76, a larger number than usual owing to an outbreak of influenza On Dec. 31st, 1900, there remained under treatment 633 patients (329 males and 304 females). The charge made for maintenance of pauper lunatics was 7*s.* 7*d.* per patient weekly.—Miss Alice Neville Johnson, M.D. Brux., L R.C.P. Edin., L.S.A., was appointed on July 25th second assistant medical officer to the asylum at a salary of £130 per annum.

THE BRITISH MEDICAL ASSOCIATION.

MEETING AT CHELTENHAM.

THE sixty-ninth annual meeting of the British Medical Association commenced its session in Cheltenham on Tuesday, July 30th. This is the second time that the Association has visited Cheltenham, the first being in 1837, the year of the accession of Her Majesty Queen Victoria, and it is somewhat curious that the year of the present visit is marked by the accession of His Majesty King Edward VII.

Dr. G. B. Ferguson, President of the British Medical Association, delivered an exceedingly interesting Presidential Address at the first (adjourned) general meeting. His description of the position now occupied by scientific medicine was not only eloquent but learned. As a rule a *résumé* of medical progress is rather a dreary thing to listen to, the orators who are condemned by circumstances to speak to this theme being apt to use the same words in describing the same things. Dr. Ferguson's address was not in the least stereotyped in character. Obviously familiar with the many-sided developments that have followed upon recent research, he touched suggestively upon the more important, and in so doing justified his forcible plea for better facilities in this country for the pursuit of science. "A Faraday, a Koch, a Pasteur would be a cheap purchase at a million" is his forcible answer to those who would oppose the educational demands of progressive science by a counter-cry of economy.

Cheltenham is of course renowned for its waters, its good shops, its tree-bordered streets, and its educational advantages for either sex.

The town has evidently decided to "do the thing well," and even the shops show the influence of medicine. Thus the principal printshop has filled its windows with medical pictures. There is a photograph of Rembrandt's celebrated "Lesson in Anatomy," and engravings of Luke Fildes's "The Doctor," and William Small's "The Good Samaritan" This last-named picture, which attracted some notice in the Academy last year, illustrates an episode in the day of a country practitioner with great fidelity. The child of a gipsy has been taken ill and the dogcart of the medical man has been stopped as he passes the encampment. There are also in this shop four studies of apparently quite healthy young women stripped to the waist and entitled "L'Odalisque," "Epanouissement," "Jeunesse," and "Reverie," chosen, we suppose, to exhibit different types of chest.

The opening service was held at St. Matthew's Church on Tuesday, July 30th, at 11.30 A.M., when the large congregation completely filled the building. The preacher was the Very Rev. the Dean of Gloucester (Dr. Spence), who based his remarks upon the text, "Luke, the Physician," and, in concluding, paid a warm tribute to the work done by the medical profession which, in his opinion, most nearly approached to the ideal of the Master Himself. The musical portion of the service was of a very mediocre description and slovenly in parts—probably due to an augmented choir which had not practised together. The collection, as usual, was on behalf of the Royal Medical Benevolent College and the British Medical Benevolent Fund.

The Organising Committee of Reception and certain of the municipal authorities, with whom was the mayor, gave their first welcome and "at home" to the members and their friends in the Winter Garden of the "Garden Town," on Monday evening, July 29th, thereby pleasantly anticipating the opening of the meeting. The Winter Garden, which is a large glass structure of pleasing ornamental design, was gaily decorated and the illuminated fountains in the centre served to relieve the closeness of the atmosphere. The lawns were illuminated with myriads of fairy lights. The guests were well pleased with their reception and with the excellent entertainment provided, which exceeded in display and magnitude any similar event of previous occasions.

The fact is, Cheltenham is admirably adapted for both the festive and the serious side of a gathering of this sort. There are excellent buildings wherein to hold the meetings and open spaces for garden parties. Above all, the various places of meeting and of entertainment are not scattered, but within an easy distance of the reception room and Winter Garden.

Not the last to appreciate the excellent accommodation which Cheltenham affords were the exhibitors in the Annual Museum. No better place could have been selected than the Winter Garden, and the exhibitors themselves did not miss their chance of making their exhibits attractive. It need hardly be added that the fact that the first reception was held in the Winter Garden and on its lawns was very much appreciated by the exhibitors. Everyone's attention was thus necessarily drawn to the exhibits and the building was crowded even up to the time of closing —11 P.M. The genial weather added considerably to the pleasure of the occasion. We deal at length elsewhere with the great number of exhibits comprising drugs, foods, and medical and surgical appliances that were presented to view. An important feature of the exhibition this year was the display of ambulance wagons, motor-cars, &c., in a marquee on the grass adjoining the Winter Garden.

The general impression is that no previous exhibition has had such opportunities for securing success. The Pathological Museum (opened only to medical men) adjoined the Winter Garden. We congratulate the local organising secretaries on the very excellent way in which they have provided for, and dealt with, this important section of the meeting. They must certainly feel it a reward to hear on all sides expressions of pleasure and satisfaction with the arrangements.

Cheltenham is evidently keenly alive to the public health requirements as well as to general public administration. The water-supply is good and is derived from the huge watershed of the Cotswolds. But a reservoir situated a few miles up the Oxford and London road seems to us open to criticism. It is close to the road and apparently no provision is made to prevent road-dirt from getting into the water. The reservoir is not banked up, nor is it protected by a cordon of trees as is the case in most other places. The water is filtered. Cheltenham possesses a refuse destructor and a public abattoir. The sewage is discharged upon the land, though we should think that Cheltenham was favourably environed for a system of purification and disposal by bacterial methods. The public health is good, the vital statistics being very favourable. The electric light and the principal baths are in the administration of the corporation.

The waters of Cheltenham have, of course, been known from very early times, and it seems to us that they present a very interesting composition which deserves more attention than has hitherto been allotted to them. At the Montpellier Spa there are two distinct waters—one a magnesia saline water and the other an alkaline saline water. They may be regarded as mild Carlsbad waters, and there is no reason why they should not be just as therapeutically efficient, having regard to the amount of saline ingredients contained in them. At the Cambray Spa there are two waters—one a chalybeate and the other a saline. The chalybeate contains as much as seven grains of carbonate of iron per gallon, which are associated, it is interesting from a therapeutic point of view to add, with 24 grains of the purgative salt, sodium sulphate, and with sodium chloride. This spa is not under the management of the corporation.

In the prettily wooded and watered Pittville Park, to the north-east of the town, is situated the Pittville Spa and Pump-room. The water here belongs to the class of alkaline saline waters. The sulphated waters are concentrated by evaporation for convenience of dosage. The Pittville Spa contains a spacious room for the amusement and recreation of people drinking the waters. All three sources of water are practically in a straight line from the south-west to the north-east of the town and nearly parallel with the tree-bordered promenade, the Montpellier Spa coming first, then the Cambray Chalybeate, and lastly the Pittville Spa.

The seventieth annual meeting of the Association will be held in Manchester next year, under the presidency of Mr. Walter Whitehead, F.R.C.S. Edin.

THE GENERAL MEETINGS.

THE FIRST GENERAL MEETING.

The first general meeting of the Association was held in the Princess Hall of the Ladies' College at 2.30 P.M. on Tuesday, July 30th. Both the members of the Council and the ordinary members of the Association were present in large numbers.

The minutes of the last annual meeting were, on the motion of Dr. W. A. ELLISTON, the retiring President, confirmed and adopted, after which Dr. Elliston vacated the chair in favour of his successor, Dr. G. B. Ferguson, senior surgeon to the Cheltenham Hospital.

Dr. FERGUSON, after thanking the Association for electing him, gave notice that he would move that a humble and loyal address should be presented to His Majesty King Edward VII., Patron of the British Medical Association. Having read the address it was duly seconded by Dr. JOHN ROBERTS THOMSON and carried unanimously.

The usual vote of thanks to the retiring President was then moved by Dr. M. BEVERLEY and seconded by Mr. VICTOR HORSLEY. This was unanimously carried and acknowledged in a few suitable words by Dr. ELLISTON.

The PRESIDENT (Dr. Ferguson) then reported the following recommendation:—

That the thanks of the Associa
Walter Hume Long, P.C., M.P.,
hydrophobia whilst President of

This was seconded by Mr. C. H. W. PARKINSON and carried unanimously.

The next business on the programme was the report of the Council and the financial statement, which was moved by Dr. ROBERTS THOMSON. He paid a tribute of sympathy to Mr. Fowke, the general secretary, in a few well-chosen words and also referred to the circumstances surrounding the family of the late Mr R B Anderson.

Dr. JOHN HADDON (Hawick) made his usual protest against the scientific grants, while Dr. BRASSEY BRIERLEY wanted to know about editorial expenses and the cost of printing

Mr. ANDREW CLARK, the treasurer, set Dr. Brassey Brierley's mind at rest about the cost of printing, after which Mr. COLIN CAMPBELL spoke as to the desirability of articles in the *British Medical Journal* being signed.

Dr. DAWSON WILLIAMS, the Editor of the *British Medical Journal*, then gave a few details as to how payment for articles in the journal was managed.

Dr HADDON, who had in his previous speech suggested that a scientific grant should only be allotted to research in some set subject, now handed in the following motion, which was seconded by Mr. NELSON HARDY :—

That it be a suggestion to the Scientific Grants Committee to offer the money they spend for a prize or prizes on some subject on which we require original research, such as metabolism.

After some remarks from Mr. BUTLIN, Dr. EDRIDGE-GREEN, and Surgeon-Colonel INCE, who was understood to move the previous question, Dr. Haddon was asked to withdraw his motion, but he refused.

It was accordingly put to the meeting and was lost.

The motion as to the report proposed by Dr. ROBERTS THOMSON and seconded by Mr. ANDREW CLARK was then put and carried.

It was in the following terms :—

That the report of Council, together with the financial statement for the year ending Dec. 31st, 1900, be received and adopted.

That Messrs. Price, Waterhouse, and Co. be, and they are hereby, appointed auditors of the British Medical Association until the next annual general meeting at a remuneration of £105.

The reports of the various committees were then received, but over the report of the Indian Military Medical Services Sub-committee a long discussion arose.

The report was as follows :—

REPORT OF THE INDIAN MILITARY MEDICAL SERVICES SUB COMMITTEE.

This Committee has met twice to consider the subject referred to it from the annual meeting held at Ipswich. The Committee has received a letter from Surgeon-General Harvey repudiating the charges put forth by Dr. Mullick against the I.M.S. The Committee has requested Dr. Mullick to furnish it with a summary of his evidence in support of his statements, but he has failed to communicate with the Committee in any way. The Committee deprecates the attitude of Dr. Mullick in preferring charges against the administration of an important public service which he has failed to substantiate.

JAMES BARR, M.D., Chairman.

Dr. SARAT K. MULLICK moved that the report be referred back. He had been granted a term of three months from April 30th within which to procure evidence. That term had not yet run out and moreover he had supplied the Committee with evidence by July 15th. Moreover, Dr. Barr had published in the *British Medical Journal* evidence which Dr. Mullick had supplied to the Committee and which was confidential.

Mr. GEORGE BROWN seconded.

Surgeon-General HARVEY reiterated his statements repudiating Dr. Mullick's charges, after which Mr. JOSIAH OLDFIELD, speaking as a barrister, exhorted the meeting to refer the report back because of the time-limit not having expired when the report was drawn up and because Dr. Barr had published evidence.

Dr. JAMES BARR, who was imperfectly heard in the body of the hall, was understood to point out that Dr. Mullick had produced no fresh evidence, but only that which had been already put in by the late Dr. Bahadurji.

Eventually a motion to refer the report back and another to leave out a portion of the report were negatived and the report was received.

The discussion of the Constitution Committee's report was deferred and the meeting adjourned.

THE (ADJOURNED) FIRST GENERAL MEETING.

The adjourned meeting was held on Tuesday evening in the Princess Hall of the Ladies' College, for the delivery of Dr. G. B Ferguson's presidential address. The attendance was good and among those present were His Worship the Mayor and many prominent citizens.

Mr. Alderman G. NORMAN presided.

The Local Secretary (Mr. G. A. CARDEW) read out the names of the foreign and colonial delegates, each of whom went on the platform and was welcomed by the President. Their names are as follows :—Dr. Durier, Dr. J. Rivière, Dr. Dubreuith, Dr. Sabouraud, and Dr. Noiré, of Paris ; Dr. Ernest Otto, of Teneriffe ; Dr. F. W. McRae, Dr. A. H. Ferguson, Dr. A. R. Reynolds, Dr. Punton, Dr. Allan Fisher, Dr. Lewis Schooler, Dr. B. T. Whitmore, Dr. J. C. Shruder, Dr. G. Dock, Dr. H. M. King, Dr. Emerson M. Sutton, and Dr. Judson Dorland, of the United States of America ; Dr. Boxhill, Dr. Gooding, and Dr. Wolseley, of the Barbadoes Branch ; Mr. Eldon Harvey, of the Bermuda Branch ; Dr. A. J. Turner, of the Brisbane and Queensland Branch ; Dr. W. H. De Silva, of the Colombo and Ceylon Branch ; Dr. G. P. Jordan, of the Hong-Kong Branch ; Dr. W. Young, of the New Zealand Branch ; Dr. W. Chisholm, Dr. W. H. Coutie, and Dr. E. M. Pain, of the Sydney and New South Wales Branch.

The MAYOR then addressed the meeting, commencing by saying that Dr. Ferguson needed no introduction. He then, in the name of the town, bade the Association welcome and called upon Dr. Ferguson to give his address.

The PRESIDENT, wearing the scarlet and crimson gown of his degree, then delivered his presidential address, which was as follows.

THE PRESIDENT'S ADDRESS.

[Dr. Ferguson took as the title of his address, "Scientific Research : the Indispensable Basis of all Medical and Material Progress," and commenced by bidding the Association welcome to Cheltenham. He referred to the fact that the Association had not visited Cheltenham since 1837, the year of the accession of their late lamented Queen, and that the year of their present visit was also the year of the accession of a British Sovereign, His Most Gracious Majesty Edward VII. He then passed on to give a short account of Cheltenham and its waters and mentioned several of the past medical worthies of the place. Such were Dr. Baron, Dr. Wyldbore Rumsey, Mr. Clement Hawkins, Mr. Charles Fowler, and Dr. Evans of Gloucester. He continued by reminding his hearers that the tripod of medicine was anatomy, physiology, and pathology. He then gave a *résumé* of the condition of medicine in Britain and other countries 100 years ago and in reference to Jenner spoke as follows :]

Dr. Edward Jenner.

A hundred years ago Edward Jenner was practising in Cheltenham, and here the *genius loci* reminds me that I must not dismiss our greatest medical celebrity with a single line. To me the most interesting point about Jenner is that he was educated by John Hunter, which is to say that he became and remained a naturalist. He was not, however, neglectful of medicine—indeed, he manufactured an improved tartar emetic—but he was at first more interested in fossils, hedgehogs, and cuckoos. His celebrated paper on the cuckoo, describing for the first time the inconsiderate conduct of the young cuckoo to his fellow-nestlings, need not be referred to here further than to state that for a long while he reckoned a personal visit to all the young cuckoos in his neighbourhood as the first of his or his nephew's duties in May and June. It was this kind of training in natural observation which led at last to such productive fruit as his celebrated Inquiry into the Causes and Effects of the Variolæ Vaccinæ, which was published in 1798. Wishing to test a tradition at Berkeley, where he was born and practised at first, as to the small-pox immunity conferred by cow and swine-pox, and fulfilling Hunter's injunction, "Don't think, but try," he made his first experimental inoculation from swine-pox on his eldest son, aged one and a half years, in November, 1789. It was nearly eight years afterwards before the next step was made, for it was on May 14th, 1796 (two years before the publication of his book), that lymph was taken from the hand of Sarah Nelmes of Berkeley, who had been infected by her master's cows and was inoculated into the arms of James Phipps, a healthy boy, eight years of age. A typical vesicle and areola were produced and two subsequent attempts to inoculate James Phipps with small-pox proved perfectly futile. Jenner next sent lymph to London to Mr. Cline whose patient also resisted all attempts to inoculate him with small-pox. Jenner was thereupon invited to London and wrote from Cheltenham in reply on Sept. 29th, 1798, his often-quoted letter in which he expresses his preference for the "lowly and sequestered paths of life, the valley and not the mountain," declaring his contentment and contempt of fame and fortune, "fame being only a gilded butt, for ever pierced by the arrows of malignancy." He took up his regular abode in Cheltenham in July, 1800. living at first in the High-street and aftewards at 8. St George's-place. Though often absent he spent much of his time here for many years, as letters of his dating from 1802 to 1813 testify, vaccinating gratuitously at Alpha House, Bayshill, the residence of the present Mayor of Cheltenham, all the poor who made application to him You know the rest, the rapid extension of the practice the world over, the parliamentary grants to him of £30,000, his medals and diplomas and honours from every nation, and the tardy and unwilling acceptance of his teaching by his own countrymen. Later came detraction, obloquy, and neglect, followed at last by 443 deaths from small-pox in 1896 in his own county, in the neighbouring city of Gloucester ; and, finally, the perilous experiment of leaving the decision as to whether vaccination should be done or not to the discretion or indiscretion of each head of a family. I am bound, however, to state that the perilous experiment is turning out much better than could have been expected Truly you will mourn with me over those 443 preventable-deaths in Gloucester, one of them of a vaccinated child and 297 of them of unvaccinated children under 10 years of age, when you reflect that during the same year and the next ,one there were, in well-vaccinated and revaccinated Germany, *only 15 deaths from small-pox throughout a* population of 53,000,000 Does anyone want more proofs? If so, they have them in the records of our own profession, which suffers from a general zymotic mortality far beyond, but from a small-pox mortality far below, the average , and this though we of necessity are much more than the general public exposed to the infection of small-pox We, ladies and gentlemen, know the truth and how to act up to it, and most earnestly do I wish success to Dr. F. T Bond and to the Jenner Society in their truly philanthropic enterprise of combating error and disseminating truth. I will say no more of Jenner and his work, though in this town, the former centre of his activity, I could not well say less , I must, however, add that the sad experience of Gloucester has not been fruitless and that Jenner's county is now perhaps the best protected against small-pox of any in England

Dr Ferguson next proceeded to consider

The Medical Standpoint of To day the Result of Scientific Research

He said: Pondering over medicine as it stands to day, the main fact that strikes me about it is how much more it owes to the biologists and to the men of pure science than to the so-called practical men The practical man is indispensable, but he is not like the great biologists, a high priest of the arcana of nature The cell theory, *for example, lies at the very foundation of modern* medicine, and this theory certainly originated entirely with the biologists The term "cell" was first used in reference to plants in the seventeenth century (1665) by Hooke who, with his contemporaries Grew and Malpighi, distinctly foreshadowed the cell theory of modern times , The cell nucleus was actually seen and drawn by F Bauer so long ago as 1802, though it was not before 1831 that it received that name from Robert Brown, the botanist. Little notice, however, was taken of the subject before the publication of Schleiden's paper on Phytogenesis in Müller's *Archiv* for 1838, in which he asserted that "every plant is an aggregate of individualised, independent, separate beings—namely, cells" Theodor Schwann, also in the next year, made a similar assertion regarding animals in his "Microscopical Researches," of which, and of Schleiden's paper also, the Sydenham Society published a translation in 1847 Schwann was first impelled to his conclusion by noticing the extraordinary resemblance between the microscopic structure of the chorda dorsalis of the tadpole and that of the onion and of certain pollen matrices Schwann, however, fell into error in asserting that cells arose spontaneously, and here he was set right by Barry in 1838 and later by Goodsir, who established the direct descent of every cell from a pre existing one This is Virchow's "continuity of life," his "*Omnis cellula e cellulâ*," the aphorism which he offers us in the place of Harvey's "*Omne vivum ex ovo*" That *punctum saliens*, the nucleolus, was first noticed by Schleiden, though it was Schwann who gave it that name Next came Hugo von Mohl in 1846 who recognised what we now call protoplasm in the cells of plants, the identity of which with a similar substance in the cells of animals was soon afterwards proved by Cohn and Remak. To Schwann a cell without a wall and a nucleus was no true cell, but Leydig in 1856 adduced pus and mucus corpuscles as instances of wall-less cells, and so step by step the ground was cleared for the now historical cellular pathology of Virchow, which influenced so profoundly the medical thought and practice of 43 years ago To Virchow, as to Schwann, a cell wall was a necessity, though this idea was soon afterwards dispelled by Lionel Beale and independently by Max Schultze in 1861 To Max Schultze we owe not only the extension of the term "protoplasm" (the bioplasm or living matter of Beale) to the contents of animal cells also, but the best description of an animal cell—namely, that it is a protoplasmic mass containing a nucleus This work on the cell theory gave the original inspiration to Pasteur, and Pasteur leads up to Lister, of whom I will forbear to speak, for he needs no speech, though he might well say of himself, "*Quæ regio in terris nostri non plena laboris?*" I may mention this significant fact, however, that visiting the Polyklinik in Vienna two years ago I noticed that the only name of a contemporary Briton inscribed on its façade was that of Lister. The cell theory, further, leads up to bacteriology, the most imposing and the most impressive department of medical biology Now bacteriology, which originated with the labours of Cohn and De Bary, rests on cultivation and staining; and if year by year *more and more of the* germs of disease are recognised it is because improved methods are constantly being perfected for colouring and making visible these formerly invisible entities The modern practice of staining, so essential to the physician and surgeon of the day, began with the botanists Göppert and Cohn who used carmine in 1849 and here again the pure scientists showed the way to the practical investigators of medicine, such as Gerlach of Erlangen, who first applied the method to anatomy In 1871 and later Weigert succeeded in demonstrating nuclei by ammoniated carmine and cocci by methyl violet In 1872 Eberth and Wagner began the use of that admirable stain, hæmatoxylin Looking through some old preparations of mine not long ago I found that most of those stained with aniline dyes were faded, but those stained with hæmatoxylin were still bright and good In 1879 Ehrlich enunciated his remarkable generalisation that the basic coal tar colours (like fuschin, methylene blue, and methyl green and violet) stain nuclei , whilst the acid ones (like orange green) stain plasm, and the neutral ones (like rosaniline picrate) stain special cell contents Weigert, later, found that acid fuchsin was specially useful in the study of the nervous system, and Strasburger, the botanist, used the basic methyl-green to demonstrate those mitotic figures which are of such importance in embryological work and have afforded a basis for the wide generalisations of the biologist Weismann Nor need I pursue the matter much further than to state that in 1882 Koch, who had previously devised the method of cultivation of bacteria, first stained with methylene blue and thus discovered the bacillus tuberculosis, the consequences and far-reaching results of which discovery are well known to all of you. That I have said so much on this point is to strengthen my contention that the true basis of modern medicine is essentially scientific As an admirable instance of the kind of debt that *modern medicine owes to bacteriology, of its power and* promise, as also of the extreme difficulty and complexity of the subject in its recent developments, I cannot do better than to advise the re perusal of Dr Horton Smith's Goulstonian Lectures on Typhoid Fever

In surgery the discovery of the Roentgen rays has been of priceless benefit, and the Cheltenham Hospital was, I believe, among the first of provincial hospitals to make use of these rays, but most certainly Roentgen was thinking of nothing less than *of surgery when in the modest Physical* Institute of Wurzburg he undertook his epoch making research on the cathodic rays of Sir William Crookes I have been to that modest but celebrated laboratory at Würzburg and heard there the true story of the discovery, which I must not here stop to relate though I may remark that I have never seen it correctly reported in English

I spoke of the antitoxins as among the most valued resources of remedial art, and it is to strictly scientific investigators, to such men as *Löffler and Roux Behring and* Kitasato, Haffkine and Yersin, that we owe these great discoveries Soon I believe, we shall possess antitoxins for most of the febrile and infective diseases as undoubtedly effective as is that one now so successfully employed against diphtheria. Personally I place much faith in the anti-typhoid inoculations of Professor Wright of Netley, and in the anti-tetanus serum and I feel sure that many more equally effective and similar means will soon be in our hands against other diseases *But it is not the practical physician* and surgeon who will discover them, but the intellectual devotees of pure science steadily pursuing through good and evil report, their self appointed task of universal beneficence.

The animal extracts stand on a different basis the basis of secretions destined not for excretion but for internal and bodily use, as first divined by Claude Bernard and so indispensable that without them disease or discomfort at once arises I forbear to do more than allude to the recognition of myxœdema by Sir William Gull in 1873 to its naming and the discovery of its connexion with an atrophic condition of the thyroid gland by Dr Miller Ord in 1877, and to the discovery by Mr Victor Horsley in 1890, of its antidote in thyroid transplantation, for which Dr G R Murray of

Newcastle soon afterwards substituted subcutaneous injection of thyroid extract, and Dr. Hector Mackenzie the much pleasanter method of thyroid feeding. I likewise merely mention ovarian extract which often mitigates markedly the miseries of the menopause and suprarenal extract, which, with its extraordinary power of contracting blood-vessels and of consequently raising the blood-pressure, must necessarily have a great future in therapeutics. The animal extracts (not wholly unknown to the ancients though first studied in modern times by Brown-Séquard) have doubtless a great future in practical medicine, and ere long many more will be in use, though doubtless some already proposed will fall short of their promise and pretension.

In thinking of the standpoint of to-day I next recall the splendid work—purely scientific again—of the French and Italian investigators of malaria, of Laveran in 1880, and more recently of Marchiafava and Celli, Bignami and Grassi, but more especially of Golgi, who first proved that the feverish attacks coincided with the sporulation of the malarial amœbæ. To which I am pleased to add that it is, as you know, the President of our Tropical Diseases Section, Major Ronald Ross, who, following the promptings and surmises of Dr. Patrick Manson, has discovered nearly the whole life-cycle of the protozoon, and not only that, but has identified the true delinquent and disseminator of malaria with the mosquito anopheles, a fact subsequently demonstrated by experiment on a human subject by the celebrated Italian biologist, Grassi; and still more recently by the experiment at Ostia in the Roman Campagna, where Dr. Low and Dr. Sambon and three others living by night for four months in their mosquito-proof hut retained their health; whilst Mr. T. P. Manson and Mr. George Warren (courageous sufferers for science), who were bitten in London by infected mosquitoes from the Sancto Spirito Hospital in Rome, developed soon afterwards every symptom of malarial fever. It seems that the hæmamœbidæ of malaria pass the whole of their life-cycle between animals and mosquitoes, and Dr. McCallum of Baltimore has further supplied the missing link of their sexual reproduction in the mosquito only. But the original hæmamœba can hardly have evolved itself in either. Whence, then, can it have originated? That is a question which I cannot answer, though I may refer to the statement made by Captain L. Rogers, I.M.S., officiating Professor of Pathology in the Medical College of Calcutta, that where pure and filtered water is drunk there but little intermittent fever will be met with. At all events, it is quite clear that vertebrate animals are the immediate hosts of the malarial germ, and that it has hitherto never yet been found in water or anywhere else, save in mosquitoes and in some vertebrated animals only. Elephantiasis, whose hæmatozoon, the filaria nocturna, was discovered in the blood by Surgeon-Major Timothy Lewis in 1872, is distributed by another mosquito, the culex pipiens or culex ciliaris, as first proved by Dr. Manson. And even this does not exhaust the delinquencies of these dangerous insects, as there can be little doubt that they also disseminate yellow fever; witness the experience of the American army surgeons in Cuba, where that scientific martyr, Dr. Jesse W. Lazear, though isolated from yellow fever cases, yet died from it seven days after submitting to the puncture of an infected mosquito, and Dr. James Carroll, under similar conditions, narrowly escaped with his life This particular mosquito has recently been recognised by the United States surgeons as the culex fasciatus, and it is probable that the transmission of yellow fever is due to it alone. The study of tropical diseases has, in fact, now become a refined department of biological investigation. Smith and Kilborne have shown the part played by ticks in disseminating the cattle fever of Texas, and ticks also are said to be responsible for the miana disease of North Persia and for a dysenteric fever of the Zambesi. Some forms of dysentery, as first suggested by Lösch in Russia in 1875, are probably originated by an amœba. In this town of Cheltenham old cases of malarial fever are often met with in returned officers and civilians, and I have yet to see the case that will resist six subcutaneous injections of three grains each of the acid hydrobromate of quinine.

What would have been the state of ophthalmology to-day without the invention in 1851 of the ophthalmoscope by the physicist Helmholtz? Then consider the benefits conferred by electricity. It may be that great results will follow some day from cataphoresis or the electrolytic introduction of drugs. There is no doubt in my mind as to the benefit in gynæcological work conferred by the treatment of Apostoli. Dr. Thomas Keith is not likely to have been mistaken in this matter, and what I have myself seen of permanent cures of really serious cases makes me feel sure that the Apostolian treatment for fibroids is not the delusion that some persons, who perhaps have not quite mastered it, proclaim it to be. It is, indeed, tedious, uncomfortable, and troublesome, and I for one shall be only too pleased if Sneguireff's simple treatment by superheated steam should prove itself an efficient substitute. Then there is the marvellously successful treatment of lupus by the chemical rays of the electric arc, devised by Finsen of Copenhagen, though it is a question again if these results are any better than those of Hannover, speedily obtained by a simple jet of heated air (atmocausis).

Where should we be without the scientific chemists?—to cite a few names only—Courtois, who gave us iodine in 1811 Balard, who gave us bromine in 1826; Serullas, who discovered iodoform in 1822; Soubeiran, who discovered chloroform in 1831; Liebig, who discovered chloral in 1832; and Neimann, who gave us cocaine in 1860? Not one of these was a practitioner of medicine or, unfortunately, a Briton.

More Universities and Research Institutions Needed.

I think that I have said enough to prove that the progress of pure science means medical progress also, and that it is to the men of pure science that we must still look to hold aloft for us the torch of progress. I can only hope that in the great advances still to be made Great Britain and Ireland may play their worthy part; but I confess that I have my misgivings unless some improvements are made in our educational arrangements. As the result of several recent August visits spent in many of the continental capitals I have been struck with the thoroughness and scientific spirit everywhere there manifested, being very different, I regret to add, from the anti-scientific spirit which characterises most of the wealthier and more cultivated classes in this country. This anti-scientific spirit is only eradicable by the better education of the young. To what other cause can we ascribe the fact that although the aniline dyes were discovered in 1858 by an Englishman, Dr. W. H. Perkin, yet almost the whole of their manufacture is now carried on in Germany. One company, the Badische Anilin und Soda Fabrik, employs 146 scientific chemists, 75 civil engineers, and 6300 workmen in one alone of its three factories. I know not if any words of mine will reach the eyes of those who govern in this country, but if they do I will implore them to give to our youth more facilities, similar to those enjoyed on the continent and in America. I know that much has been done and no fault is to be found with our primary education. The National Physical Laboratory and the Jenner Institute of Preventive Medicine have been established, the former in principle, the latter in reality, thanks to the splendid munificence of Lord Iveagh. New colleges, universities, and technical schools have been started and some 15 to 17 research scholars are appointed every year, one half of whom, I may remark, proceed at once to Germany to make their researches! What has been done, however, is as nothing to what ought to be done. The defences of the empire must not be overlooked, but of what avail will be, those defences if our trade is gradually lost for want of exacter knowledge? For trade and medical progress and those very defences themselves rest entirely upon progressive science. Depend upon it, there is as much scientific ability and aptitude for research in the country of Cavendish and Priestley, of Faraday and Kelvin, of Darwin and Huxley, of Jenner and Lister, of Rayleigh and Ramsay, as in any foreign nation, but here the chances and opportunities are much fewer, and many a great discoverer that might have been, one of whom it might have been written that—

> "He broke his birth's invidious bar,
> And grasped the skirts of happy chance"—

spends his untrained energies in futile efforts and vain regrets and wholly wastes his commanding intellect for the want of instruction and opportunities easily accessible.

But the cost! It would be as nothing in proportion to the gain, and a Faraday, a Koch, or a Pasteur would be a cheap purchase at a million. Whereas France, Germany, and the United States educate at their universities approximately one student in every 1500 of the population, we in the United Kingdom are content with less than 1 in 2000. Whereas Germany spends £753,000 a year on its 22 universities and France £740,000 a year on its 16, we in

Great Britain and Ireland are content with less that one-fifth of that amount—namely, £135,339 among seven of our 13. Although the Leland Stanford University of California has received no less than £9,000,000 sterling from private munificence and many others of the 480 American universities and colleges have likewise received huge sums—I may specify the Chicago University £2,000,000, the Johns Hopkins University £1,400 000 and the Cornell University over £1,000,000—no such general largesse is, I fear, to be expected from our British millionaires. The help must come from Government, supplemented by local contributions, or it may not come at all. Yet the matter is one of life or death for the country, for more and more every year the victory in every department and the predominance in arts and trades will pass to the possessors of the latest knowledge, the deepest science, and the most perfect and most economical processes. I cannot but believe that this great need will soon be remedied and that at the cost of a few battleships real universities of teaching and research, like the new University of Birmingham, will be established in every large town, and technical and research institutions—there are 25 of these in Germany and 43 in America—in most of the smaller ones. At present we are feeling keenly the competition of America a competition that is not likely to diminish, for it possesses over 100 schools of chemistry and has 10 000 students of engineering. This competition we can only hope to resist by imitating the foresight, generosity, and enthusiasm for science of the American Governments and of the American men of wealth. And here I would wish to quote the words of Dr T. K. Pearsons of Chicago, himself the donor of £800 000 to its University. "Monuments and monumental arches," he says, "once finished become dead memorials, their active function ceases. The school and college live, just as does the memorial in cold statuesque granite, but *their* functions never cease, education goes on from day to day, thinkers are moulded the nation is served, humanity is benefited in the college." Oh, that these words may find a practical echo in this country. Examinations are of secondary consequence. China is the most examined country in the world, and look at it. Original work done under the professor's eye and at his suggestion is far better than any examinations and the true ideal of a real university must always be in the words of Paulsen "*Die Erkenntniss der Dinge durch freie Forschung*" ("True knowledge from free research.") Let us hope that we shall not have long to wait for many such universities, where the best and most practical scientific education will be open to all at low cost, as in the University of Michigan, where the fees do not exceed £7 a year, or at no cost at all, as in the State of Massachusetts, and in many of the Western States of America. There is no time to lose. The Consultative Committee on Education is, however, a good beginning which I sincerely hope will soon be followed by the appointment of a Minister for Education a functionary to be found in nearly every civilised State except our own. It is not trade unions and skilled workmen that can insure the continued prosperity of a nation but the trained intelligences that direct its energy, and we may rest assured that whichever nation shall elevate highest the general standard of education will be the nation which will lead the world. Since the preceding section was written I have to record the magnificent—I hope it will prove infectious—generosity of Mr Andrew Carnegie, with his gift of £2,000,000 to the Scottish Universities one portion of it to be applied mainly to the teaching and endowment of research and the rest to replace the fees hitherto paid by their students. Happy Scotland that not only receives about one third of the whole Parliamentary grant for university education but has found besides such a princely and far-seeing benefactor as Mr Andrew Carnegie.

The Public Health Act of 1875

Any reference to the medical standpoint of to-day were quite imperfect without some mention of the important position now happily assumed by the sanitary medical service, and it is a matter for legitimate pride that in this particular Great Britain was beforehand and set, by the Public Health Act of 1875, an example that foreign countries, with the exception of the United States and of Belgium, seem in no great hurry to imitate. In every town and district there is now a skilled expert who is the guide, philosopher, and friend of every household where epidemic disease makes its appearance. It is to the labours of such as he and to the existence of isolation hospitals that the great diminution in the zymotic death rate is due. To his labours and to the increased cleanliness and better food of the population generally are due the gratifying diminution of the phthisical death rate within 60 years from 38 to 13 per 10,000—the presage, I cannot doubt, of the total abolition at no distant date of consumptive and tuberculous disease altogether. And this, although Naegeli has recently proved that, at any rate as far as Zürich is concerned, 96 per cent. of the deaths under 18 in that town are due to tubercle. To Dr Nathan Raw and to the guardians of Liverpool must be given the great credit of taking the first deliberate steps for the stamping-out of tuberculosis by establishing a rate supported sanatorium near Heswall for the isolation and treatment of the consumptive poor—a good example, likely to be largely imitated soon throughout the country. Here I would wish to solicit a generous and helpful interest in the sanatorium of 60 beds to be built at Limpley Stoke, near Bath, in which the consumptive poor of the counties of Gloucester, Somerset, and Wilts will be treated with every advantage of hill air, full dietary, and modern science. Pure air implies at least no fresh infection, and high feeding, as so convincingly shown by Sir Hugh Beevor at the last annual meeting, occasions an enhanced resistance against the tubercle bacilli.

The originator of the method of high feeding and fresh air was undoubtedly Dr George Boddington of Sutton Coldfield, by whom it was devised and carried out with great success so long ago as 1836. Most of the credit, however, of advocating persistently and quite independently the necessity and importance of fresh air must be given to the father of the distinguished recent President of the Royal College of Surgeons of England—namely, to Dr Henry MacCormac of Belfast, whom it was my privilege to know in my youth, and well do I remember his striking book, "Consumption and the Breath Re breathed." Like Semmelweis, the earliest of antiseptic obstetricians, and like Harvey, whose subversive discovery only brought about the loss of most of his practice, Dr MacCormac excited at first opposition and ridicule only. The more reason, therefore, that full credit should now be given to the impassioned and eloquent advocate of fresh air, who anticipated by more than half a century some of the best knowledge and practice of to-day. Here, then, is a method half English and half Irish in its conception, however much it may have been pushed and popularised during recent years in Germany. And there can be no doubt as to the cures. Soon after Koch's discovery of the bacillus tuberculosis I looked for it and found it at once in phthisical sputa and each finding was sentence of death, but now it is found as a simple matter of diagnosis to disappear completely and often finally at the completion of the cure by fresh air and high diet. Of the contagiousness of phthisis I can entertain no doubt whatever, and the greatest care should be taken to destroy sputa. Remembering the liability of birds to phthisis Dr Tucker Wise's cautions as to cage birds should not be forgotten. Indeed the connexion of the lower animals with our diseases must never be overlooked. The "harmless necessary cat" is quite often the conveyor of diphtheria, the dog always of hydatids and the rat often of plague. "No rats, no plague" it has been said and he who would exterminate his city's rats would do much to insure his city's immunity against the plague. In the case of Glasgow however it is right to add that the rats were guiltless.

Aspirations, Ethics, and Conclusion

And now for a few concluding words about the aims, the aspirations, and the ethics of the profession. After a long and expensive education after knowledge acquired laboriously and at great personal risk (the clergyman's death rate is 16 per 1000 the lawyer's 20 per 1000 and the medical man's, 25 per 1000) the medical man must not hold himself too cheaply. He is the heir of a long tradition, originating from the sages of India and from the temples of Greece. Our health and happiness are in his hands and the issues of life and death tremble often upon his judgment. So he must bear himself with confidence and proper pride, remembering his great traditions and the antiquity of his calling, which ranks next to that of priest. He is worthy of his hire and that hire should be such that in the day of his popularity he may make due provision for his age and retirement and for those whom he will leave behind him. He must work hard and read and think all the days of his practising for the best practice of to-day will not be that of even five years hence. His aspirations must be for the very best in each department of practice for the progressive advancement of his art, and for the increased dignity and consideration of his calling.

Above all, let him be chary of any commerce with the enemies of science. *Magna est scientia et prævalebit.* None the less serious is his responsibility who, knowing its benefits, yet retards its progress, or who ignorantly would deny to others what he is insufficiently instructed to understand for himself. Beware of panaceas. There are none in truth, though the worship of Panacea was not confined to Ancient Greece and is as reprehensible in the cold clear light of twentieth-century science as is the equivalent assumption by too many of specialist omniscience.

The wise practitioner will strengthen his position, as he will certainly increase his knowledge by somewhat frequent consultations, and he will do well if, like Hunter and Jenner, he cultivates some extraneous intellectual interest to relax occasionally the stress of his anxious labours. I venture to think that nothing will do him more good than the pursuit of one or other of the arts, or of some branches of biological or physical distraction, be it zoology or botany, electricity or telescopy, for

> "Neque semper arcum
> Tendit Apollo."

And the quotation is apposite, for was not Apollo the first physician and the father of Æsculapius, and does he not say of himself in *Ovid*—

> "Inventum medicina meum est, opiferque per orbem
> Dicor, et herbarum subjecta potentia nobis"?

The wise practitioner, moreover, will confine his studies within certain limits if he wishes to attain to a thorough knowledge of even some portions of his great subject. He cannot be a universal specialist, and I would commend to your consideration the admirable advice contained in one of Goethe's sonnets:

> "We [illegible] ammenraffen;
> In [illegible] ch erst der Meister."

For which I would propose the following English equivalent:

> "Who would be great must pull himself together;
> The Master shows himself in limitation ever."

The good and worthy practitioner will never be wanting in sympathy. Too often there is physical pain to be relieved, and, thank God, it can be relieved; though at other times the sufferings will be nervous rather than physical; and these are the occasions when sympathy and patience are most needed, though it is not always easy to show the first and to retain the last in the interest of some nervous sufferer on a cold wet night at 3 A.M.

In respect of medical ethics the case is very simple. Treat and think and speak of your brother practitioners as you would wish them to treat and think and speak of you. Medical ethics are, indeed, so completely summed up in this single sentence as to make it quite unnecessary for me to read to you the section that I had written on this subject. With high aims and aspirations, with true ethical, that is to say, brotherly, feeling, and with constant consideration for the public weal, we shall each and all be worthy of the well-known description in Chaucer, and be "veray parfit practisours," though I hope it will not be said of us, as it was of that particular one, that

> "His studie was but litel on the Bible."

No; we will read Ecclesiasticus, though not Ecclesiasticus only, in the hope that it may be said of each of us in the words of an old poet who was writing of a good and brave physician of his day:

> "He holds no parley with unmanly fears,
> Where duty calls he confidently steers,
> Faces a thousand dangers at her call,
> And trusting in his God surmounts them all."

After Providence, ladies and gentlemen, reason is and must necessarily be our daily guide, for which cause it is consoling to recall the words of one of the greatest of French writers:

> "La Raison triomphe de la mort, et travailler pour elle,
> C'est travailler pour l'éternité."

And if I have mentioned the word *la mort* it will but afford me the opportunity of concluding with my solemn conviction, as best expressed in the words of Longfellow:

> "There is no death! what seems so is transition;
> This life of mortal breath
> Is but a suburb of the life elysian,
> Whose portal we call death."

SECOND GENERAL MEETING.

The second general meeting was held in the Princess Hall of the Ladies' College on Wednesday, Dr. G. B. FERGUSON, the President, presiding.

The announcement was made that the next meeting of the Association would be held at Manchester next year, and Mr. Walter Whitehead, F.R.C.S. Edin., the President-elect, gave a most cordial invitation to the members of the Association on the part of the medical profession of Manchester and its neighbourhood.

The next item on the agenda was to receive the report of the representatives of branches, but the meeting insisted on passing at once to the consideration of

The Report of the Constitution Committee.

Mr. **EDMUND OWEN**, the chairman of the committee, in moving the reception of the report, said that the Constitution Committee was not a "packed" committee—the members represented England, Scotland, Ireland, and Britain beyond the seas. The attendance was excellent, for the members from all quarters of the empire attended a little more than seven out of the total number of nine attendances. When he (Mr. Owen) was appointed his friends said that he was running great risks because Mr. Horsley was on the committee. On that point he had to say that Mr. Horsley had served on many committees, and the British Medical Association was beginning to know what they owed to Mr. Horsley, but the profession at large did not know it. Mr. Horsley was a simple-minded man; he had no axe of his own to grind; he was not seeking personal advancement but was always ready to fight the battle of any part of the British Medical Association that was in distress. Mr. Horsley's conduct in the committee was quite admirable; he did not go to sleep and he would take it as an affront for a chairman to go to sleep, and he would advise any chairman on a committee with Mr. Horsley not to fall to sleep. After complimenting Mr. J. S. Whitaker of Yarmouth on the assistance he had rendered the committee Mr. Owen explained that the Association was a limited liability company.

Mr. **VICTOR HORSLEY** said he would like to commend to their notice the report of the Constitution Committee. At Ipswich they passed the resolution for the appointment of the committee to consider the reorganisation of the Association. He knew that while that committee was at work many members of the Association, like many members of the committee, felt that a very heavy and responsible work was being done within the Association. Further, they felt that it was the work of the profession and not merely that of this Association. Their members now had reached such a figure that they could refer to themselves as the "body" of the profession. He was sure that the Constitution Committee, in presenting this report, were anxious that they should realise how representative their discussions were. They wished to make this Association so representative in character that when on the rare occasions that the Association met its vote in general meeting assembled should go forth to the general public as being what the profession wanted. He had served on a committee of this Association on a burning question which he would not mention by name under these circumstances, and the most difficult position of the members of that committee was that they had no means of ascertaining what were the wishes of the members of the Association, let alone the ideas that prevailed in the profession as a whole. There was no means of getting at the wish of the profession. They were in this position—they were mighty in numbers but most weak in influence. Surely the recent proceedings in the House of Commons should be enough to remind them of their powerlessness in the way of coöperative influence. Under these circumstances the committee had worked and he had simply to commend to their favourable consideration the report of that committee. He had much pleasure in seconding the resolution:—

That the report of the Constitution Committee be received.

This motion was carried, as also was the next which was as follows:—

That this meeting, without prejudice to the further consideration of details, approves genera[illegible] proposed in the report and recomme[illegible] anising the [illegible] Acts, of [illegible] ns and [illegible] representative meeting and transferring [illegible] much as possible of the business hitherto brought before the general meeting.

This motion having been carried the recommendations of the committee were submitted *seriatim* and the first 15 were passed without any alteration except that of making "fourteen days" in Clause (*b*) of Recommendation 8 read "twenty-eight days."

Primary Unit.

1. That the primary unit of organisation of the British Medical Association be such that every member of a unit shall have a reasonable opportunity of attending every important meeting thereof, and that such unit be called a "division"

Divisions.

2. That in the United Kingdom the members resident within the area of each branch be grouped in divisions in such manner as may be decided upon by the branch with the sanction of the Council of the Association, regard being had (*a*) to the wishes of the general body of members in each district and the means of communication by rail or otherwise, (*b*) to the desirability, for more effectively carrying out the work of the Association, of the boundaries of divisions being made to coincide as nearly as possible with those of Parliamentary constituencies or groups of constituencies

Divisions—Indian and Colonial

3 That in the colonies and India divisions be formed by each branch in accordance with the general principle of recommendation (1) where the local special conditions permit, but that where existing branches remain undivided with the approval of the Association each such branch be regarded also as a division for the purposes of these recommendations

Branches

4 That the divisions be combined to form groups called branches, the desires of divisions being complied with in the grouping so far as is compatible with efficiency of organisation and the general interests of the Association. That the boundaries of branches be made eventually to coincide as nearly as possible with those of counties or groups of counties, but that for the present time the existing branches be taken as the basis of rearrangement and act as such groups of divisions for the purposes of these recommendations.

Membership of Local Organisation

5 That every member of the Association be *ipso facto* an ordinary member (hereinafter called a member) of the division within the area of which he resides and of no other

Election of Members through Branches

6 That the election of new members resident within the area of a branch be through that branch only, and that the rule relating to the election of such members be to the following effect:—

Qualification for Membership

Any registered medical practitioner may be elected a member of the bra[illegible] has [illegible] agr[illegible] of [illegible] pay[illegible] po[illegible] not [illegible] election is to be considered

Complimentary Members.

7. That any branch or division have power to elect as a complimentary member any member of the Association not eligible by residence for ordinary membership of such branch or division, and that any colonial or Indian branch or division have power to elect as a complimentary member any qualified medical practitioner resident within the area thereof, but not eligible by birth and qualification for membership of the Association; that complimentary members be not permitted to vote as members of the branch or division, but otherwise have such privileges of membership as may be conferred on them

8 That the rule relating to expulsion be to the following effect:—

Expulsion ipso facto.

(i) Any member of the Association who shall have been convicted in a court of justice of any felony or misdemeanour, or whose name shall have been erased from the Medical Register under Section 29 of the Medical Act, 1858, shall, *ipso facto* cease to be a member of the Association

Expulsion by the Council.

(ii) (*a*) The Council shall have power in all cases, on the representation of any branch and after due inquiry, of which the member involved shall have received due notice, to expel any member whose conduct is held to be detrimental to the honour and interests of the medical profession and calculated

Majority required.

to bring the profession into disrepute, but a majority of two thirds of the members of the Council present and voting shall be required for this purpose

Expulsion by Indian and Colonial Branches

(*b*) In the case of colonial and Indian members each local branch shall have power to expel from membership of the Association any member of such branch whose conduct, after due inquiry at a special meeting convened at not less than one month's notice, shall be declared by a majority of two-thirds of members present and voting at such meeting to be detrimental to the honour and interests of the medical profession and calculated to bring the profession into disrepute. The name of such member shall be notified to the general secretary and shall be forthwith erased from the Register of Members of the Association kept at the central offices of the Association, unless such member shall appeal within 28 days to the Council to hold a further inquiry, and pending such inquiry by and decision of the Council his membership shall be suspended

Non-acceptance of Resignation.

(iii) No member whose conduct is under investigation or is the subject of any inquiry by a branch or by the Council shall be allowed to resign his membership of the Association until the decision of the branch or Council be made known.

Composition of Branch Council.

9 That the C[illegible] its membership

Division Administration

10 That any [illegible] to [illegible] tive [illegible] pre[illegible] vers [illegible]

Reports of Status of Branches and Divisions

11 That each division furnish annually to the branch council, and each branch to the central council, a report of its proceedings during the year, its numbers, and its financial position

Branch By-laws and Rules.

12 That all branch and division by laws and rules be submitted for approval to the Council of the Association and do not come into operation until approved by the said Council

Local Autonomy

13 That subject to the above provisions and to the fundamental laws of the Association, as declared in its articles and by-laws, each branch and each division be free to govern itself as it shall think fit

Central Council Composition,

14 (i) That the Council of the Association consist of the President, President-elect, past president for the year following his year of office as president, and treasurer, all *ex-officio*, of representatives elected by the branches as hereinafter provided, of one representative each elected by the members of the Association attached to the Royal

Naval and Military Representatives

Navy Medical Service, the Royal Army Medical Corps, and the Indian Medical Service respectively, and of members, to be not more than

Coöpted Members

one tenth of the elected members, annually coöpted by the Council, the same member not being coöpted for more than five years successively

(ii) That in general each branch or group or branches having an aggregate membership of not less than 200 return one representative, and each branch or group of branches having an aggregate membership of not less than 400 return two representatives and an additional representative for each complete 600 members in excess of 400, that branches in the United Kingdom having less than 200 members be grouped with neighbouring branches for the purpose of representation on the Council, but that the Council have power to grant separate representation to such branches where special conditions appear to the Council to justify this measure.

Election

(iii) That the representative members of Council be elected by [illegible] the said voting papers con[illegible] have been nominated each [illegible] ry on or before an appointed [illegible] tice has been given in the Journal

Eligibility for Re-election

(iv) That the term of eligibility for continuous office as a representative member of Council be limited to eight years after which a term of one year's ineligibility as a representative member shall ensue

Term of Office United Kingdom Branch Representatives

(v) That the representatives of branches in the United Kingdom on the Central Council be elected for one year and be eligible for re-election subject to the provisions of sub clause (iv)

Colonial and Indian Branch and Service Representatives

(vi) That the representatives of colonial and Indian branches and of the Royal Navy Medical Service the Royal Army Medical Corps, and the Indian Medical Service on the Central Council be elected for such period not exceeding three years as each such branch or body may determine, and be eligible for re-election subject to the provisions of sub-clause (iv)

Powers of Council

15 That except as herein otherwise provided the management of the affairs of the Association be vested in the Council subject to the provisions of the articles and by laws of the Association

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THE SECTIONS.

MEDICINE

WEDNESDAY, JULY 31ST.

The Presidential Address

Dr. E T WILSON, physician to the Cheltenham General Hospital and to Cheltenham College, opened the work of the Section of Medicine with the following introductory remarks —

The Value of Research in Medicine and Therapeutics

In offering a few informal remarks by way of preface to the real work of the section my first impulse is to express my deep sense of the honour which has been conferred upon me by my professional brethren in electing me to this chair, with which so many names honoured in medicine have been associated; my second is to add a few words to those of the President, bidding a hearty welcome to all who from far or near have come to visit our good town of Cheltenham, wishing them that healthy combination of work and enjoyment which it is the object of these annual meetings to afford. Here we mark time, as it were, and take stock of the work done in our several departments. The experimentalist and the specialist meet with the general practitioner on a common platform with the best results. The times are favourable to such conferences. Increased facilities for communication and for the interchange of thought have in a sense annihilated space. The rapid evolution and general trend of modern medicine are shown by the way in which this section has of late years outgrown its ancient landmarks, throwing out colonies, as it were, in the Sections of Pathology and Bacteriology, Tropical Diseases, Diseases of Children, and others more specialised, which in some instances threaten to rival the parent in interest. The subjects which are to engage our attention in this section during the next few days deal with questions on which more information is urgently needed. The discussion on joint disease treats of disorders which are probably among the oldest known to humanity and opens up the whole question of infection by micro-organisms with which some of the papers in this section also deal. The second subject set down for discussion—Peripheral Neuritis in Beer-drinkers—is essentially modern, and although it is under investigation by a Royal Commission we shall have the advantage of hearing the views of gentlemen who are thoroughly conversant with the facts. Other papers there are dealing with therapeutics and among these one on the Cheltenham waters which flow unchanged, though mercilessly stripped of all the accessories appertaining to a spa. They would no doubt prove efficacious as of yore on the old conditions:

> "Curæ vacuus hunc adeas locum
> Ut morborum vacuus abire queas,
> Non enim hic curatur qui curat."

A paper on Malaria was hoped for; but the prior claims of the Tropical Section could not be questioned, for, although the tests which finally led to its conviction were applied on the Campagna of Rome, the guilty anopheles was arrested in India, and its prosecution followed up in the equatorial regions of Western Africa. This remarkable investigation is one of the latest contributions which microbiology has given to medicine and presents a signal example of the rapidity and thoroughness of modern methods. Activity prevails in every department of medicine and surgery, but in none have so many valuable results been obtained, in none have so many hopes been excited as in the scientific study of the infective diseases, of the exotic fauna and flora of the human body. The bacteriological diagnosis of certain diseases has become a matter of routine, and there can be little doubt that in the near future a need will arise for laboratories and specialists in every large centre of population, to whom questions insoluble or doubtful in their clinical aspects may be referred, on whom will rest also the responsibility for the supply of such vaccines and serums as may be required in their several districts. An improved diagnosis, however, is but a small portion of the gain which has been derived from a scientific investigation of the causes of disease. Over a large part of the field of therapeutics a new direction has been given to treatment. We are learning to look beyond the collection of symptoms which were once held to constitute the disease, with the result that, although symptoms will continue to claim our attention, and certainly that of our patients, the true objective of treatment will be the micro-organism itself. We are learning more and more at the hands of a new pathology to regard the human body as a battle-ground on which important issues have to be fought out between invading organisms and poisons coming from without, on the one hand, and on the other those forces inherent in the system, of which so little is known as yet, but which may be summed up in the term "resistance," or in one older and better known, the "*vis medicatrix naturæ.*" Every disease which can be won over for the infective class becomes at once, if only in theory, preventable, and our treatment acquires a tangible and definite aim. In the first line of defence comes the destruction of the parasite before it obtains a lodgment in this body, and this will be divided between the health officer and the medical attendant, for it comprises the whole array of hygienic measures, including the isolation of the infected sick. Our means of attacking the parasite within the body are at present limited in extent, but some progress has been made—as, for instance, in the treatment of lupus by sun exposures, of rodent ulcer by the x rays, and of tuberculosis of the lung by life in the open air. An additional defence is found in the vaccines by which immunity, artificial or natural, is secured, such as the Cuban enjoys against yellow fever or the vaccinated with cow-pox against variola. In serum-therapy we again appeal to powers which cannot at present be explained, whereby for each several toxin produced by an organism in the blood a special antitoxin is forthcoming, and it is the possibility of supplementing this supply by artificial means which has deprived diseases, such as diphtheria and tetanus, of the terror with which they were wont to be regarded. Lastly, behind all these, we have in reserve the enormous powers residing in the blood-cells of offering a successful resistance to the invading organisms—a resistance the vigour of which is easily impaired by unfavourable circumstances, and which it will become more and more the aim of medicine to foster and improve. The number of the infective diseases is by no means complete and it becomes almost possible to breathe a word of hope where despair has hitherto prevailed, that medicine may yet find work to do in the treatment, preventive it may be, of the neoplasms which occur with ever-increasing frequency. The cancer which the surgeon now removes with such consummate skill is not the disease; it had its beginnings in an insignificant outgrowth, during which the rapidly proliferating cells, estranged from their accustomed environment, would probably be vulnerable did we know how and where to attack them; and further back still lies the exciting cause, on the exact nature of which medical opinion is divided; there seems, however, good ground for suspecting that here, too, we are confronted with a micro-organism and an infective disease the remedies for which, though they be long in coming, cannot be regarded as beyond the reach of human attainment, for—

> "Let that man with better sence advize,
> That of the world least part to us is red;
> And daily how through hardy enterprize
> Many great regions are discoverèd.
>
> * * * * *
>
> Yet all these were when no man did them know,
> Yet have from wisest ages hidden beene,
> And [illegible] nowne shall show;
> Why, [illegible] so much misweene
> That nothing is but that which he hath seene?"

Dr. Wilson concluded an eloquent address by pointing out that in modern medicine the use of drugs—"the offspring of a wise empiricism"—had been unduly discredited, while the art of prescribing was falling into decay. Medical men, he considered, should take combined action to settle certain therapeutic questions.

Chronic Diseases of Joints usually Comprised in the Term Chronic Rheumatism, Osteo-arthritis, and Rheumatic Gout.

Dr. A. E. GARROD (London) then opened a discussion on this subject and said that the joints were so readily accessible to examination that their diseases attracted attention very early, and there was an immense amount of literature on the subject. It was very difficult to avoid preconceptions when approaching this subject, but it was absolutely necessary to do so. Acute rheumatism had been in turn regarded as a purely local affection of the joints, as a humoral disease, and finally as a specific infective fever, and similar changes of view had taken place with regard to the diseases now under discussion. There were many diseases of the joints which did not come under this heading. The arthropathies of bacterial infection, pyæmia especially, that form caused by gonococci, and others, as well as those accompanying certain diseases of the spinal cord, were instances in point. The nomenclature of these diseases was not satisfactory. The name of "rheumatoid arthritis" suggested a causal connexion with rheumatism; the name of "arthritis deformans" was less open to objection. In the same way the treatment of these affections was dominated by theories of gout and the name "rheumatic gout" had contributed to this. Certain changes were found in necropsies in these affections and the question that had to be decided was, are all these changes the result of one and the same morbid process? He distinguished two distinct forms—the first occurring more especially in women at the earlier periods of life, affecting first the smaller joints, and forming fusiform swellings which had a crackling sensation on palpation. Muscular atrophy was an early symptom; it seemed particularly apt to follow *debilitating causes, such as influenza. Its progress might* be either rapid or slow, the fever might be considerable or slight, and pigmentation of the skin was usually present, visceral lesions were the exception but albuminuria might occur Post-mortem examination showed that the synovial membrane was more involved than the cartilages The morbid anatomy of this form was not well known and more work was very urgently needed in this direction He compared this form, to which he referred afterwards as the fusiform variety to that in children described by Dr Still He also reserved the term rheumatoid arthritis' for this variety The second variety, also occurring mostly in females came on at a more advanced period of life, the terminal joints *and the carpo metacarpal joints of the thumbs being those* usually first affected. It was neither so painful nor so rapid in its course as the former variety Eventually many joints became involved and in place of the crackling they got grating in the joints and eburnation of the ends of the bone after absorption of the cartilage He thought that these two forms were not identical, they were different from the commencement and he preferred to reserve the term "osteo arthritis for the second variety He thought that the joint affection confined to single joints was a distinct disease Many people considered that these diseases had an intimate connexion either with acute rheumatism or with gout and he thought that the nodular disease of old persons was *rheumatic The fusiform variety was not due to the* results of acute rheumatism They might get severe or slight peri arthritis but as a rule there was no acute rheumatism in rheumatoid arthritis and the heart was seldom affected Though rheumatoid arthritis has occasionally followed acute rheumatism he could not see that there were any sound clinical grounds for thinking that acute rheumatism caused rheumatoid arthritis The rheumatic nodules in rheumatoid arthritis were not like those of acute rheumatism The distinction between the two diseases could not be settled by clinical methods Bannatyne and others seemed to show that if there were bacteria in the diseased joints those in cases of acute rheumatism were not the same as those of rheumatoid arthritis They should never forget that osteo arthritis was not connected with gout or rheumatoid arthritis with acute rheumatism If he was right in distinguishing between the two varieties it was clear that they could not have a common cause He recommended an expectant attitude on the question waiting for demonstration of the specific bacteria of the different forms of the disease With regard to treatment, all forms were very refractory He considered that we should try to exclude any debilitating conditions such as menorrhagia or dyspepsia and any unhealthy condition of the teeth or gums. These forms of disease should be treated with a low diet and stimulants were generally required In rheumatoid arthritis the patient's strength should be kept up and tonics given but in *such a form as not to upset the digestion. Cod liver oil* and arsenic were useful but all methods of treatment should be continued for a considerable time even though they were not immediately successful Osteo arthritis was less amenable to treatment though its progress was slower, the indications in this latter disease were to delay its progress as much as possible though he confessed that he had never seen any particular benefit arise from any form of treatment. He submitted the three following points for consideration 1 Are there two distinct forms of the disease? 2 Are either of them connected with rheumatism or gout? 3. What are the best methods of treatment?

Professor OSLER (Baltimore) emphasised the necessity for approaching the study of these diseases without bias and from a mutual standpoint If there were not two diseases there [illegible]

[illegible] mentioned other varieties which had been differentiated by foreign observers but he objected to these varieties being called different diseases

Mr W ARMSTRONG (Buxton) described some cases which he considered to bear out some of Dr Garrod's remarks

Dr A. P LUFF (London) thought that rheumatoid arthritis [illegible] a but that it was [illegible] toid arthritis was [illegible] Salicylates were *valueless in the former disease. He considered it was possible* to treat rheumatoid arthritis with success but we must always remember that we were dealing with a microbic affection of joints We must try to differentiate between all the different forms of arthritis As against the neurotic theory of the causation of rheumatoid arthritis he submitted that it was not symmetrical in early stages, he considered the muscular wasting to be simply due to disuse. There was no reaction of degeneration in the atrophied muscle and no nerve lesion had ever been demonstrated It was possible that a nervous affection might predispose to bacterial invasion by lowering the nutrition of the joints and he mentioned that he had under his care at present *six cases in which rheumatoid arthritis had followed the* removal of both ovaries He regarded the mono articular cases as a different disease and probably not microbic in causation With regard to treatment he thought that he had secured the best results from the application of radiant heat He advised a good and generous diet, a red wine and for drugs iodide of potassium and some guaiacol preparation—say, the carbonate—commencing with three doses daily of five grains each and working up gradually to about 45 grains per diem

Dr W P HERRINGHAM (London) said that there were two questions before the meeting The first was the diagnosis of osteo-arthritis from acute rheumatism and secondly, the *pathology of osteo arthritis An acute attack of osteo-*arthritis was very like acute rheumatism In both there were rash pain, and fever and both were relieved by salicylates Time alone would reveal the nature of the case He could not quite agree with Dr Garrod that there were two distinct varieties of the disease, he thought that the points of resemblance were more numerous than the differences He granted that in elderly people the disease attacked chiefly the bones and in younger ones the synovial membrane and in Dr Still's cases of children the large glands were involved, but he was inclined to think that the differences were not in the diseases but in the patients In old age diseases came to be more chronic, in children we [illegible] surfaces while in older [illegible] He thought that there [illegible] nt for deciding whether [illegible] t the true pathology of osteo-arthritis was

Dr C O HAWTHORNE thought that there was chronic rheumatism of the joints and that it was incorrect to say that these cases were never rheumatic

Dr F J CAVE (Bath) thought that many clinical kinds of arthritis might be produced by the same poison and conversely [illegible] poisons He had seen a [illegible] uced by infection from a [illegible] He considered that if we looked with sufficient diligence for an antecedent cause for rheumatoid arthritis we should in most cases be able to discover one. With regard to treatment he thought that serum therapy would prove the hope of the future

Dr SAMUEL WEST (London) considered the discussion of the subject to be difficult since observers were not agreed on a basis of classification Few varieties of joint lesions could be expected to be found post mortem and various causes must produce identical ones He thought that it was most important to recognise as early as possible the existence of any such cause as that mentioned by Dr Cave whose remarks he considered to be most valuable He also considered that the cause of infection in most cases could be found and therefore they ought to search for them diligently He quoted a case of his *own in which the only local cause* that could be discovered was a very slight cystitis, but after curing the condition *of the bladder the arthritis disappeared* He mentioned the connexion of joint disease with empyema, and concluded by saying that he thought that in many cases various bacterial forms might produce the disease

Professor R SAUNDBY (Birmingham) endorsed Dr West's remarks, he was inclined to take gonococcal rheumatism as the type of these cases and other infections acted in a similar way

Dr W CALWELL (Belfast) Dr ELIZA DUNBAR (Bristol) Dr SARAT K. MULLICK (London) and Dr PRESTON KING (Bath) took part in the discussion

Dr GARROD in reply thought that the discussion would do good he thought that during its course we had got a little out of a fog and that several peaks had emerged Comparing this discussion with one six or seven years ago he noticed an advance in general professional opinion towards a more scientific view of these cases.

The PRESIDENT closed the discussion in a few words.

Escape of Cerebro-Spinal Fluid from the Nose.

Dr. WATSON WILLIAMS (Bristol), and Dr. W. S. V. STOCK (Bristol) showed a patient who had an Escape of Cerebro-Spinal Fluid from the right nostril; there were no bad symptoms, but the continual flow was a nuisance to the patient. It commenced quite suddenly about four months ago and had continued ever since. Clinical tests showed it to be undoubtedly of the nature mentioned and not to be the fluid of a nasal hydrorrhœa.

Dr. STCLAIR THOMPSON (London) thought that the disease was very rare, but accurate diagnosis was necessary, or treatment might be employed which might be injurious to the patient.

Professor OSLER suggested lumbar puncture as a possible means of alleviation.

Dr. A. P. LUFF read a short paper

On the Composition and Therapeutic Uses of the Cheltenham Waters,

and said that his object in doing so was to induce practitioners to make more use of home spas. He wished that the corporation of Cheltenham could see its way to restore the spa as it formerly existed. Many cases which were sent to Carlsbad, Kissingen, Wiesbaden, Marienburg, &c., could be better treated at Cheltenham. There were two principal varieties of the waters—the first contained much sodium chloride and sodium sulphate, was a cold water, and resembled that of Marienbad; the other was a water containing a considerable amount of magnesium sulphate and sodium sulphate. The waters were useful in chronic constipation, obesity, and dyspepsia; and while they were not suited for articular gout they were very useful in irregular forms of that disease, such as intestinal catarrh, glycosuria, and also rheumatoid arthritis. The summer season was the best, though many thought that the town at that time was relaxing in its climate—an opinion which he knew, however, was not shared by the distinguished president of the section. But if Cheltenham were ever to attain the position as a spa and health resort to which the therapeutic value of its waters undoubtedly entitled it the spa should be provided with all those modern appliances and aids, such as baths of all kinds, massage, radiant heat, &c., which had done so much to restore the watering places both here and abroad to professional and public favour. The waters of Cheltenham were as good as ever, and if the authorities would bestir themselves their fame would be again re-established.

SURGERY.

WEDNESDAY, JULY 31ST.

Mr. REGINALD HARRISON (London), surgeon to St. Peter's Hospital and President of the Section, in place of a presidential address, opened the first debate of the meeting upon

Renal Tension and its Treatment by Surgical Means.

I drew attention in 1896, he said. to some cases where patients suffering from albuminuria and other renal symptoms which might have been produced by a stone or other removeable cause had completely recovered after an exploratory operation on the kidney by puncture or incision, though no calculus or recognisable cause was discovered. It seemed reasonable to infer from these results, as well as from the examination of the parts operated upon, that this satisfactory termination might be ascribed to the relief of tension and congestion, thus allowing the escape of that which caused these conditions and permitting the return of a natural circulation in the organ. Further, I urged that the recognition of tension as a factor in kidney disease had not hitherto received adequate attention and that its consideration might lead to some revision in our views relative to renal pathology and treatment. I propose to deal with this subject now briefly under three headings:—1. What grounds are there for believing that the immediate effects of tension may be, amongst other causes, the starting-point for some of those pathological changes in the kidney which are included under the term of Bright's disease or nephritis? 2. In what class of cases are there reasons for thinking that direct surgical intervention for the relief of tension and its effects is applicable, and how are we to arrive at this conclusion. 3. In what manner should the latter be practised?

In reference to the first point it must be borne in mind that the more recent information we possess about certain pathological states of the kidney has been mainly derived from the actual inspection of the organ during life and from the impressions conveyed by touching or handling it. The effects of tension as a factor in renal disease could not be fully appreciated until a living kidney could be explored *in situ*. The question has been raised, How is it that the tension of acute nephritis never or rarely proceeds to suppuration or gangrene, as happens elsewhere in the body? The answer is obvious. These extremes are anticipated by death There is another phase connected with pathological lesions of the kidney which should not be lost sight of. In my Lettsomian Lectures delivered before the Medical Society of London in 1888 I showed that it was not uncommon to find either as a consequence of direct injury or disease that the lining membrane of the urethra had, at one or more points, lost its power of transmitting urine without some degree of slow leakage or exudation of certain of its constituents in the direction of the peri-urethral tissues occurring. I attributed this to the destruction of the epithelial coat, which was found to be completely absent at these points. This led to lymph barriers being thrown out in the peri-urethral tissue which by their subsequent organisation and contraction formed strictures and indurations, and sometimes by their extent involved the perineum. The same, I believe, may happen in the inflamed kidney as a consequence of tension, and by the slow exudation of urine tend in aiding its disorganisation. Apart from evidence to be obtained from ocular and digital exploration of the kidney, which will be referred to later, there are some important analogies bearing upon internal tensions which must not be passed by unnoticed. Probably the most striking one is the relation of intra-ocular tension to certain diseases of the eye. The recognition of the true pathology of glaucoma and the adoption of mechanical treatment by iridectomy, or an allied operation for the removal of tension and the prevention of the [illegible] changes thus initiated, at once resulted in the [illegible] eyes which previously to this discovery would undoubtedly have been lost. By this means Von Graefe converted an incurable disease into a curable one and at the same time demonstrated the true nature of the disorder. Hence it has been suggested to me that the term "renal glaucoma" is not an inappropriate one. Again, in the testicle, when it becomes inflamed, we have not unfrequently transient as well as permanent evidence of the damage that inflammation and tension are capable of effecting in an organ which, relatively to its secreting and investing structures, is not unlike the kidney. The late Mr. Henry Smith was the first to draw attention to the advantages that followed puncture or limited incision through the capsule in acute forms of orchitis. It was correctly alleged that not only was the pain of tension in a highly sensitive organ relieved, but structural damage averted. In fact, sterility, so far as this organ was concerned, was by this simple means rendered unlikely to occur. It is, however, to the ocular and digital examination of the kidney during life that I would attach most importance relative to the subject that is now before us. This is a proceeding which may be regarded as an outcome of the general use of anæsthetics and antiseptics for almost all surgical proceedings. Before these were introduced the living human kidney was only seen on rare occasions in connexion with abdominal wounds accidentally inflicted and when the organ involved was in a healthy state. Now the operating surgeon may be said to be familiar with its appearance and consistence in all states of disease and injury. From my earliest explorations of the kidney I soon learnt to recognise that both in regard to its colour and consistence, apart from its size, there were very important variations to be observed which I had never seen in the organ after death. Later I observed that in some cases of albuminuria the albumin permanently disappeared from the urine after the kidney had been opened and permitted to drain, and thus the excretion became normal.

[Here Mr. Harrison narrated six cases in illustration of his points. The first was a case of scarlatinal nephritis, the second one of nephritis from exposure to cold and damp, the third one of subacute nephritis probably following upon influenza, and the fourth one of nephritis further complicated with an injury; all four cases were characterised by the presence of albumin in the urine, which he was inclined to attribute to inflammation or its immediate effects. The fifth and sixth cases represented other phases of renal tension. In reference to the second point, how they were to arrive at a conclusion as to the class of cases to which direct surgical intervention for the relief of tension may be applicable he said]

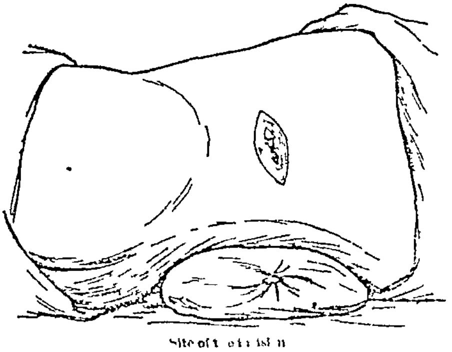
I can best put the case before you by taking types representing three states of acute nephritis which not uncommonly come under notice in connexion with scarlet fever The first is the common type where there are varying degrees of fever rash and desquamation with nephritis indicated by blood in the urine albumin casts and epithelium Cases included in this large class certainly do not require surgical attention for recovery is steadily progressive, and after a few weeks interval of illness and convalescence the congested organs return to their normal condition The second group of cases though apparently belonging at the commencement of the attack to the preceding class, does not end in the same way The previously healthy adult or child passes through the early stage of the disorder much as in the former instance but convalescence is delayed and the signs of the nephritis as evidenced by albuminuria and casts in the urine do not disappear The disease does not progress towards recovery, but is stationary and trends in the opposite direction These are the instances which furnish a considerable proportion of the cases of chronic nephritis or Bright s disease and a more or less invalid life is the prospect It is to this class and the following that the relief of t l to be applicabl hat has been desc- phritis Here the in the pathologi f urine occurs, and death rapidly follows from uræmia, with coma and convulsions After death under these circumstances it is usual to find the kidney intensely congested and the capsule tense and shiny and over filled with blood

[Mr Harrison then discussed the influence of the general tension thrown on the heart or circulatory apparatus in connexion with renal inflammation and concluded by considering the method of giving relief to renal tension under the conditions referred to He said]

The patient being anæsthetised and placed in the position for a lumbar nephrotomy the kidney is exposed by a transverse incision through the loin about parallel with and a little lower than the last rib (Fig 1) The length of the incision varies relatively to the consistence of the patient and the individual connexions of the kidney to be searched In spare subjects an incision of three inches probably suffices The various musculo fascial layers are divided until the suprarenal fat is seen. The connective tissue covering this should be opened up with probe and forceps, when the kidney may be recognised help being rendered by an assistant pushing up the organ in the direction of the operator There is seldom much bleeding or even necessity for tying a vessel If the organ has to be further explored as, for instance for a possible stone the kidney may be withdrawn through the wound for more thorough examination with the finger This however, is not necessary where tension alone exists Sufficient prominence for a limited incision through the capsule so as to relieve tension and secure drainage or even to puncture the organ, as for renal puncture can be given by an assistant in the way already mentioned In incising the capsule of the kidney for relieving tension I prefer doing so along the convex border Occasionally the incision may be indicated to one side or other of the free border as congestions and extravasations of blood are not necessarily evenly disposed throughout. Punctures may be made almost anywhere where the engorgement seems greatest but it is as well to avoid the pelvis of the organ either in the case of these or of incision I have frequently seen on puncturing the capsule for the purpose of exploring blood spurt out in jets as if projected under considerable contractile pressure and eager to escape The desired object being effected whether it is limited to the partial division of the tense capsule or the more thorough exploration of the organ as for stone a drainage tube is carefully inserted so as to remain in contact with the kidney and the wound is closed round the rubber outlet with silk sutures (Fig 2) The incision is dressed with gauze antiseptically As drainage is an essential part of the process and may be continued for some days or even weeks before the tube is removed, an ample supply of absorbent dressings should be used and renewed as often as necessary The drainage tube usually remains *in situ* from a week to 10 days but this entirely depends upon the nature and degree of the sanguineo-urinary discharge which is sometimes profuse and continuous On the removal of the drainage tube the wound usually heals rapidly I have never seen a permanent urinary fistula follow this proceeding The question in a case of nephritis sometimes arises as to which organ should be selected for exploration Unless there is something to indicate it such as the presence of pain my experience would lead me to believe that this is not a matter of much importance Both organs are usually involved in the inflammatory condition though perhaps it may turn out not to the same degree In double nephritis the relief of tension in one organ aids the other and thus as I have noticed on several occasions the normal amount and constitution of the urine becomes re established Similarly aid to an injured kidney by the removal of direct pressure caused by the accidental extravasation of blood either within or around it has been shown to assist the opposite one and to restore the balance of the urinary excretion when this has been diminished or entirely suppressed

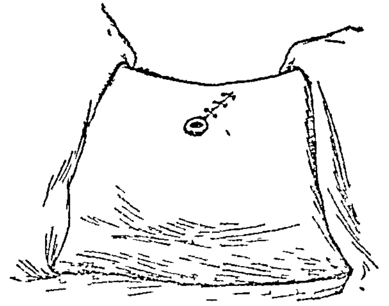
In this statement I have endeavoured to give prominence to those points which seem most deserving of consideration, relying more upon direct testimony than upon inferences drawn from lines of practice which can hardly be said to cover all varieties of this inflamed condition Nor have I made any attempt to elaborate my argument at this stage from such sidelights as chemistry physics or physiology might furnish but have confined myself chiefly to that which is clinical Propositions involving changes in well worn pathologies and practice cannot be approached with deliberation and no one is more conscious of this than myself "How far to use the words of a recent writer the operation of incision of the kidney can prevent or relieve the effects of congestion time alone can show but the subject deserves the careful attention of all surgeons "[1] I think

FIG 1.



Site of the incision

FIG 2.



Shows the wound closed

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[1] Puncture of the Kidney for Nephritis The Lancet June 15th 1901 p 1698

enough has been said to show this. I thank you for your presence, and commend this subject to your candid consideration.

Mr. W. D. Spanton (Hanley) heartily endorsed the observations of the President. He had found free cutting of the loins alone of considerable use in such cases, and had operated on the organ itself in two cases of nephritis, one from exposure to cold and the other from injury, with good results. He considered the risks of this measure practically *nil.*

Dr. J. Ward Cousins (Portsmouth), said that he had obtained good results in the reduction of renal tension by free purging with the dry-air bath. In selected cases he thought the operative treatment good. What he would require was a history previously good with a freedom from earlier renal damage; if this was known to have occurred he thought surgical interference valueless. He believed such measures were admirably adapted for the treatment of the so-called "uræmic convulsions" of alcoholic excesses, provided there was a good previous history. He feared that the treatment was likely to be of no use where there was a sudden suppression of urine in cases of chronic renal disease with heart affection.

Mr. G. Barling (Leeds) suggested that in some of these cases the success of the operation might lie in the fixation of a previously loose kidney, owing to a consolidation of the perinephric tissue produced by the handling of the organ. He believed that relief of tension could be afforded by the operation, but he instanced a case of very severe congestion following on catheterisation where he could not hope for relief by such means; the extreme condition of vascular engorgement and extra-vascular extravasation would not allow of it. In such cases they must rely on medical means and wet cupping. In cases of marked hæmaturia where the affected kidney was detected by the cystoscope, bisection of the organ in the anticipation of malignant growth elicited no explanation for the bleeding; the organ was therefore sutured and returned with the result that for three years there had been no recurrence of the symptoms.

Mr. R. C. Chicken (Nottingham) controverted the usefulness of the operation on the grounds (1) that hæmorrhage in the kidney resulted in minute clots which were not removeable by any incision; (2) that it had been shown by the work of Moxon and of Johnson that the vascular supply of the kidney was very distinctly in connexion with that of the dorsal parietes, so that any good effect of kidney incision could be equally well produced by skin or lumbar incisions. Further, he had in a case of scanty bloody urine obtained complete cessation of the symptoms by repeated washing of the bladder.

Sir William MacCormac (London) proposed a vote of thanks to the President for the admirable paper with which he had opened a discussion of much interest.

Mr. J. Hutchinson, jun. (London), read a paper on

Operative Treatment of Renal Calculus.

He pointed out that the skilled use of the Roentgen rays has improved the treatment of this disease in many ways: (1) by affording precise indications for operation; (2) by showing the size, number, and exact position of the stones; (3) by making the operation simpler, more speedy, and safer than before; and (4) by revealing in some cases the presence of unsuspected stones in the opposite kidney, or proving that the pain had been misleading as to the site affected. The objections formerly raised to the use of the x rays were now practically removed. The photograph could be produced with such rapidity that the mobility of the kidney with respiration could be neglected; the best of his photographs had been produced by a 15-second exposure. He believed that the use of this means of diagnosis would abolish the custom of dragging out the kidney into the loin and the splitting of the cortex in search of stones, and further that there was less risk of overlooking one of many stones. He showed the safety of opening the pelvis of the ureter and removing stones directly therefrom, rather than indirectly through the cortex. He thought that in all cases where even small stones were seen to be present operation was indicated; their presence was a danger to the kidney and so to the life of the subject.

Mr. J. R. Morison (Newcastle-on-Tyne) cited a case where the symptoms were almost undoubtedly those of stone. Mr. Mackenzie Davidson could find no signs of calculus with the x rays. He (Mr. Morison) noted that when a stone was indicated by the shadow it might be held with certainty to be there, but an absence of shadow did not afford a negative certitude. He agreed that incision through the pelvis of the ureter was both preferable and safe. If the ureter was patent there was no risk of fistula.

The President repeated a question which he had put in The Lancet of February last as to the possibility of affecting the depth of the shadow of a stone produced by x rays by the colouring of the stone by the exhibition of drugs. He had seen stones deeply stained by the use of methylene blue for cystitis.

Mr. N. Bishop Harman (London) said that the experience of physicists was that the depth of the shadows obtained by the use of x-rays depended upon the chemical density only of the object interposed between the kathode and the sensitive plate. The heavy and dense metals and metallic salts were impermeable to the rays, whilst materials of lesser density, irrespectively of their colour, were to a greater or less degree permeable. It was not possible to affect the density of calculi by their colouration by the usual dyes; if they could be impregnated with heavy metal salts this could be done, but he doubted its possibility or utility in the human body.

Dr. H. Bramwell (Cheltenham) read a paper on

A Case of Moveable Kidney producing Stenosis and Constriction of the Duodenum by Peritoneal Bands.

The case supported his contention that a simple acquired moveable kidney was not a condition of slight importance, and that contrary to the case of floating kidney, where the organ formed for itself a channel under the peritoneum which allowed it to move without damage to the hollow abdominal viscera, the form of moveable kidney described carried with it its peritoneal covering, with the result that there was considerable dragging on the adjoining hollow viscera. The thickened bands thus produced were capable of seriously affecting neighbouring hollow organs, producing stricture of parts with consecutive dilatation of others. In this case spasm and stenosis of the pylorus produced fatal gastric dilatation with atrophy of the muscular coats of the viscus.

Femoral Hernia.

Mr. R. H. Parry (Glasgow) described a means of closing the crural canal from above, in place of the older method of closure from below, with which he had obtained excellent results. He maintained that by it there was left no cup-shaped remnant of the crural canal and the liability of damage to the femoral vein was excluded. The procedure might be summed up as follows:—1. A curved incision over the inner end of Poupart's ligament convex downwards, the flap was turned up and the region cleared until (2) Poupart's ligament was exposed. 3. The sac was then cleared and opened, its contents examined and if possible replaced. 4. An incision was made through the external oblique above and parallel to Poupart's ligament, and a similar division was made through the transversalis fascia. If it had not been possible to empty the sac it could now be emptied by manipulation above Poupart's ligament. Thus he had been able to relieve strangulated herniæ without cutting Gimbernat's ligament (an important saving). 5. A catgut ligature was now passed through the fundus and neck of the sack and through the conjoint tendon and transversalis fascia; the tightening of this ligature resulted in the drawing up of the crumpled sac beneath the belly wall. 6. A strong suture was carried by a sharp curved needle on a handle through the conjoint tendon and transversalis fascia at a point opposite to the outer margin of Gimbernat's ligament, passed horizontally beneath the muscle and fascia for about half an inch, and then brought through them. The inner end of the suture was now passed through Poupart's ligament, and both were brought out in the groin. Second and third sutures were applied in a similar way. The tightening of these sutures would draw the conjoined tendon and transversalis fascia over the crural ring as a curtain. The sutures could be tied so as to avoid pressure on the vein. The final stages were in the usual way.

Mr. Jordan Lloyd (Birmingham), deprecated the introduction of special and highly technical methods into these operations; further, he preferred to see the sac cut off, and silk ligatures used on.

Mr. McAdam Eccles (London) also agreed to the advisability of removing the sac or using silk sutures. He thought that the closing of the canal from above Poupart's ligament was to be preferred to closing it below, since he believed there was a lessened liability to recurrence.

Mr. W. H. **BROWN** (Leeds) read a paper on

The Prevention of Shock during Prolonged Operations.

He dwelt particularly upon those cases where operative relief was sought by the patient in the last stages of exhaustion, where the strength was so enfeebled that there was little or no hope of the shock of an otherwise useful operation being withstood. In such cases he had found that marked benefit might be derived by the transfusion of quantities of saline solution to five pints or so; this addition of fluid to the circulation so far restored the patient that the operation could be proceeded with with reasonable hope of success; the blood lost was not so much missed, and in some cases there was found a better pulse after a severe operation when performed under these conditions than at the beginning.

Mr. T. R. **JESSOP** (Leeds) said that he was satisfied as to the utility of the procedure, particularly if combined with the hypodermic injection of strychnine.

OBSTETRICS AND GYNÆCOLOGY.

WEDNESDAY, JULY 31ST.

The Presidential Address.

Dr. J. W. **BYERS**, Professor of Midwifery and Gynæcology, Queen's College, Belfast, delivered an address at the opening of the section upon

Puerperal Fever, Uterine Cancer, and the Falling Birth-rate.

He said: In 1847–56 the mortality from puerperal fever in England and Wales was 1·8 per 1000. It rose to 2·28 in 1875–84, and to 2 46 in 1886–95 The following figures (which I owe to the kindness of Dr. R. Boxall, who has taken such an interest in this question) give the most recent available statistics:

Year.	Deaths from puerperal fever.	Death-rate from puerperal fever per 1000 births.
1895	1849	2·0
1896	2053	2 2
1897	1836	1·9
1898	1707	1·8
1899	1908	2 0

Dr. John Tatham, Statistical Superintendent, General Register Office, has kindly supplied me with the following most interesting details:

Deaths of Women at all Ages from Puerperal Fever and other Accidents of Childbirth per 1000 Registered Births in England and Wales:—

1871–80	4 72
1881–90	4·73
1891-99	5 12

The following return showing the number of deaths in Ireland tabulated under Parturition (accidents) and Puerperal Fever I owe to the courtesy of Mr. R. E. Matheson, Registrar-General of Ireland:—

Years.	Total.	Death-rate per 1000 births registered.
1895	769	7·2
1896	679	6·3
1897	696	6 5
1898	560	5·3
1899	601	5·8

For the same years the deaths from puerperal fever for the whole of Ireland were:—

Year.	Rate per 1000 births.
1895	3 0
1896	2·3
1897	2 1
1898	1·7
1899	2·0

I am obliged to the Registrar-General of Scotland for giving me the following

Table Showing the Death-rate from Puerperal Fever in Scotland during the Five Years, 1895–1899.

Year.	Number of deaths.	Proportion in every 100,000 of female population.	Proportion in every 10,000 specified causes of death.
1895	253	12	62
1896	220	9	63
1897	205	9	52
1898	227	10	59
1899	214	10	54

We may contrast these lamentable statistics with the following returns for the last two years of the practice of the Rotunda Hospital, the largest lying-in charity in the three kingdoms:

Mortality at the Rotunda Hospital for the Years 1898–99 and 1899–1900.

—	1898-99.	1899-1900.
Intern maternity:		
Total cases	1591	1560
Total mortality	10	6
Percentage mortality	0 62	0 38
Mortality from sepsis (two of these admitted septic)	5	0
Extern maternity:		
Total cases	2183	2109
Total mortality	8	5
Percentage mortality	0·36	0·23
Mortality from sepsis	2	0
Total cases	3754	3669
Total percentage	0 47	0·27

For two years the total was 7423, and the percentage was 0·39.

These figures should make those of us who are teachers feel how great is our responsibility, and that our efforts should be redoubled in urging upon students the importance of regarding the process of labour as a natural one and not to be lightly interfered with unless nature herself should fail, and that if interference becomes necessary they should use exactly the same antiseptic precautions that they see employed in any gynæcological operation. It is by the observation of these two principles—the avoidance of meddlesome interference and by the rigid use of antiseptic principles—that we may hope that in the present century the occurrence of puerperal fever will eventually be as rare in private practice as it became

in the nineteenth century in

subject in regard to which, I

late ourselves is cancer of the uterus. How does it originate? Why is it so common? Nay, more, why (at least this is my experience) is it becoming more prevalent? These questions surely demand solution. I am reluctantly forced to agree with a statement made by a distinguished American *confrère*, Dr. Baldy, in a paper read before the Section of Gynæcology, College of Physicians of Philadelphia, Feb 21st, 1901: "Cancer affecting the cervix uteri is one of the most deadly diseases with which medical men have to deal. By far the largest proportion of these patients eventually die of cancer, be it from the primary lesion or from a recurrence. And this in spite of all that has been done for them either surgically or medically." No doubt some gynæcologists may say the explanation is that operation is not done early enough, but, as Dr. Baldy fairly asks, "What is sufficiently early?" Every gynæcologist of experience must admit that he or she has met with cases where recurrence took place rapidly in what seemed to be at the time of operation a most promising condition, while, again, women with extensive disease have remained well for years after operation. We have passed through the stages of vaginal and of abdominal hysterectomy for cancer of the cervix, but I ask, have we up to the present made much real progress? It is not the immediate results of the operation we want to know, it is the subsequent history of the patients. At the present time we can, unfortunately, suggest no other plan of treatment of cancer of the cervix except by operation, but surely we cannot boast much if the statement of Baldy is correct that the most recent statistics, those reported in Cullen's work on Cancer and the review of cases by Winter of Königsberg, show that in reality less than 0 per cent. of all patients applying for treatment of cancer of the uterus are saved by operation. The obvious lesson is that to ensure any real success we must urge on practitioners the enormous importance of early diagnosis, and that the one symptom which should always be regarded with suspicion is abnormal hæmorrhage. Any woman with abnormal hæmorrhage at any age, and especially if she is over 35 years, demands the most careful clinical examination. Let us hope for greater progress in the future.

Having glanced in what, I am afraid, is a very cursory survey at the progress of these subjects which specially concern us, let me turn to another question of the greatest interest to the State as well as to the medical profession. During the present year the public press has been calling special attention to the falling birth-rate. It would appear hat in England and Wales in 1861-71 the birth-rate per 000 was 34 8. In 1871-81 it was 34·7; in 1891 it was 31 4 er 1000; and since then it has steadily gone down until in the last year of the century, 1900, it was only 29 per 1000. In 1875 35 children were born in the United Kingdom for each 1000 of the population, while in 1900 there were only 29. In other words this means that for our population of 41,500,000 we are losing 249,000 children annually, and the birth-rate has fallen by 2 67 in the last 10 years. The actual increase of the population of England and Wales is due to the fall in the death-rate and the increase of immigration. We are thus rapidly in England approaching the condition prevailing for some time in France and America. It is not for me at present to discuss the causes of this declining birth-rate; rather my duty is to ask what remedy can we as medical men suggest to combat a state of matters which, from a national and imperial standpoint, must be regarded as most unsatisfactory. If fewer children are in the future to be born in this country, we must redouble our efforts to lower the high death-rate of infants, which during the first year of life amounts in England to 154 per 1000, by teaching the people to pay much greater attention to rearing their children properly.

Professor Byers concluded by impressing upon his audience the absolute necessity of examining patients expecting their first confinement as strictly and exhaustively as though for life assurance. He urged the importance of instructing impending mothers on all questions of diet and exercise, and deplored the fact that in Great Britain no enterprise was shown in the matter of supplying sterilised milk for infants.

The Causation, Prevention, and Treatment of Miscarriage.

A discussion on this subject was opened by Dr. PETER HORROCKS. President of the Obstetrical Society of London. The causation of miscarriage was classified as follows:—*A. Damage to the normal attachment between maternal and fœtal parts.*—(*a*) Accidental, such as injuries from hard work (lifting, strains, running and jumping), falling, blows, coitus, shock, fright, vomiting, coughing; surgical interference, such as operations about the vagina, cervix uteri, ovaries, and abdominal sections generally; passing instruments into the uterus, such as the uterine sound or dilators; and vaginal douching (*b*) Criminal, by the passage of a sound, bougie, curette, sharp instrument to rupture the membranes, tents, injection of fluid into the vagina or uterus, dilatation of the os uteri, application of caustics to the os uteri and within the canal of the cervix; packing the vagina, dilating and trying to set up reflex action in the uterus; drugs, such as purges (especially aloes), savin, ergot, lead, mercury, arsenic, carbonic oxide, and carbonic dioxide as in asphyxia; and violence, such as jumping, dancing, riding, rowing, falling, blows, and tight bandaging of the abdomen. (*c*) Disease of neighbouring parts, such as fibroids, parametritis, perimetritis, tubal diseases, ovarian diseases, tumours or blood-clots in the pelvis, contracted pelvis, tumours in the abdomen, tight lacing, and rectal diseases. (*d*) Artificial, when abortion is scientifically induced by means of bags, such as Barnes's, De Ribes's, Horrocks's; sound, dilators, bougie, tents, sharp instruments rupturing membranes, curette; drugs, such as ergot, digitalis, savin, cantharides, quinine, gossypium, lead, aloes, purgatives; and douching, dilatation of the cervix uteri, and dilatation of the vagina. *B. Fœtal pathological conditions.*—Syphilis, malformation causing death of the fœtus, spina [illegible] cord round the neck, too short a [illegible] the placenta, carneous mole, hydatid mole, fatty [illegible] tion, excessive or scanty liquor amnii, [illegible] low vitality, imperfect fertility from de[illegible] ness, extreme youth or age [illegible] father), inflammation, œdema [illegible] diseases of the chorion, amni[illegible] kidney, liver, genitals [illegible] of the rupture of the membranes. *C. Maternal diseases, gen*[illegible] *local.*—Fibromyomata, displacements (especially [illegible] sion and retroflexion), syphilitic endometritis, [illegible] hæmorrhage into the placenta, carneous mole [illegible] heart, lungs, liver, kidney—eclampsia; chorea, [illegible] blood diseases, jaundice (acute yellow [illegible] placenta prævia; zymotic diseases, especially [illegible] scarlatina, and typhoid fever, which destroy the [illegible] toxæmia, pyrexia, or hæmorrhage into the placenta [illegible] rhœa gravidarum, catarrhal endometritis, [illegible] habit (menstrual nisus), cancer, apoplexy; fissure [illegible] cervix, deep lacerations, patency of canal [illegible] lower zone of uterus, pyrexia. [illegible] anything causing it to cont[illegible] sitz-baths, and tooth extrac[illegible] riding, dancing, cycling, [illegible] lifting, walking too fa[illegible] dogs, operations, tig[illegible] ecbolic drugs, over-lact[illegible] heated rooms, bad vent[illegible] late hours. The things [illegible] inflammations, displacem[illegible] flatulence and colic. The [illegible] syphilis, bad health, weakne[illegible] laceration of the cervix, and [illegible] carriage was considered under [illegible] miscarriage was (*a*) avoidab[illegible] features of treatment were [illegible] ergot, or other ecbolics—[illegible] unavoidable (here the [illegible] means of tampons or gau[illegible] rupture of the membranes, and the clearing out of the uterine [illegible] complete (here delivery should be completed by the tampons or packing or by clearing out the uterus [illegible] pletely).

Dr. AUST LAWRENCE (Bristol) said that proper [illegible] depended on correct diagnosis and a very important [illegible] was the diagnosis between threatened abortion [illegible] uterine pregnancy. Broadly, he laid down the [illegible] much hæmorrhage and little pain [illegible] miscarriage, whilst scanty [illegible] pointed to the extra-uterine [illegible] When [illegible] was inevitable the sooner the uterus was [illegible] In hospital this should be done deliberately [illegible] anæsthetic; in private practice it was often better [illegible] first instance to pack the cervix and vagina with iodoform gauze. He deprecated the use of the curette, [illegible] that the finger was sufficient. Complete dilatation of [illegible] cervix was of the utmost importance, inasmuch as [illegible] septicæmia followed it was nearly always the result [illegible] incomplete dilatation.

Dr. A. J. SMITH (Du[illegible] abortion that needed no [illegible] pain, slight hæmorrhage and no dilatation of the os. [illegible] requiring interference were those with much pain, [illegible] of the cervix and protrusion of the ovum. The best [illegible] in the prevention of miscarriage were cannabis indica [illegible] opium. He did not approve of ergot, because he [illegible] that if enough were given to arrest hæmorrhage [illegible] itself induce abortion. If inevitable the ovum should [illegible] separated with the finger; to remove the ovum a[illegible] practice consisted in removing the finger and seizing [illegible] uterus bimanually, when the ovum would be found [illegible] out. It was sometimes a matter of difficulty and yet [illegible] importance to determine whether or not the ovum [illegible] actually been expelled. In this connexion it was useful [illegible] note that before expulsion the internal os was [illegible] and the external os closed; whilst after expulsion [illegible] internal os was closed and the external os open.

Mr. HAWKINS-AMBLER (Liverpool) referred to the [illegible] ment of constipation, which was often a very difficult [illegible] in these cases, as too much purgation might lead to [illegible] which they wished to avoid. Packing with gauze was [illegible] after clearing out the uterus, because [illegible] shreds, &c., might be retained and the gauze [illegible] them away.

Dr. J. A. Lycett (Wolverhampton) insisted on the part played by excess of alcohol, [illegible] also in causing deterioratio[illegible] survived. With regard to [illegible], he thought that a medical man was not necessarily to blame if this occurred, but he would be to blame if he overlooked [illegible] Dr. Lycett showed an [illegible] to retroversion of the gravid uterus as a cause of abortion; in some cases the reposition of the uterus and insertion of a well-fitting Hodge failed to avert the miscarriage. He spoke also of the tendency to abortion in cases of heart disease. In one case of this kind he kept the patient absolutely in bed and ordered daily massage, with the result that she went on to full time. In treatment where there was hæmorrhage without pain he gave ergot in from five to 10 minim doses every hour; opium might be given at the same time if necessary. If there were pain as well as hæmorrhage he did not give ergot. In cases of unavoidable hæmorrhage he advocated the complete clearing out of the uterus combined with curetting of the endometrium under anæsthesia He used a flushing curette with perchloride in the strength of 1 in 2000. In some hundreds of cases in which he had adopted this treatment he had never had either hæmorrhage or rise of temperature following the operation.

Dr. Inglis Parsons (London) expressed his belief that a woman who was fairly healthy and sound could do almost anything in the way of exercise or travelling without fear of aborting. Among antiseptics for use in cases of surgical interference he specially recommended the use of chinosol. An excellent sedative in cases of threatened, but not inevitable, abortion, was viburnum primifolium.

[illegible] king [illegible] gina. [illegible] was [illegible] ervix [illegible] she thought it best to avoid the use of the volsella when the cervix had to be packed.

Dr. F. W. N. Haultain (Edinburgh) dwelt on the importance of full dilatation of the cervix before any attempt was made to extract the fœtus; sometimes the body of the fœtus was drawn through and the head left behind because the orifice was too narrow. If the dilatation was insufficient it was better to pack the cervix with gauze and to wait.

The President remarked that the syphilitic factor was an important one, although the part it played had, perhaps, been overstated by continental writers, who attributed to this cause 60 per cent. of abortions. Repeated abortions were specially apt to be due to this cause. Treatment should be given to both parents.

Dr. Horrocks briefly replied.

Deciduoma Malignum.

Dr. Peter Horrocks read the notes of a case of this kind and showed the specimen, together with microscopic sections. The patient thought that she had miscarried and was losing much blood. Examination revealed a growth and hysterectomy was performed. The patient made a good recovery from the operation but died some two months later from secondary deposits. Unfortunately no necropsy was allowed.

Cæsarean Section with Notes of Three Successful Cases.

Dr. Munro Kerr (Glasgow), in his paper, pointed out that the operation had been performed in the Glasgow Maternity Hospital between 60 and 70 times since April, 1888; and that in the cases that had proved fatal, with two or three exceptions, the cause of death had been septicæmia; further, that in the majority of cases the infection was through the vagina and cervix, and not through the abdominal wound. He therefore laid great stress on the preparatory cleansing of the vagina by thorough cleansing with lysol He did not draw out the unopened uterus through the abdominal wound The opening in the uterus was in every case longitudinal and in the middle line, the bleeding in cutting through the wall being controlled by the vulcanite ring recommended by Cameron. After extraction of the child the uterus was firmly grasped by the assistant to control bleeding, elastic tubing was not used for this purpose. The conservative operation was done in each case, the uterus being left, but the patients were sterilised by tying the Fallopian tubes in two places and dividing between the ligatures. In each case labour was in progress, and in two had advanced considerably before the operation was commenced. After giving the notes of three cases Dr. Kerr remarked that the safety with which Cæsarean section could now be performed was such that in cases of pelvic deformity they were now hardly ever justified in destroying a living child by craniotomy. The only circumstances where such operations were permissible were where fruitless attempts had been made to extract the child with forceps or version, from ignorance or miscalculation of the extent of the pelvic deformity; where the mother's condition was such as to preclude abdominal section; and where the child was the subject of hydrocephalus or some other extreme malformation or was dying. That the pregnancy was illegitimate could not be considered as affecting the indications of the operation. With such a circumstance they dare not concern themselves. Dr. Kerr did not consider that there were valid grounds for preferring supravaginal amputation to the conservative operation. Nor did he endorse the transverse fundal incision recommended by Fritsch. It was, however, important that the longitudinal incision should not be carried too low. In all the cases the placenta was situated on the posterior wall of the uterus and separated immediately after the birth of the child

In the discussion on this paper Dr. Purslow (Birmingham) remarked that he considered it an advantage to make a longer incision and to draw the whole uterus out of the wound before opening it.

Dr. William Duncan advocated the operation of removal of the uterus. In all his cases he had found the placenta situated in front.

Mrs. Scharlieb (London) said that in the cases which she had seen the placenta was always behind. She had employed the straightened-out Hodge recommended by Cameron; but it was of little use except when the child was lying with the back anteriorly, for otherwise no pressure could be exerted.

After some observations by Dr. Horrocks, Dr. Munro Kerr replied.

Mr. Hawkins-Ambler read a paper on Shock in Abdominal Operations, and Dr. William Duncan expressed regret that the lateness of the hour precluded a proper discussion of this admirable paper.

STATE MEDICINE.

Wednesday, July 31st.

The Presidential address.

The President (Mr. Shirley Murphy, London), after referring to progress in sanitary matters, said that each [illegible] better opportunities of [illegible] the laboratory. There [illegible] if the Notification Act was to be fully utilised. Valuable material already existed for the study of the behaviour of infectious diseases and there should be some classification on a uniform principle. It was hoped that the time was not far distant when it would be possible to take stock of industrial diseases.

The Relation Between County and District Sanitary Administrations.

Dr. F. T. Bond (Gloucester) opened the discussion on this subject. He said that any form of sanitary administration without a medical officer of health was, to use a well-worn simile, like the play of *Hamlet* with the *rôle* of the Prince of Denmark omitted Where the appointments of sanitary inspectors were filled by thoroughly competent men a single medical officer of health could superintend efficiently a far larger district than was possible where he was unable to depend on his inspectors. County councils should have the same freedom of combination with one another that was possessed by the district councils. The Public Health Act allowed district councils within or without the same county to combine for various purposes, including the appointment of a medical officer of health, and the same power should be given to counties. Dr. Bond then proceeded to discuss whether it was expedient as a general principle that the medical officer of a county council should hold at the same time any appointment under a district council in that county In his opinion, the work required the intelligence and experience of a trained expert, and whether that expert held the position of a county medical officer or of an officer to a combination or to a single district was not of the least importance What was of importance was that he should be competent for the work, and the objection to a district medical officer reporting on his own annual report as a county official was founded on an erroneous view of the work involved. Wherever combined districts existed in any counties they should be utilised as the basis on which they could most conveniently and economically erect a well-adjusted county sanitary administration. Amongst the duties which would ere long probably be imposed on sanitary authorities would be the superintendence of vaccination and this would at once make it imperative that every county council should appoint a medical officer of health. The plea that it was of no use for these councils to make such an appointment until they were invested with fuller sanitary powers was met by the reply that county councils could hardly expect that their sanitary powers should be enlarged until they showed that they had made an effort to use those with which they were already invested.

After some remarks by Mr. G. H. FOSBROKE (Worcester),

Dr. J. LLOYD ROBERTS (Colwyn Bay), said that in North Wales there was but one county and in South Wales there was but one that had officers of health. Many English counties were in the same position. It was unnecessary to enlarge upon the great losses to the public health entailed by the failure of these many counties to establish committees and officers who would be the connecting links between the county and the local administrations. Many localities could be called to mind as being as insanitary at the present time as they were when the Public Health Act came into operation in 1875. There were localities in which sewerage and water-supply schemes had been propounded for more than 20 years which were as far from accomplishment now as ever they were. Where Local Government Board inquiries had been held on epidemics nothing had been done after the exciting cause had passed off. District councils were responsible for these omissions and shortcomings and the causes were fear of putting the parish to expense and personal dread of loss of popularity and consequent loss of a seat on the council. The Local Government Board spasmodically and at long intervals wrote to a district council to ask what action was being taken upon a certain matter and they seemed to be contented with receiving a courteous but evasive reply. District councils escaped taking responsible action by sheltering themselves behind the Local Government (Parish Councils) Act 1894, which required *notice* to be given of sanitary proposals to the parish councils concerned. Parish councils based their ideas of public health requirements upon finance rather than upon necessity. A scheme for sewerage or for water-supply had to go through a parish council not for approval but for information and then to the Local Government Board for approval and permission to raise a loan. In the matter of finance there was no such want of uniformity. Government auditors looked properly after the accounts and over each and every authority and the various members thereof there was always the fear of this official auditorship overhanging, lest by any mistake or mischance a surcharge should be made upon the individual who wrongly signed a cheque. It was clear that, as in the case of the Infectious Diseases (Notification Act) which had been made compulsory everywhere, all county councils that had not appointed medical officers of health should be called upon to make such appointments, and county councils might be endowed with the powers of the Local Government Board. In this manner county and district sanitary administrations could be brought into relation.

Municipal and County Laboratory Work.

In his absence a paper by Dr. E. C. SEATON (London) was read by one of the secretaries. Dr. Seaton's opinion was that laboratory work entered more than ever into the daily routine of the public health and sanitary departments of most municipalities. After a full retrospect of the facts of the case the scope of sanitary analyses was next dealt with in the paper. In every large town there was a demand for bacteriological examinations for diagnostic purposes in aid of the general practitioner and also for hospital purposes which might be provided at a central bureau connected with the municipal offices. The first object of the sanitary authority should be to repress injury to health and not to allow this to become subordinated, as it had been for some time past, to the detection of a certain kind of commercial fraud. The concentration of laboratory work was then discussed by Dr. Seaton, who gave details of the county laboratory of Worcestershire, where the analytical chemist, Dr. Duncan, conducted the diagnostic examinations for diphtheria, empyema fluid, tubercle, &c.

Mr. HENRY MAY (late medical officer of health of Aston Manor) considered that no injustice was done by a county medical officer of health being also district medical officer of health.

Mr. T. W. H. GARSTANG (Bowdon, Cheshire) advocated "security of tenure" for medical officers of health. He thought that weekly notification of infectious diseases was a matter dependent on local conditions.

Dr. E. J. SLADE-KING (Ilfracombe) said that Parliament should make weekly returns absolutely compulsory. If parish medical men were life officers it was much more important that medical officers should be.

At this stage of the discussion Dr. J. GROVES (Carisbrooke, Isle of Wight) moved, Dr. SLADE-KING seconded, and Mr. HERBERT JONES (Hereford) supported, the following proposition, which was carried later in the proceedings:—

> That having regard to the paramount importance to the interests of the public [illegible] tenure of office of sanitary officers the State [illegible] express their approval of the action of the cou[illegible] in Parliament to that end and their thanks for the same.

Alderman WALTER SMITH (London) advocated that bacteriological examinations should be undertaken by sanitary authorities for medical men gratuitously.

Dr. A. K. CHALMERS (Glasgow) said that in his district the bacteriological work was done gratuitously with satisfactory results.

The PRESIDENT believed that the ultimate solution of the problem of the relations between the county and district medical officers of health would be found in the appointment of both by the county council.

Dr. BOND, in winding up the discussion, said that it was desirable to have as much elasticity as possible in this matter and that the requirements of efficiency should not impose undue pressure on county finances.

Dr. D. S. DAVIES (Bristol) read a paper on

Plague and its Prevention as a Disease Communicable from Animal to Man

and at the conclusion he made the following motion which was seconded and carried:—

> That this meeting considers the time has come when the question of dealing with ship-brought plague deserves the attention of the Government, with the view of securing an international agreement whereby merchant vessels shall take the necessary steps for the destruction of rats on board before loading and upon discharge, and, in addition, for the adoption of uniform steps to prevent intercommunication during loading and discharging between ship and shore rats.

PSYCHOLOGICAL MEDICINE.

WEDNESDAY, JULY 31ST.

The Presidential Address.

Dr. J. B. SPENCE, resident physician and superintendent, Staffordshire County Asylum, Burntwood, delivered the following introductory remarks at the opening of the section:—

Asylum Administration and Nursing.

Dr. Mercier, in his well-known crisp and incisive manner, has in the last number of the *British Medical Journal* for 1900 given a brief, instructive, and interesting account of the position of affairs in the lunacy world at the commencement of the last century, and it would well repay the labour involved and the time occupied if one had the opportunity to enumerate in detail the various discoveries, improvements, and legal enactments which have so advantageously changed the treatment of the mentally afflicted since that period. Not only, however, were the insane subject to very terrible and inhuman treatment at the commencement of the last century, but in many other directions also the condition of the people was practically in a state as unsatisfactory. Picture to yourselves the prisons of those days—the dens to which debtors were relegated, the condition of the poor in their own homes, the monstrosities practised in the name of justice, when men were sentenced to death, and not only sentenced but in some instances actually hanged, for offences which in these happier days would be considered as severely punished by a few months, or at the most years, of imprisonment in establishments which, when contrasted with the prisons of a century ago, may fairly be said to have made as great an advance as that which has taken place in our asylums or other public hospitals. For the marvellous progress that has marked the past century and has rendered the Victorian era a golden one we should not rest content with being merely grateful, but should endeavour as far as lies in our power to maintain and promote all means which tend in the direction of useful progress, and so continue the great work which has made the names of Tuke, Conolly, the Browns (father and son), Bucknill, Maudsley, Clouston, and many others honoured and glorious in our specialty. I heard it said not long ago that there was a *feeling* abroad in favour of lay management of our large asylums. Well, to those of us who have lived long enough this is nothing new. Ideas occur in cycles, and what to the experienced is but the repetition of an oft-exploded theory comes to those who are new to the subject and who have not given it much consideration as something which, to put it at its lowest, merits at least a trial. It does appear to me that in few other positions is the combination of the medical man with the good organiser so necessary as at the head of an establishment in which the treatment of the inmates is not purely medical or purely reformatory or merely curative, but where many methods must be employed if ultimate success in dealing with the variety of types which come under our care is to be looked for. It is in this connexion that I regret the establishment of the huge asylums to which unhappily use is accustoming us. In the medium-sized asylum there is just that amount of work which any man who is worthy of his position should be able to supervise with due attention to the various departments into which the establishment must necessarily be divided, and where the one governing mind can so utilise the means of treatment placed at his disposal that whether the individual patient—known to the chief by name, by disposition, in his family relationships, in his special characteristics, and in his necessities—requires medical or moral treatment, the care of the sick-room or the exercise of the garden or farm, the quiet of the cosy ward or the stimulating effect of the workshop, each can be brought into play without the risk of producing that friction which practical experience has shown to be not infrequently present when more than one controlling influence is in operation. As a question of expense, I have yet to learn that the medium-sized asylum is more costly in its management than the large establishments which, while they excite the wonder of the inexperienced, produce only feelings of regret in the minds of those who have to govern them. Nor have I had it proved to me that better results have been produced either in the treatment of the insane individual himself with regard to the promotion of his recovery, the increase of his comfort when in fair bodily health, or his treatment when attacked by illness, physical or mental. The feeling of consternation that is abroad in connexion with the necessity for still further provision for the insane will have to be dealt with and one cannot resist the conviction that the time has come when some change in the classification of our patients might well be attempted. There is ample scope, I feel sure, for hospitals for the insane to which only paying patients at low rates should be admitted and there is a large class of demented lunatics and unteachable imbeciles in asylums for whom plain housing and plain dieting might well answer. There are also epileptics and imbeciles in workhouses who should no longer, or only for the short time that is required to provide other abodes for them, be detained in places which, on the showing of many speakers at a recent Poor-law conference, are quite unsuited for the care and treatment of such cases. I know full well that there is a strong feeling against the herding, as it is called, of a number of imbeciles and demented people together. I have heard not so long ago a very forcibly-expressed opinion that it would be an improper thing to remove the demented from our asylums, as the prospect of recovery should never be lost sight of even in the most apparently hopeless cases, but with all respect for the opinion of such a distinguished member of our specialty as Sir James Crichton Browne, I cannot think that for the sake of the very occasional case of recovery to which he referred in his admirable address to the Asylum Workers' Association we should be deterred from providing good and proper but comparatively inexpensive accommodation for the class of patients to which I allude. It is not my intention for one moment to suggest that the chronic dement in the counties should not receive the same amount of care that is given to the corresponding class for whom the Metropolitan Asylums Board is responsible. What I urge is that some such accommodation and treatment should be provided in the counties as are given in London, thus relieving the acute asylums and enabling them to carry out the work for which they should be, in my opinion, reserved. There is the difficulty, for the small counties that an institution common to several would probably be required owing to the few cases each of these counties would have to provide for. It has been said also that even the individual lowest in the scale of mental degradation can appreciate the bright and comfortable surroundings of the average county asylum. But when all is urged that can be brought forward to support this side of the question, I shall still hold the opinion that while no expense should be spared to provide the necessary appliances and the most favourable environment for the curable, yet in a distinctly appreciable proportion of the incurably insane and the mentally deficient a kindly, judicious, and truly philanthropic system of treatment might be adopted without loss of benefit to the class in question and at a much reduced cost to the long-suffering ratepayer. As to the form in which accommodation should be provided for those suffering from mental disorders of a curable nature, I am delighted to think that the trend of educated opinion in this country is in favour of segregation, and we are all looking forward with interest to the result of the experiment which has been taken in hand by the East Sussex County Council and by the authorities whose duty it is to provide accommodation for the insane poor of Edinburgh and Aberdeen. Dr. Spence concluded by referring to the progressive work of the London County Council at the Claybury Pathological Laboratory and pleaded for the systematic education and training of asylum attendants.

Dr. W. FORD ROBERTSON (Edinburgh) opened a discussion upon

The Rôle of Toxic Action in the Pathogenesis of Insanity.

He said that whatever else mind might be it was in the first place a product of the functional action of certain of the cerebral neurons. For the normal manifestation of this functional action three factors were essential—namely, (1) integrity of the anatomical elements which form the physical basis of mind (cortical neurons); (2) suitable nutritional conditions for these anatomical elements; and (3) those sensory impulses which, commencing to impress the anatomical elements at an early period of life, gradually endow them with their special functional powers and of which the almost continual stimulus is required in order to call these powers into action. Morbid mental action might primarily depend upon a fault on the part of any one of these factors. He discussed the importance to be attached to inherent and acquired faults on the part of the cortical neurons, to the effects of sensory impulses, and to unsuitable nutritional conditions. The last might consist either in a deficiency of certain nutritive materials required by the nerve-cells or in the presence of chemical substances which were taken up by the cells and then disordered their metabolism. Any such substance was a toxin. He contended that by far the larger proportion of inherent predisposition to insanity was not based upon any condition that could rightly be called degenerative, but depended merely upon the presence of one extreme of those wide though limited differences that individuals exhibit in the reactive qualities of their nerve-cells to various forms of toxic action. He specially insisted upon the importance of the indirect action of toxins upon nerve-cells by causing disease of their nutrient vessels. The various toxic conditions which tended to affect

tract. He maintained that various forms of toxæmia of gastro-intestinal origin were the chief factors in the pathogenesis of a large array of acute and chronic diseases, including several forms of mental disease. These diseases comprised the various manifestations of arterio-sclerosis, a large proportion of cases of senile insanity, general paralysis, locomotor ataxy, chronic alcoholic insanity, dementia præcox, idiopathic epilepsy (as the determining cause of the fit), and most cases of acute and chronic mania and melancholia and of chronic Bright's disease. The large majority of cases of insanity were not primarily diseases of the brain at all, but were dependent upon the action of toxins derived from elsewhere, which affected the functional activity of the cortical neurons by disordering their metabolism and often permanently damaging and even destroying large numbers of them. He endorsed the opinion of Dr. Mercier that "insanity is a disease of the whole organism which can only be properly understood and properly dealt with when so regarded." Not until such views were generally recognised by alienists and gave direction to their investigations into the nature of insanity, would any important further advances be made towards those great preventive and therapeutic measures that were, beyond all questions, attainable in this department of practical medicine.

ANATOMY AND PHYSIOLOGY.

Wednesday, July 31st.

The Presidential Address.

Dr. A. Macalister, Professor of Anatomy in the University of Cambridge, opened the work of this section with some remarks on

The Anatomy Act and the Teaching of Anatomy.

He said: One of the consequences of the specialism characteristic of the modern development of the sciences ancillary to medicine is that many of the more interesting new advances in these branches of knowledge are not of much interest to the practitioner. This is particularly the case as regards anatomy. The growth of that science of late years has been greatest on its morphological side, and it must be confessed that as yet the practical applications of these modern extensions are not obvious on the surface. I do not say that they are quite devoid of practical interest, for it is our experience that the scientific curiosities of one period are the fundamental principles of the necessities of the next. Neither do I mean to say that practical anatomy has ceased to be the groundwork of the studies of the medical student. Present-day surgery, which boldly adventures into regions of the body whereinto our predecessors dared not enter, requires those who practise it to possess an intimate knowledge of parts of the body which a century ago were only regarded as of speculative importance. The knowledge of the minute details of the relational anatomy of the abdominal organs and of cranio-cerebral topography are necessary parts of the education of the modern surgeon, as is that of the complex system of nerve paths and neuron groups an essential element of the knowledge of a modern physician. The work of the dissecting-room and histological laboratory bulks as largely as ever in the curriculum of the twentieth century medical student, and as with the increased burdens which a wider range of education has made essential the medical student cannot spend quite as much time as heretofore in anatomical study it behoves us to see that these departments of our medical schools are as perfectly equipped as possible.

Now it happens, from the nature of the case, that the study of practical anatomy labours under difficulties which do not beset any of the other fundamental sciences. The professors in the other departments can in open market procure the materials for the supply of their laboratories in a way which the anatomist cannot. It is true he can buy bones, models, and casts, but they are only a very small part of his equipment; it is impossible to teach anatomy without an adequate supply of bodies for the dissecting-room, and every year the problem of that supply is becoming more acute. This growing difficulty depends on several conditions, some of which are inseparable from the material and intellectual progress of the age. Better wages and improved education have raised the worker in the community to a higher and more independent and satisfactory position. The proportion of those who are driven by stress of want into the State-provided asylums for the destitute is diminishing. Improved postal and telegraphic communication enables the relatives of any who, from their faults or misfortunes, have become submerged to receive notification of their whereabouts, and in the event of their death increasing facilities of transport enable them to claim the bodies far more easily than was the case half a century ago.

It is not, however, the lack of available material that is as yet the chief difficulty. We are a long way off the condition of social and ethical perfection in which there is no submerged fraction of the population, and while humanity continues as it is the poor we shall ever have with us, and among them there is little prospect of the disappearance of the class who by their own vices or follies have sundered themselves from their connexions and who find ultimate refuge in the State-aided asylums. Why, then, should there be the difficulty? How has it come to pass that with no great diminution of the number of unclaimed bodies many of the London medical schools were starved of their needful supply last year? How, also, does it happen that in the records of the advance of anatomical science this country is distinctly falling behind its continental neighbours? A foolish piece of insular prejudice has attached a sense of deprecation to the term "made in Germany"; but, as in other sciences, so in anatomy. It is to the article made in Germany we must go if we want to find the most trustworthy and accurate anatomical investigation and the results of the most patient work. It is to German laboratories our men must go if they wish to be trained for research and to find the facilities for original work. It is not that our students are inferior in ability or less zealous in the pursuit of knowledge, but it is largely a question of lack of material, as in our schools nearly all the available material is ear-marked for elementary teaching.

The reason why the condition of things is so different in Germany is this: that there the law of the land makes provision for anatomical teaching. The unclaimed bodies of those persons who die in any public institution are *ipso facto* sent off to the university of the district. A similar law exists in Russia, Austria, and France. In this country there is no provision whatever made by law for anatomy. It is left to the professor of anatomy to endeavour to obtain what material is wanted. In my recently published Memoir of Professor Macartney I have dealt at some length with the subject of anatomical legislation in Great Britain, so I need only indicate one or two of the points in the law which affect the teaching of this subject. There is one Act of Parliament, c. 75 of the 2 and 3 William IV. passed in 1832. This Anatomy Act is simply of a permissive nature, one which neither provides nor even suggests any method whereby bodies can be procured. It only permits any medical man being licensed by the Home Secretary to practise anatomy provided he practises it in a licensed place. It requires that the Home Office must be notified of the receipt of a body within 24 hours of its arrival, and that a medical certificate of the cause of death must be sent with the notification. It further requires that the body must be buried with whatever religious rites are usual in the particular denomination to which the deceased belonged, and in a public cemetery, and that the formal burial certificate must be lodged in the Home Office at or before a specified date. Under these conditions a medical man is not liable to prosecution for practical anatomy. Strangely enough, the Act provides no penalties for breaches of it, nor is there any machinery for prosecuting those who infringe it. The Act empowers the Home Secretary to appoint inspectors, but says nothing whatever as to their duties or authority; and, although they are supposed to be endowed with mysterious powers, it is not from the statute that they derive such, if they really possess them.

So far the legislation only restricts the practice of anatomy. Before the Act was passed there was nothing to prevent any man from dissecting a body anywhere, so long as the act was not capable of being construed into a scandal *contra bonos mores*. Its only positive provision is that it declares the right of anyone having legal custody of a body to hand it over to the licensed anatomist not sooner than 48 hours after death. It does not define what legal possession means, and, considering that it has been decided by more than one judicial authority that a corpse is not property and cannot be dealt with or bequeathed by deed or will, it is difficult to see how one can possess what is not property. The permission granted in the Act is no new thing; from the beginning of systematic medical training in England in the thirteenth century the right to dispose of a body by those in whose possession it was has been unquestioned. The Act therefore gives no power which did not exist before. The result of the Act simply is that the anatomist is made to share with the publican and the pawnbroker this distinction—that he cannot practise his craft except on licensed premises, he himself also being licensed. He is not in any way helped forward towards his supply. He is left to himself to seek out those that have cadavera in custody, and is not aided in his efforts to persuade them to hand them over to him. In practice it comes to this—that the anatomist seeks the Poor-law guardians and endeavours to obtain his supply from them. Now, Poor-law guardians are periodically elected. The constituency returning them is wide and the franchise qualification minimal. The office is much desired by a considerable section of the community and hence the elections are often contested. The Englishman is a sentimental person, and those seeking his vote can gain the interest of the elector in no more sure way than by working on his feelings and sympathies. Experience has shown that there are few ways in which an independent guardian can imperil his seat more certainly than by voting for the *sending of unclaimed bodies to the anatomy school* The anatomist in consequence looks forward with anxiety to each periodical election of guardians in any union in which he has succeeded in persuading the majority of the guardians to grant him a supply Indeed it seldom happens that a re election passes without some attempt being made in the interest of sentiment to stop the sending of subjects for dissection Professor Macalister concluded by detailing his personally unpleasant experiences in dealing with the guardians and expressing his belief that no measure of improvement may shortly be expected

TROPICAL DISEASES

WEDNESDAY, JULY 31ST

The Presidential Address

Major RONALD ROSS I M S (retired) Lecturer in Tropical Medicine University College Liverpool was unable to deliver his presidential address to the section in person being abroad. His address which was read for him was as follows —

I have great pleasure in being able to record for the last year a general and perhaps unparalleled advance in our knowledge regarding tropical diseases

Yellow fever —The discovery of at least one mode of infection in yellow fever—a discovery of the highest importance to mankind—emanates from America For some time past several of our American colleagues stimulated by recent observations in connexion with malaria have sought an experimental verification of the hypothesis of Finlay and others that yellow fever also is communicated by the bite of gnats Insects fed on patients were subsequently induced to bite healthy persons who volunteered for the experiment. The results were negative until the gnats were kept for an interval of 12 or more days between the two operations Success was now immediate Dr Reed Dr Carroll and Dr Agramonte record in their last report that out of seven non immune persons subjected by them to the bites of infected mosquitoes six yielded undeniably positive reactions At the same time seven non immunes whom they endeavoured to infect by means of the fomites of patients under peculiarly favourable circumstances remained in every case free from the disease The experiments were conducted under the most stringent scientific conditions Although the mosquito theory of yellow fever does not possess the parasitological basis of the mosquito theory of malaria yet the differential observations of Reed Carroll and Agramonte are of a nature to leave no doubt concerning the soundness of their conclusions Some of the tests have involved great heroism on the part of those who were subjected to them. Since the death of Dr Jesse W Lazear we have to deplore that of Dr Walter Myers, one of our most promising young pathologists, who lost his life from yellow fever when on a deputation from Liverpool to study that disease If the pathogenic organism of yellow fever, hitherto undiscovered prove to be a vegetable organism, the fact will suggest that transference by suctorial insects and arachnids with which we are already so familiar in the case of animal parasites may be no less common in the case of vegetable parasites *A priori* there is nothing improbable in the view that suctorial insects may become generally infected by blood containing schizomycetes which may next find their way by route of the insects' salivary glands or otherwise into a fresh host. There are certainly some epidemiological facts which suggest the possibility of infection by gnats in undulant fever and perhaps leprosy and by other vermin in relapsing fever typhus fever and perhaps several skin diseases

Ankylostoma duodenale —Another important advance is contained in the confirmation of Giles's life history of the ankylostoma duodenale by Annett—details of which will shortly be published These observations throw a vivid light on the route of infection adopted by these dangerous and widespread parasites

Undulant fever —Owing to observations made by Wright on the serum reaction in undulant (Malta) fever, this disease has been shown to exist in India Hong Kong the United States the West Indies and Brazil—a most important fact in connexion with the great subject of tropical fevers

Malaria —The recent advance in our knowledge of malaria has been well maintained by numerous observers The practical side of the mosquito theory, which at once became predominant after the determination of the life history of the parasites has been energetically treated by Koch and his assistants who have successfully dealt with malaria on a large scale by means of quinine Similar work has been performed with success in the United States and, according to reports in Italy In British possessions isolated efforts to deal with malaria according to the new principles have been made by Sir William McGregor and Strachan at Lagos, and by Thomson and Young at Hong Kong , but the country generally has not adopted an intelligent attitude in this connexion. On the other hand British workers have closely studied details of the malaria question in many parts of the world. I must refer especially to the good work done in Central and West Africa by the Malaria Commission of the Royal Society and to an admirable sanitary survey of Nigeria made by the Liverpool expedition during the last year Direct cultivations of the parasites have been reported by Daniels, Ziemann van der Scheer and van Berkelom and Woldert in various countries—all in anopheles, while Manson has completed an interesting crucial experiment for the popular demonstration of the theory by infecting healthy persons (T Manson and Warren) in London by mosquitoes brought from Italy, and by simultaneously preserving others (Sambon and Low) in health in the Campagna in a mosquito proof house Nuttall and Shipley Christophers and Dutton have closely examined the anatomy of gnats Nuttall Cobbett, and Strangeways Pigg have made interesting researches on anopheles in England in which by the way, cultivation experiments have hitherto failed Gosio Giles Reinhold Ruge Fearnside Neveu Lemaire and others have done useful work on the subject in many directions It remains however a matter for regret that stronger efforts have not been made to determine the reason why individual gnats of an amenable species so often resist infection Until this difficulty is cleared away negative experiments with culex cannot be entirely convincing

Since the last annual meeting of the Association the mosquito theory of malaria has received the highest scientific acceptance in the address of the then President of the Royal Society, Lord Lister

Filariasis —In regard to filariasis the discovery of Low and James has been confirmed and amplified by several observers Manson has suggested the possibility of reducing lymphatic varix by leading a lymphatic duct below the stricture into a neighbouring vein

Plague —The prompt suppression of plague in Glasgow has further demonstrated the value of energetic sanitary measures in this disease and the large demand for plague vaccine gives encouraging evidence in favour of Haffkine's prophylaxis

Beri beri —The close clinical similarity of beri beri and chronic arsenical poisoning seems to suggest that many cases attributed to the former disease may possibly be in reality due to arsenic

Work for the future —It seems to me that further researches are at the present moment most urgently required in connexion (1) with tropical fevers , (2) with the flora and fauna of the intestine in tropical bowel complaints , and (3) with the question whether European children in the tropics suffer as frequently from malaria as do the children of natives The practical necessity of taking measures against the uncontrolled propagation of gnats in tropical cities is one which in view of recent discoveries can no longer be set aside by sanitary authorities without dereliction of duty

The profession owes its sincere thanks to all those gentlemen who have done so much during the past year—often without remuneration and at considerable personal risk—for the cause of tropical medical science It also owes its thanks to those British merchants who have generously subscribed large sums of money for the prosecution of many of the researches to which I have referred.

NAVY, ARMY AND AMBULANCE

WEDNESDAY, JULY 31ST

The Presidential Address

Deputy Surgeon General W G Don delivered the following introductory remarks at the opening of the section.

Service Medical Problems

To facilitate procedure during the three days at our disposal we propose to discuss, first naval, secondly, military; and thirdly, civil matters, so far as can be arranged. On naval questions we are promised papers by naval medical officers on most important subjects—namely, the disposal of the wounded in naval actions, and the relative healthfulness of modern warships, to which attention has lately been called. I will not venture to anticipate what may be said on these matters further than to remark that while we probably have data sufficient for arriving at some definite conclusions as to the healthfulness of ironclads, our experience is as yet very limited regarding the disposal of the wounded in modern sea fights. The subject is complicated on account of the many different structural types of our warships, each requiring special contrivances of its own. I may be allowed to express much personal interest in such naval problems, because of lasting early experiences, for it was my fortune to learn something of the interior economy of our wooden walls of 50 years ago, having served for six months as a medical volunteer in H.M.S. *Duke of Wellington*, flagship of the Baltic Fleet of 1855, and taken part in the three days' bombardment at Sweaborg. Such a reminiscence brings the obvious reflection how marvellously and completely have naval life and warfare changed within my own limited recollection. With the military medical problems which may engage our attention I am, after 44 years' consecutive and continuous service in the army, naturally very fairly conversant. I confess that I regard these problems, after the experience of many mutations both in the home and Indian services, as still presenting grave difficulties, and even dangers, unless warily and judiciously handled. Major Dick, R.A.M.C., assistant professor of military surgery, Netley, was to have recounted some aspects of small-bore wounds as inflicted during the war which have come under his direct observation, but we regret his inability to do so. We already know sufficient of such wounds to warrant the anticipation that when the full surgery of the war is made known we shall have some startling revelations, especially in regard to penetration of viscera by small-bore bullets. I lately saw a wounded soldier on sick furlough who while lying down was hit by a Mauser bullet; the missile entered the right chest below the armpit and, passing in a slanting direction, emerged in the region of the left kidney. From its course and the resulting symptoms several of the important viscera could not have escaped penetration; yet months afterwards, when I saw him, the only inconvenience experienced was occasional spasm of the diaphragm on sudden exertion. When we meet with such cases and can recall the terrible visceral wounds inflicted by the expanding Minié bullet of 40 years ago, or even by the still more recent Snider or Martini, the pencil-like missiles of the latter-day magazine rifles seem comparatively almost harmless. Field transport for sick and wounded, on which Captain Ward, R.A.M.C., promises to give his recent war experiences, is a subject of great importance and some difficulty, for it is part of the bigger question of army field transport at large, which cannot, or ought not, to be fixed and fettered by inelastic rules, because it must vary widely according to three factors which may operate in any given campaign. These are: the physical nature of the country in which military operations are conducted; the length of the lines of communication; and the required mobility of the fighting force. It is an open question whether the medical service should not have complete autonomy in its field transport, of whatever kind; but I am not inclined to lay much stress on the point further than that it should be autonomous, subject alone to the express disposition of the general officer in command. For necessity—and specially military necessity—can have no law beyond or over-riding that of preservation of the fighting force; and, consequently, however autonomous in theory the medical or other branches of transport may be, there is always the risk, even the probability, that under the pressure of military exigency (as after Paardeberg), it may be appropriated for the supreme transport of food and ammunition. Intimately bound up with the kind and amount of field medical transport is the question of its use, under new conditions, in affording first aid to the wounded in an action. The enormous widening of the zone of fire from modern weapons makes all active duties connected with stretchers and ambulances increasingly difficult and dangerous. It is now next to impossible with any safety for bearers to keep in touch with an advancing fighting line, while the distances between the combatants may be so great as to render the distinguishing of red crosses and Geneva badges impossible; hence probably the complaints that the ambulances have been deliberately fired on. Not only does the range of fire exceed that of unaided vision, but the use of smokeless powder makes location of a firing line more a matter of the ear than the eye; there is plenty of noise but little to be seen. A wounded cavalry soldier told me he had been six times under fire, but never once saw a living fighting Boer while engaged. In means for affording civil first aid to sick and injured persons in our great urban centres we seem lamentably behind many continental and American cities. We all trust this reproach may before long be removed. It is a question whether motor might not be substituted for horse ambulances for all emergent purposes. Important questions connected with enteric fever will be brought to your notice.

THE ANNUAL MUSEUM.

The allotment of space this year for the annual exhibition of drugs, foods and food products, surgical appliances, and the like, was decidedly generous. Moreover, the Winter Garden itself, in which the exhibit was held, proved a source of attraction, and the lawns outside formed a pleasant retreat and promenade. It was evidently the intention of the organising authorities to make this section of the meeting more attractive and interesting than on previous occasions and in this intention they succeeded. To begin with, the members and friends were invited to an "At Home" and reception in the Winter Garden and grounds on the opening night of the meeting (Monday, July 29th). The spacious lawns were prettily illuminated with fairy lamps and light refreshments were provided under gaily decorated marquees. There was a very considerable response to the invitation and in this way practically the whole of the members and their friends were brought into acquaintance with the fact that an interesting exhibition could be witnessed and that as soon as the social aspect of the gathering had subsided the visitor could more seriously turn his attention to the interesting and attractive array of new medicinal preparations, new methods of administration, new clinical apparatus, new surgical appliances, and even newly designed broughams and motor-cars specially constructed for the use of the general practitioner. The exhibition was an undoubted advance on those of previous years, not excepting even that in London. Indeed, the number of exhibitors exceeded those of all previous occasions by at least 25 per cent. and the interest shown by the visitors was not less than before, while the attendance was proportionately satisfactory. All this was, of course, highly appreciated by the exhibitors themselves and the visitor's interest in the exhibition was maintained. The organising authorities may be heartily congratulated upon thus devoting more attention than usual to this important and interesting section of the annual meeting. The show in the Winter Garden called to mind an exhibition in the Crystal Palace, but of course on a somewhat smaller scale. In the centre of the "garden" was a fountain which proved an important adjunct in a space where many people were gathered together. There can be no doubt that a stream of water through the air freshens and cools it. At the rear of the Winter Garden was a large marquee in which were displayed models of broughams, motor-cars, motor-cycles, and ambulance wagons. For the convenience of visitors a lounge was provided and refreshments could also be obtained in another well-appointed section. The accommodation provided on the present occasion was much more adequate and much more comfortable than in past years. The exhibition is bound to be of a more or less trade description, but we still think that some acceptable relief might be brought into the exhibition by having here and there a few demonstrations of a really scientific kind. As in previous years, the only exhibit that could be claimed to be of this class was the x-ray apparatus. Last year, on the occasion of the exhibition at Ipswich, we pointed out that practically no steps were taken to keep out of the museum a merely curious public to whom in many cases samples of the latest remedy for headache, &c., were freely supplied. We suggested that this indiscriminate distribution of, perhaps, powerful drugs was undesirable, and apparently our suggestion has been acted upon as far as possible, for only those were admitted to the museum who could show cards or who could give evidence that they were in some way or other connected with the medical profession. Members of the medical profession only were allowed in the pathological museum adjoining.

In noticing the more important exhibits this year some classification is convenient and for this purpose we may adopt the following heads —I., Drugs, II, Foods and Food Prod [illegible] Disinfectants, &c ; IV, Sc [illegible] V, Mineral Waters, Be [illegible] VII, Miscellaneous

I —DRUGS

On the whole no striking departure in regard to drugs can be recorded of the exhibition this year There seemed to be a tendency to give more attention to the old style of preparations, and instead of drugs in the many portable forms being shown, extracts, essences, emulsions, tinctures, and elegant fluid preparations were rather the rule. Most of the stalls were arranged with considerable skill and certainly the *tout ensemble* would be much less attractive if drugs, liquid and solid, put up in all sorts and shapes of glass bottles, jars, and trays, coloured and uncoloured, were not exhibited The stall of Messrs Ferris and Co of Bristol was particularly well arranged and displayed evidences of decided energy and skill The various exhibits were most attractively grouped and besides drugs there were a number of "up to date" surgical and medical appliances on view Among the novelties we may mention the saxol petroleum emulsion, a combination of a highly refined petroleum with the hypophosphites; an antiseptic ether soap for cleansing the hands before and after operating and for preparing the skin of patients previously to operation, compound menthol and liquorice pellets, a small urine test case for the pocket, and many other preparations besides those described equally exemplifying pharmaceutical skill. Lastly, we should mention the excellent series of vaccination pads made by this firm, that known as No 20 having a plain absorbent centre with a self-adhesive margin There were many notable examples of modern pharmaceutical preparations on the well arranged stall of Messrs Wyleys, Limited, of Coventry Amongst these should be mentioned the syrup glycerophosphates, a clear and permanent solution of the various glycerophosphates and very palatable, "tropels," or compressed lozenges, made in accordance with B P requirements, ointments in flexible tubes, including [illegible] designed, anti- [illegible] ler, a special [illegible] ; non-alcoholic tinctures and standardised tinctures; and various improved compound preparations Equally effective was the display of Messrs C J Hewlett and Son of 35-42, Charlotte street, London, E C Amongst the new drugs shown here were the fluid extract and tincture of monsonia, which has been used with success in the treatment of dysentery and diarrhœa, isphagul, for the same disorders, and preparations of the cacodylates. The exhibit included some useful sets of clinical tests in urine analysis and a series of original pharmaceutical preparations well known in connexion with this firm. Amongst these were mist senecio co and mist. tussi rub conc, and a liquid ether soap Amongst the novelties on the stall of Messrs Oppenheimer, Son, and Co, Limited, of 179, Queen Victoria street, London, E C, were the suprarenal fluid extract, palatinoids of tinctures prepared from carefully standardised concentrated solutions, traumatol or cresylic acid, a bactericidal agent not less powerful than mercuric chloride, and many ingenious and effective vaporisers To these we should add a new hypodermic case not larger than a cigarette case containing a hypodermic syringe with regulating plunger, two steel needles, a bundle of wires, and 17 tubes of Messrs. Oppenheimer's soluble hypodermics Palatinoids also are now prepared containing the compound glycerophosphates The palatinoids serve to preserve the glycerophosphates from the influences of the atmosphere Messrs Parke, Davis, and Co of 111, Queen Victoria street, London, E C had a stall full of examples of modern pharmaceutical advance Amongst these should be mentioned adrenalin, the active principle of the suprarenal gland, a powerful astringent, hæmostatic, and cardiac and vaso-motor stimulant. The exhibit included nucleinic acid compounds of mercury, silver, iron, and copper, and chloretone, a now well-known local anæsthetic, hypnotic, and antiseptic A very interesting series of synthetics and other fine preparations was presented to view by the Bayer Company, of 20, Booth-street, Manchester Amongst these were aspirin, a substitute for the salicylates, epicarin, a powerful parasiticide, heroin, a morphia derivative which does not cause constipation, while it stimulates expectoration; protargol, the silver proteid preparation now of known value in gonorrhœa, and several somatose preparations The feature of the stall of Messrs Burgoyne, Burbidges and Co, 12 and 16, Coleman street, London, E.C, were some interesting new silver preparations Amongst these were collargolum, described as metallic silver in a new allotropic modification, quite soluble in water It is said to be non irritant and non poisonous, but an effective antiseptic. The citrate and lactate of silver may also be mentioned, the latter being supplied in powder form and in tablets Mr Frank A Rogers of 327, Oxford street, London, W; exhibited a very interesting set of approved forms of medical sprays and atomisers besides various pharmaceutical preparations Amongst the latter was a clear colourless oil, a specially refined petroleum product without taste and odourless, and known as "aquol" The same oil is modified by the addition of benzoin, both are used in a special spraying apparatus designed by Mr Rogers, which has the advantages of simplicity of design, of being easily cleaned, and of producing a uniform spray. Mr E Merck of Darmstadt (16 Jewry-street, London E C) showed a very great number of his well known fine pharmaceutical chemicals, including alkaloids, glucosides, organic and physiological preparations, reagents, and some beautifully pure specimens of modern drugs, chiefly synthetics Amongst the latter may be mentioned cacodylic acid and the cacodylates; bromipin, an organic bromide, iodipin an organic iodide, jequiritol, and many others The materia medica and pharmacology of all these are described in Merck's circular Local pharmacy was well represented in the exhibit of Messrs Thomas Brothers of Bath-road, Cheltenham They showed the interesting combinations of albumin with the halogens—namely, chloralbacid and iodalbacid. The exhibit included an assortment of photographic apparatus and clinical thermometers At the stall of Messrs Arthur and Co of 69, Berners-street, London, W, special emphasis was laid upon the value of bromaurum and hydraurum, the former being a double salt of gold and arsenic, for the treatment of neurasthenia, epilepsy, and rheumatism Some interesting synthetics were shown at the stand of Messrs. Zimmer and Co of Frankfort-on-Maine Amongst these were euquinine, described as a tasteless quinine and possessing the same anti-malarial properties but not causing "cinchonism" or gastric disturbance Again, eupyrine is described as far superior to phenacetin, producing no depression on account of the vanillin contained in its molecule Messrs Corbyn, Stacey, and Co, of 300, High Holborn, London, W C, had an excellent assortment of new pharmaceutical preparations, including the cacodylates, among them being a useful modification for tuberculous patients—namely, the cacodylate of guaiacol The exhibit included also aspirin and chloretone, the comparatively new anæsthetic prepared from chloroform, acetone, and potash These pharmacists have published some very useful notes on new drugs The Abbey Effervescent Salt Company, of 144, Queen Victoria street London, E.C, devoted the space allotted to them entirely to their special preparation, Abbey's effervescent salt We have quite recently dealt with this agreeable saline aperient in our analytical columns What are now well known as the Fairchild products were exhibited by Messrs Fairchild Brothers and Foster, Snow Hill-buildings, London, E C Amongst these products were diazyme, a clear essence containing animal diastase, the active digestive properties of which we have confirmed in our laboratory experiments; other digestive preparations and enzymol, a purified solution of the proteolytic enzyme Mr Peter Möller of 18, High Holborn, London, W C, exhibited a very interesting model of the apparatus in which hydroxyl free cod liver oil is produced As we have previously shown, the excellence of Möller's oil depends upon this particular method of preparation which prevents the formation of objectionable hydroxyls which endow cod liver oil with nauseating properties and a tendency to cause unpleasant eructation

(*To be continued*)

Medical News.

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN —At the annual general meeting of this society, held in London on July 26th Dr A E Sansom being in the chair, it was stated that during the past session the membership had increased from 102 to 237 A volume of reports will be issued shortly The following office bearers were elected at the meeting Mr Henry Armstrong (Wellington College), Dr Henry Ashby (Manchester), Dr Fletcher Beach,

Dr. James Carmichael (Edinburgh), Dr. Edmund Cautley, Dr. Wayland Chaffey (Brighton), Dr. Leonard Guthrie, Dr. Robert Hutchison, Dr. Charles Macalister (Liverpool), Dr. John McCaw (Belfast), Dr. Lewis Marshall (Nottingham), Dr. Ernest Sansom, Dr. George Shuttleworth, Dr. George Sutherland, Dr. Frederick Taylor, Dr. James Taylor, Dr. Charles Willey (Sheffield), and Dr. Dawson Williams. Mr. Watson Cheyne, Mr. Walter Edmunds, Mr. Francis Jaffrey, Mr. Robert Jones (Liverpool), Mr. Betham Robinson, and Mr. Alfred H. Tubby were appointed members of the council. Mr. R. Clement Lucas was appointed honorary treasurer and Mr. Sydney Stephenson, Dr. George Carpenter, and Dr. Theodore Fisher (Bristol) were elected honorary secretaries.

DEVON AND EXETER HOSPITAL.—At the quarterly meeting of the supporters of the Devon and Exeter Hospital, held on July 25th, it was reported that the unfavourable balance of £2535 had been reduced, mainly by a legacy, to £872

MEDICAL MAGISTRATE. — Mr. Thomas John Carson, L.F.P.S. and L.M. Glasg., has been placed on the Commission of the Peace for the Borough of Oldham.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Isolation Hospitals.

THE Bill to strengthen the powers of local authorities with regard to the construction and maintenance of isolation hospitals has now received the Royal assent and is therefore part of the law of the land.

Army Medical Service.

A debate on this subject was expected in Committee of Supply on Thursday, July 25th, but so much time was occupied with the discussion of the vote for the salary of the Secretary of State for War, that the Medical Vote had to be postponed.

Beer Bill.

The promoters of the Beer Bill, influenced by the prospect of difficulties in the Grand Committee and the pressure of Government business in the House of Commons, determined to abandon the Bill for the session, and on Friday, July 26th, the measure was formally withdrawn.

The Sale of Intoxicating Liquors to Children.

The Bill to prevent the sale of intoxicating liquors to children is now altered very much in form. The limit of age stands at 14 years instead of 16. Liquors sold or delivered in corked and sealed vessels in quantities not less than one reputed pint for consumption off the premises are excluded from the scope of the Bill altogether, and the sender of the child is made equally punishable with the licence-holder who sells or delivers the liquor to the child. The term "corked" is defined to mean closed with a plug or stopper, whether it is made of cork or wood or glass, or some other material, and "sealed" is defined as secured with any substance without the destruction of which the cork, plug, or stopper cannot be withdrawn.

HOUSE OF COMMONS.

THURSDAY, JULY 25TH.

Dr. Koch and Tuberculosis.

Mr. CAREW asked the President of the Local Government Board whether he was aware of the statement made at the British Congress on Tuberculosis by Professor Koch, and whether in consequence thereof he would cause the recommendation issued long since by the Local Government Board to the inspectors and medical officers of health to refrain from confiscating or destroying the bodies of animals alleged to be affected with localised tuberculosis to be carried out in future.—Mr. LONG replied: I am aware of the statement made by Professor Koch as to the non-identity of human and bovine tuberculosis, but I do not think that this view can at the present time be regarded as having received the general assent of scientific men. The matter is one which will require very careful consideration and I could not promise to take any action which is based on the view referred to.

Medical Provision for Sick and Wounded Officers.

General LAURIE asked the Secretary of State for War whether hospital accommodation was provided for sick and wounded officers returning to this country from the seat of war; if so, whether the accommodation provided had been found sufficient for all cases that required attention; and whether for such officers as were not accommodated in hospital professional attendance was furnished at the public expense, and a pecuniary allowance given to meet the cost of private hospital, provision of nurses, or other necessary outlay.—Mr. BRODRICK replied: At Netley 16 beds are available and 75 officers in all have been treated there. At Herbert Hospital two beds are available, but none have applied to be treated there. More officers might have availed themselves of the accommodation provided in these hospitals. As regards private accommodation it was provided in some cases free of expense owing to the generosity of private organisations. The question of providing for private medical attendance at the public expense is under consideration.

Lead Poisoning Cases.

Mr. COGHILL as[illegible] whether he was aware that, out of 64 cases of [illegible] during June, only eight cases were in the chin[illegible]; and could he state in what trades chiefly the remaining 56 cases occurred; and for what reason the Home Office issued new special rules for the china and earthenware industries rather than for the trades where there were a greater number of cases of lead poisoning.—Mr. RITCHIE replied: The figures quoted by the hon. Member are correct, but it might be added that the eight cases in the china and earthenware trades included two out of the total of four fatal cases for the month. The remaining 56 cases were spread in small numbers over several trades. There is only one trade, the manufacture of white lead, in which the number of cases is greater than in china and earthenware, and for that trade new rules have recently been made. The reasons for proposing the new rules for china and earthenware are fully given in published reports and in letters to the manufacturers

FRIDAY, JULY 26TH.

Typhoid Fever among the Troops.

Mr. BRODRICK, in reply to a question by Sir WALTER FOSTER, said that for the five weeks ended May 31st the admissions from typhoid fever among the troops in South Africa were 2300 and the deaths were 326.

MONDAY, JULY 29TH.

The Case of Dr. Scott Tebb.

Mr. CORRIE GRANT asked the President of the Local Government Board (1) whether he was aware that Dr. Scott Tebb was elected medical officer of health by the Urban District Council of Penge after open competition in response to public advertisement; (2) could he state why the Local Government Board refused to sanction the appointment; (3) whether he required a profession of belief in vaccination from all persons before sanctioning their appointment as medical officer of health; and (4) would he say what duties in securing vaccination were imposed on medical officers of health to urban district councils.—Mr. LONG replied: The case of Dr. Tebb was fully discussed a short time ago by the hon. Member and others on the vote for the Local Government Board, and, as t[illegible] sanction to his appointment was refused on account of [illegible] relation to vaccination. The answer tc[illegible] is in the negative. As regards the last [illegible] is much concerned with vaccination as being the most effectual means of preventing the spread of small-pox, and in the event of an outbreak of that disease in his district it would devolve upon him to do his utmost to promote vaccination and revaccination.

Case of Brass-poisoning.

Dr. FARQUHARSON asked the Home Secretary whether his attention had been called to an inquest recently held by the Birmingham city coroner on a young man named Martin Brannon, who died from pneumonia and tubercle, certified by Dr. Moir, medical officer to the Ladywood Dispensary, to be due t[illegible] whether, in view of the statement that a large [illegible] women, and girls employed in the 400 b[illegible] am were suffering, or had suffered, from the well-known symptoms of this disease, and that the coroner stated that this was a case for inquiry, he would cause inquiry to be made.—Mr. RITCHIE replied: My attention has been called to the case by the coroner. The question of the danger to health from dust in brass-polishing and in the polishing of other metals has for some time been engaging the attention of the factory staff and especially of the medical inspector of factories. I will make further inquiry into the matter and consider what steps ought to be taken.

Civil Surgeons with the Forces.

Mr. MACNEILL asked the Secretary of State for War whether the pay of civil surgeons who had served for three years with the Imperial forces would be rendered at the end of that period on a similar scale to the pay of members of the Royal Army Medical Corps.—Mr. BRODRICK replied that the matter was under consideration.

Research on the Subject of Cancer.

Mr. WEIR asked the First Lord of the Treasury whether he was aware that at a recent gathering of the foreign delegates to the Tuberculosis Congress reference was made to cancer as the one other disease which had up till now baffled the scientific and medical men of the world; and whether, in view of the increase of this disease, he would consider the advisability of the appointment of a commission or committee to inquire what steps could be taken for aiding research into the cause, cure, and prevention of this disease.—Mr. BALFOUR replied: I cannot believe that a commission would be the proper machinery for the carrying out of such a delicate and difficult matter of research as that referred to in the question of the hon. Member. The prevalence and the increase of this disease are occupying every medical mind over the whole of the civilised world and I do not think that the appointment of a commission would either aid or stimulate inquiry.—Mr. WEIR then asked the right hon. gentleman whether the Government would consider the advisability of appropriating a sum of money in aid of this research.—Mr. BALFOUR replied: It is necessary that some definite proposal should come to us indicating that the grant of public money might have satisfactory results before we could assent to any such course.

The Royal Commission on Arsenical Poisoning.

SIR CUTHBERT QUILTER asked the President of the Local Government Board, now that the Beer Bill had been withdrawn, what measures the Government proposed to adopt to prevent the introduction of deleterious or poisonous substances into beer, more particularly as the Royal Commissi[illegible] in their report just issued expre[illegible] f the Beer Mate[illegible] neither the Inlar[illegible] s appeared to possess powers or machinery adequate for the [illegible] otection of the public.—Sir MICHAEL HICKS BEACH replied to the question, saying: I cannot accept my hon. friend's premisses. The Beer Bill proposed no machinery for preventing the introduction of deleterious or poisonous substances into beer, and as the presence of arsenic in beer was not suggested as a subject particularly deserving the consideration of the Beer Materials Committee, the report of the Royal Commission which [illegible] adopt [illegible] that [illegible] will [illegible] require [illegible] public

The Government and Tuberculosis.

Mr. FIELD asked the President of the Local Government Board (1) whether he was aware of the [illegible] Tuberculosis Congress asking for [illegible] pointing such a commission and [illegible] with the meat and milk trades, [illegible] and scientists.—Mr. LONG said: The [illegible] the question is in the affirmative. As [illegible] already have the matter under my [illegible]

The Army Medical Service.

Captain NORTON asked the Secretary of State for War if he could [illegible] Army Medical Department on [illegible] June 1st last have not been [illegible] various measures for the re[illegible]nt are not yet completed.—[illegible] know is why the promotions of these officers have been delayed.—Mr. BRODRICK: The reorganisation might affect those promotions.

Plumbism in the Printing Trade.

Mr. TULLY asked the Home Secretary whether, seeing that the cases [illegible] last year were one in every 3000 [illegible] would take any steps to exempt [illegible]rades from the operations of the [illegible] Amending and Consolidating the [illegible]hat since this matter was under [illegible]n Trade he had come to the conclusion that some alteration of the clause in question was necessary, and he was now considering the precise words of the amendment he would propose.

Musselburgh Infectious Diseases Hospital.

The LORD ADVOCATE, in reply to a question on the above subject, [illegible] powers to insist on the erection of a proper hospital and when also sanitation was much less advanced than it now is as regards isolation of infectious dis[illegible] was probably the best that cou[illegible] erected for hospital purposes; it [illegible] all and indeed greatly superior [illegible]

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.*

ALLEN, WILLIAM T. D., M.B., B.Ch. R.U.I., has been appointed Medical Officer for the Fourth District of the Parish of Liverpool, vice S. Caldwell, M.R.C.S. Eng., resigned.

BELFRAGE, SYDNEY H., M.B., L.R.C.P. Lond., M.R.C.S. Eng., has been appointed Assistant Anæsthetist to the Dental Hospital of London.

BERRYMAN, EDMUND N., L.R.C.P. Lond., M.R.C.S. Eng., has been appointed District and Workhouse Medical Officer of the Llandovery Union.

BUCK, ARTHUR H., F.R.C.S. Edin., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Honorary Surgeon to the Brighton, Hove, and Sussex Throat and Ear Hospital.

BURGESS, ARTHUR H., F.R.C.S. Eng., M.B., Ch.B., M.Sc. Vict., has been [illegible] the Man[illegible] Certifying [illegible] Dundee, [illegible] District of Dundee.

HAWORTH, STEPHEN R., M.D., B.Ch., R.U.I., has been appointed District Surgeon of Boshof[illegible] Cape Colony.

HEWLETT, RICHARD TANNER, M.D., M.R.C.P. Lond., has been appointed Professor of General Pathology and Bacteriology in King's College, London.

HIGGENS, PYEFINCH, M.B., B.Ch. Oxon., M.R.C.P. Lond., has been [illegible] al Infirmary. [illegible] ted Medical Officer [illegible] (Devon) Board of Guardians.

HUTCHINSON, ARTHUR J., M.B., C.M. Glasg., has been appointed Honorary Assistant Surgeon to the Brighton, Hove, and Sussex Throat and Ear Hospital.

JACOBS, H. R., M.R.C.S. Eng., has been appointed District Medical Officer of the Brackley Union.

JOHNSON, ALICE N. VOWE, M.D. Brux., L.R.C.P., L.R.C.S. Edin., has been appointed Junior Assistant Medical Officer to the Carmarthen Asylum.

MAR[illegible]

PAR[illegible] Medical, [illegible] been ap[illegible] appointed Resident House Surgeon of the Carlisle Dispensary.

THOMSON, STCLAIR, M.D., M.R.C.P. Lond., F.R.C.S. Eng., has been elected Assistant Physician for Diseases of the Throat in King's College Hospital.

TREVES, EDWARD, M.R.C.S. Eng., L.R.C.P., has been appointed Honorary Consulting Surgeon to the Brighton, Hove, and Sussex Throat and Ear Hospital.

WATSON, JAMES, L.R.C.P., L.R.C.S. Edin., has been appointed District Medical Officer of the Alnwick Union.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BIRMINGHAM AND MIDLAND SKIN AND URINARY HOSPITAL, John Bright-street.—Surgical Assistant for six months, [illegible]

BIR[illegible]

BIR[illegible]

BRE[illegible]

BRI[illegible] with board and residence.

BRIGHTON, HOVE, AND SUSSEX THROAT AND EAR HOSPITAL, Church [illegible] House Surgeon.

[illegible] House Surgeon.

[illegible] CHEST, Victoria [illegible] Salary at rate [illegible]ng.

[illegible]NARY.—Junior [illegible]m, with board, [illegible]

[illegible] Resident Medical [illegible] board and apartments.

DENBIGHSHIRE INFIRMARY, Denbigh.—House Surgeon. Salary £100, with board, residence, and washing.

[illegible]nster.—Third Assistant Medical Officer [illegible] per annum, and increasing at the rate [illegible] with board, residence, &c.

[illegible]ton, Derbyshire.—Assistant House [illegible] annum, with furnished apartments, [illegible]

[illegible]wich.—Resident Junior House Surgeon. [illegible] with board, lodging, washing, and [illegible]

EAST SUFFOLK AND IPSWICH HOSPITAL.—Second House Surgeon, unmarried. Salary £80 per annum, with board, lodging, and washing.

ESS[illegible] House Surgeon

GUI[illegible] Surgeon for six months, [illegible] board, and washing.

HUL[illegible] Salary £60 per annum, with board and lodging.

KENT AND CANTERBURY HOSPITAL.—Assistant House Surgeon, unmarried. Salary £50 a year, with board and lodging.

LAWN HOSPITAL FOR INSANE, Lincoln.—Assistant Medical Officer. Salary £100.

LEWES DISPENSARY AND INFIRMARY AND VICTORIA HOSPITAL.—Resident Medical Officer. Salary £100 per annum, furnished apartments, board, coal, gas and attendance.

[illegible] six months, [illegible] period of six [illegible] £100 per [illegible] Surgeon, un[illegible] every year, [illegible] [illegible] Salary £80 per annum, with board, lodging, and washing.

ROYAL CORNWALL INFIRMARY.—House Surgeon, unmarried. Salary £100, increasing by £10 a year, with board (excluding stimulants) and apartments.

ROYAL INFIRMARY, Sheffield.—Senior Assistant House Surgeon. Salary £80 per annum, with board, lodging, and washing. Also Junior Assistant House Surgeon. Salary £70 per annum, with board, lodging, and washing.

ROYAL LANCASTER INFIRMARY.—Assistant House Surgeon, single. Salary £60 a year, with residence, board, attendance, and washing.

ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House Surgeon for six months. Salary at rate of £50 per annum, with rooms, board, and washing. Also Dispenser. Salary £60 per annum, with board, rooms, and washing.

RUBERY HILL ASYLUM, Barnt Green, Worcestershire.—Junior Assistant Medical Officer. Salary £130 per annum, with board, furnished apartments, &c.

SALOP INFIRMARY, Shrewsbury.—House Surgeon. Salary £100 per annum, with board, washing, and residence.

SOMERSET AND BATH LUNATIC ASYLUM, Wells, Somerset.—Medical Superintendent. Salary £600 per annum, with furnished house and allowances.

TAUNTON AND SOMERSET HOSPITAL, Taunton.—Assistant House Surgeon. Salary at the rate of £60 per annum, with board, lodging, and laundry.

TOTTENHAM HOSPITAL.—Senior Resident Medical Officer. Salary £90 per annum, with board, residence, and laundry.

VICTORIA HOSPITAL, Folkestone.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.

WANDSWORTH AND CLAPHAM UNION INFIRMARY, St. John's-hill, S.W.—Junior Assistant Medical Officer. Board, lodging, and washing provided. Salary £70 per annum, payable quarterly.

WEST AFRICA.—Three Medical Officers. Salaries offered £40 per month, plus subsistence allowance, first class passages, and outfit allowance.

WEST HERTS INFIRMARY, Hemel Hampstead.—House Surgeon, single. Salary £100 per annum, with furnished rooms, board, fire, lights, washing, and attendance.

WHITEHAVEN AND WEST CUMBERLAND INFIRMARY.—House Surgeon. Salary £120 per year, and £30 per year for Dispensing, with furnished apartments and attendance.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—Assistant House Surgeon. Honorarium at the rate of £75 per annum will be given. Board, lodging, and washing provided. Also Assistant House Physician. Honorarium at the rate of £75 per annum will be given. Board, lodging, and washing provided.

WOLVERHAMPTON EYE INFIRMARY.—House Surgeon. Terms, £70 per annum, rooms, board, and washing.

Births, Marriages, and Deaths.

BIRTHS.

BEATTY.—On July 29th, at Melrose, Clacton-on-Sea, the wife of T. Carlyle Beatty, M.D., of a daughter.

CALEY.—On July 29th, at Colville House, Ealing, the wife of Guthrie Neville Caley, M.D., of a son.

EDWARDS.—On July 29th, at Peckham-road, the wife of Francis H. Edwards, M.D., M.R.C.P., of a son.

GILBERTSON.—On July 28th, at Hitchin, the wife of James Henry Gilbertson, M.R.C.S., L.R.C.P. Lond., of a son.

LANGFORD.—On July 25th, at Weston-park, Crouch-end, N., the wife of C. Harris Langford, M.B. Lond., of a daughter.

MANSELL-WOODHOUSE.—On July 21st, at Beaumont-street, W., the wife of Walter Mansell-Woodhouse, M.R.C.S. Eng., L.R.C.P. Lond., Wantage, Berks, of a son.

WILLIAMS-FREEMAN.—On July 23rd, at Weyhill, Andover, the wife of John P. Williams-Freeman, M.D., of a daughter.

MARRIAGES.

EVANS—BEENHAM.—On July 23rd, at St. John the Divine's, Richmond, by the Rev. A. W. Goodwin, David Robert Powell Evans, L.R.C.P. Lond., M.R.C.S. Eng., L.S.A., to Jessie, daughter of Charles Beenham.

HILL—FREND.—On July 24th, at St. Pancras Church, by the Rev. R. J. Golding-Bird, D.D., Joseph Shuter Hill, L.R.C.P., M.R.C.S., to Rebecca Billingsley, widow of A. B. Frend and only child of the late John Indermaur.

HORSFALL—CAMPBELL.—On July 24th, at Holy Trinity, Melrose, by the Rev. W. Horsfall, Charles Edward Horsfall, M.B., Bedale, Yorkshire, to Lilias Marianne, daughter of Robert Hume Campbell, of Glendaruel, Argyllshire.

LAWTON—GILMOUR.—On July 25th, at St. Michael's Church, Birkenhead, by the Rev. A. Hamilton King, William Lawton, M.B., to Florence Purdon, only child of the late James Gilmour, F.C.S.

STABB—FROUDE.—On the 30th July, at Marylebone parish church, by the Rev. Cecil Wood, Ewen Carthew Stabb, F.R.C.S., of 57, Queen Anne-street, W., eldest son of William Henry Stabb, of Ilfracombe, to Emma Langworthy, daughter of the late James Henry Froude, of Newent, Glos.

DEATHS.

BLACK.—On July 23rd, at Tête du Lion, Valtournanche, Italy (the result of an accident), Robert Black, M.D., of Pavilion-parade, Brighton.

HORSFALL.—On July 23rd, at Newland House, Leamington, Francis Horsfall, M.R.C.S. Eng., L.R.C.P. Edin., aged 80 years.

SCOWCROFT.—On July 10th, 1901, John Edwin Scowcroft, M.D., Mayor of Bolton, Surgeon-Captain 2nd V.B. L.N.L. Regiment, at his residence, Oakleigh, Great Lever, Bolton, aged 56 years.

WILLIAMS.—On July 26th, at Ramsgate, John Worthy Williams L.R.C.P. Lond., aged 44 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE UNQUALIFIED PRACTITIONER AGAIN.

MR. P. P. MAITLAND, the coroner for the West Riding District of Yorkshire, held an inquest at the Clothiers' Arms Hotel, Batley Carr, recently, on the body of the infant son of Theophilus Whitehead, miner, of Common Side, Hanging Heaton, Batley. Evidence was given by several witnesses.—Coroner (to the father): Was it your idea that Howarth should attend?—Well, we went for the nearest.—Did you know that he was not a properly qualified man? —No, he said that if the child died he could give a certificate.—Why did you ask him if he could give a certificate?—Because he had had some bother before about giving one.—As there had been a difficulty before why did you go to him?—Well, he said he had got over it and could give a certificate now. He said he had also some letters from the Registrar-General on the subject.—The coroner pointed out to witness that the certificate given by Howarth in one place said death was due to asphyxia and in another to premature birth.—Witness: Well, they told me he was a qualified man.—Coroner: I only wish to point out again that asphyxia means death from suffocation and that is totally wrong. It is a pity that he is employed by unintelligent people. Such men as Howarth who are unqualified and uneducated should not, in his (the coroner's) idea, be allowed to practise. He had had a similar trouble with the same man before.—Mr. Charles D. Garrett of West Town, Dewsbury, had made a post-mortem examination of the body and from that said he found that the cause of death was heart failure due to premature birth and that the certificate given by Howarth was totally wrong.—Mrs. Burnley, a neighbour, said that she took the certificate to the registrar (Mr. S. Harrison), but he declined to accept it on the grounds that Howarth was not a qualified practitioner, and he therefore reported the matter to Mr. Maitland. It also appeared from the evidence that a few weeks before the deceased's mother fell upon her face and chest. In the end the jury agreed to a verdict of "Heart failure due to premature birth, probably caused by a fall." Mr. Maitland informed the jury that he would again report the matter to the Registrar-General in London, and he also thought that something ought to be done by the "Medical Association."

"A SAFETY WINDOW-CLEANING APPARATUS."

To the Editors of THE LANCET.

SIRS,—In reference to the article on this subject which appeared in THE LANCET of July 27th, p. 214, I think it cannot be generally known that a reversible window sash has been in the market some little time. It is made by Mr. Linskill, builder, Harrogate. I had one introduced into my house last year and it is perfectly satisfactory. The glass can be cleaned thoroughly from the inside and quite easily. I have asked Mr. Linskill to forward you the descriptive papers on the subject.

I am, Sirs yours faithfully,
Kidderminster, July 29th, 1901. S. STRETTON, M.R.C S Eng

SEA AIR AND ECZEMA.

To the Editors of THE LANCET.

SIRS,—I should be much obliged if some of your correspondents would give me their opinion as to whether sea air is really so hurtful to eczema and some skin affections as most authorities imagine. I have a patient who is about to retire from business and thinks of taking up his residence at Bournemouth; he suffers slightly from eczema.

I am, Sirs, yours faithfully,
P. P.
July 29th, 1901.

LOCUM-TENENTS.

To the Editors of THE LANCET.

SIRS,—Referring to the letter by "M.D. Brux." in THE LANCET of July 27th, p. 258, in which he gives an undoubtedly useful hint to medical men, may I be allowed to do the same by giving several? I would, as a principal and locum-tenent myself, urge on practitioners that it is impossible to obtain good men at low fees. A locum-tenent should be treated as such, not as a temporary assistant. Consequently, principals should see that their agents procure for them only men of some years' experience, for I maintain that a newly qualified man is in no way fitted to act as a "locum-tenent" or one "holding place." A locum-tenent should not only have self-confidence, but should be a man of experience in general practice, and such a man is not willing, nor is it fair to expect it, to take charge of a practice at an assistant's wage. I would say to principals, Do not boast of the good qualities of former locum-tenents and do not talk of the failures of the rest. Do not expect a practice to increase whilst under a locum-tenent's charge and unless negligence can be proved do not blame him. Pay a fair price for a good article and see that it is supplied. As for a locum-tenent, under present conditions, not attending to agents' wires, what about the principal who is taken suddenly ill? Has he to wait to advertise or answer advertisements? In the same issue of THE LANCET (p. 229) is a good letter by "G. P." (headed "The Times are Troublous"), in which he says he believes that although locum-tenents and assistants are scarce the profession was never more overcrowded. My experience of 17 years confirms his statement. But there is a remedy, partial, it is true, but still a help. Never was the locum-tenent more of a necessary and less of a luxury. Why, then, should not men of, say three years' experience and upwards, form a coöperative Locum-Tenents and Assistancy Association? We should then get good, experienced men and the locum-tenent would feel that he was a recognised member, not a parasite, of the profession. A house could be hired in London, so that in the intervals between engagements locum-tenents could be lodged, &c., at a fair price and always ready to go anywhere. In fact, the nursing homes could be taken as a model. Further, I will say that if this were done there are many able men who would rather live as I suggest than starve in their so-called practices, and who have started their so-called practices rather than put up with the petty tyrannies of some—and I am glad to be able to say it, a few—principals. I trust this letter may bear the fruit I desire for it, and I also trust that principals as well as locum-tenents will support the idea.

I am, Sirs, yours faithfully,

July 27th, 1901. L. T.

THE LATE MR. R. B. ANDERSON, F.R.C.S.ENG.

THE committee formed to appeal for aid on behalf of the widow and two sons of Mr. Anderson (see THE LANCET of July 13th, p. 103) beg gratefully to announce the following list of subscriptions to July 28th, amounting in all to £52 10s.

	£	s.	d.
The Earl of Stamford (chairman)	10	0	0
Mr. Timothy Holmes (honorary treasurer)	5	0	0
Mr. H. E. Juler	2	2	0
Dr. Higham Hill	1	1	0
Dr. Lorimer Hart ...	1	1	0
Dr. Alfred Cox	1	1	0
Dr. Wheeler O'Bryen ...	0	10	6
Dr. Milner Browne ...	0	10	6
Mr. Walter Monnington (honorary secretary)...	1	1	0
Lord Lister	10	0	0
Dr. Herbert Owen ...	1	1	0
Dr Duka	1	1	0
Dr. W. Domett Stone ...	1	1	0
Dr. John Brown	0	10	0
A Friend	1	0	0
Sir Thomas Smith	5	0	0
Sir R. M. Craven	1	1	0
Mr. D. E. Llewellyn ...	1	1	0
Dr. T. Granville Hockridge	1	1	0
Dr. C. Crawford...	1	1	0
Mr. J. H. Waddington ...	0	10	6
Mr. W. Smith	0	10	6
Mr. C. Coates	2	2	0
Dr. G. F. Blandford... ...	3	3	0

Mr. Walter Monnington, 7, Fig Tree-court, Temple, E.C., is honorary secretary. Donations for "The late R. B. Anderson Fund" should be sent and made payable to the Manager, Union Bank of London, Chancery-lane, London.

◆

J. P. S.—We do not know the man, but the style of the letter would seem to show that he is one of the touting money-lenders against whom recent legislation was directed. The annoyance to which our correspondent is being subjected is due to his name having got upon the list of one of these persons. They act in combination and exchange lists.

P. V. T. (Longton) is thanked for his letter. There is much to be said for his argument, but the way in which he discusses the matter will not tend to bring about the reform he desires.

Colne.—We cannot answer definitely as sufficient information is not before us. Will our correspondent send us full details of the office which he has filled.

J. C.—There is, we regret to say, no institution of the kind.

Medical Diary for the ensuing Week.

OPERATIONS.

[illegible] ITALS.

MONDAY [illegible] tholomew's (1.30 P.M.), St. Thomas [illegible] M.), St. Mary's (2.30 P.M.), Middles[illegible] P.M.), Chelsea (2 P.M.), Samarit[illegible] ans, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M.).

TUESDAY (6th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden square (9.30 A.M.).

WEDNESDAY (7th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. [illegible] National Or[illegible] (9.30 A.M. an[illegible] Central (2.30 [illegible] London Thro[illegible] (9.30 A.M.).

THURSDAY (8th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.).

FRIDAY (9th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. [illegible] Throat, Golden-square (9.30 A.M.).

SATURD[illegible] St. T[illegible] Charl[illegible] Lond[illegible]

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE *Index to Vol. I. of* 1901, which was completed with the issue of June 29th, and the Title-page to the Volume, were given in THE LANCET of July 6th.

VOLUMES AND CASES

VOLUMES for the first half of the year 1901 are now ready. Bound in cloth, gilt lettered, price 18s., carriage extra.

Cases for binding the half-year's numbers are now ready. Cloth, gilt lettered, price 2s., by post 2s. 3d.

To be obtained on application to the Manager, accompanied by remittance.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, August 1st, 1901.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain-fall.	Solar Radia in Vacuo	Maximum Temp. Shade.	Min Temp	Wet Bulb	Dry Bulb	Remarks at 8.30 a.m.
July 26	29·60	N.	1·60	74	63	57	59	62	Overcast
" 27	29·69	SSW	1·20	94	64	57	58	59	Raining
" 28	29·79	S	0·40	114	73	56	50	56	Cloudy
" 29	29·99	E.	0·20	118	60	56	61	66	Hazy
" 30	30·19	S.W		109	81	61	66	70	Fine
" 31	30·22	N		119	81	63	64	70	Hazy
Aug 1	30·03	N		116	73	61	62	65	Cloudy

During the week marked copies of the following newspapers have been received:—*Leeds Mercury, South Wales Daily Telegraph, Hertfordshire Mercury, Liverpool Daily Post, Norfolk Chronicle and Norwich Gazette, Yorkshire Post, Norfolk News, Reading Mercury, Weekly Free Press (Aberdeen), Exeter, Bristol Mercury, La Domenica del Corriere, Halifax Guardian, Aldershot News, &c., &c.*

Communications, Letters, &c., have been received from—

A.—Dr. J. M. Atkinson, Pudding- [illegible] Lond.

B.—Miss E. *Breeze, Tangier*; Messrs. J. Beal and Son, Brighton; Mr. C. Birchall, Liver- [illegible] Benger and Co., Manchester; Sir J. Crichton Browne, Lond.; Mr. W. H. Best, St. Ives; Mr. W. Buck, Horshaw.

C.—Mr. H. E. P. Croft, Lond.; Messrs. J. and A. Churchill, Lond.; Mr. W. R. Culling, Lond.; Mrs. Champ, Bishop's Stortford.

D.—Dr. Clement Dukes, Rugby; Devon County Asylum, Exminster, Medical Superintendent of; Messrs. J. Defries and Sons, Lond.

E.—Essex and Colchester Hospital, Colchester, Secretary of; E. B.

F.—Mr. E. Fryer, Cradley Heath; F. P.; Mr. H. Frowde, Lond.; Messrs. S. Fisher and Sons, Lond.; Mr. R. J. Farman, Lond.; Dr. E. M. Fuller, Bath, U.S.A.

G.—Dr. E. Gwynn, Lond.; Messrs. Giles, Schacht, and Co., Clifton; Great Eastern Railway Co., Continental Traffic Manager of; [illegible] Lond.; [illegible] Mr. [illegible]

H.—Mr. H. A. Hall, Mayfield; Mr. O. L. Holst, Eastbourne; *Mr. A. E. Holden, Lond.; Hos*pital for Sick Children, Newcastle-on-Tyne, Secretary of; Mr. Reginald Harrison, Cheltenham; Mr. W. Hargreaves, Colne; Miss M. Heathcote, Lond.; Mr. W. A. Hatton, Atherstone; Messrs. Hearn and Hearn, Buckingham; H. R. J.

I.—Messrs. Ingram and Royle, Lond.; Dr. Ishigami, Osaka.

J.—Mr. A. E. Jarrold, Lond.; Mr. Jacques, Sutton; J. M. L.; Dr. E. Jepson, Durham; Dr. W. O. Jennings, Paris; *Journal of Tropical Medicine*, Lond.

K.—Mr. Kelynack, Manchester; Kent and Canterbury Hospital, Secretary of; Kannenbeer Supply, Lond., Manager of; Dr. A. Kinsey-Morgan, Bournemouth; Messrs. R. A. Knight and Co., Lond.

L.—Dr. S. H. Long, Norwich; L. T.; Messrs. W. Le Lacheur and Son, Lond.; Mr. H. K. Lewis, Lond.; Dr. D. Lawson, Banchory; Messrs. Lee and Nightingale, Liverpool; 650, Leeds.; Mr. H. Lund, Manchester.

M.—Mr. A. D. Macleod, Khagole; Medical Graduates' College, Lond., Secretary of; Mr. H. Morris, Lond.; Dr. H. Macnaughton-Jones, Lond.; *Midland Counties Herald* Office, Birming- [illegible] Lond.; Mr. J. M. [illegible] Dr. E. [illegible] M.R.C.S., M.P.S.

N.—*Mr. G. T. W. Newsholme*, Sheffield; Messrs. Nicolay and Co., Lond.; Mr. J. C. Needes, Lond.; Mr. H. Needes, Lond.

O.—Dr. J. R. O'Brien, Lowestoft; Dr. W. O'Neill, Lincoln; Messrs. Oliver and Boyd, Edinburgh; *Observer* Office, Lancaster.

P.— [illegible] Mr. Pfleiderer, Wellington.

R.—Mr. E. J. Reid, Lond.; R. B. W.; Royal South Hants Hospital, Southampton, Secretary of; Messrs. *Roger and Chernoviz*, Paris; Royal Albert Hospital, Devonport, Secretary of; Royal College of Surgeons in Ireland, Dublin, Registrar of; Messrs. Reynolds and Branson, Leeds; Messrs. Reynell and Son, Lond.; Dr. L. D. Rockwell, Union City, U.S.A.

S.—Dr. L. E. Shaw, Lond.; Society for the Study of Disease in Children, Lond., Secretary of; Dr. H. A. Schölberg, Lond.; Dr. J. B. Shine, Barnsley; Messrs. Smith, Elder, and Co., Lond.; Messrs. Street and Co., Lond.; Messrs. Schluter and Co., Lond.; Messrs. G. Street and Co., Lond.; St. Mungo's College, Glasgow, Dean of; Science Press, New York; Scholastic, Clerical, &c., Association, Lond.; Dr. Sisley, Lond.; Mr. C. J. Seligmann, Lond.

T.—Mr. P. V. Timothy, Longton; Taunton and Somerset Hospital, Hon. Secretary of; Mr. J. Thin, Edinburgh.

U.—University of South Wales, Cardiff.

W.—Dr. B. T. Whitmore, New York; Wadsley Asylum, Sheffield, Clerk of; Mr. S. Wand, Leicester; Wolverhampton General Hospital, Secretary of; Wolverhampton Eye Hospital, Secretary of; Mr. F. De Vere Wheeler, Eastbourne; West Bromwich District Hospital, Secretary of; Messrs. Watkins and Osmond, Lond.; Westbrooke House, Alton, Secretary of; Messrs. Willing, Lond.; Mr. V. Wood, Lond.; Mr. J. Williamson, Lincoln; Dr. Essex Wynter, Cheltenham; Messrs. Wallach Bros., Lond.; Messrs. Willis and Co., Lond.; Messrs. W. Wood and Co., New York.

Letters, each with enclosure, are also acknowledged from—

A.—Anderson's College Medical School, Glasgow, Treasurer of; Dr. J. F. Armstrong, South Shields; A. C. D.; A. W. M. M.; A. W. H.; A. E. L.; A. W.

B.—Mr. B. Brown, Huddersfield; *Birmingham Daily Post*; Mr. T. H. Brocklehurst, Stourbridge; Brodie, Heywood; Rev. H. J. Bodington, Upper Grey; Mr. J. H. Breach, Yattendon; Birmingham Provident Dispensary, Secretary of; B. P.; Bootle Borough Hospital, Clerk of; Dr. S. C. Bose, Bournemouth; Barnwood House Hospital, Barnwood, Medical Superintendent of; Miss E. Blackmore, Lond.; Messrs. Baiss Bros. and Stevenson, Lond.; Dr. M. Bryson, Thornhill.

C.—Mr. A. K. A. Cæsar, Lond.; Messrs. Carnrick and Co., Lond.; Mr. D. Crombleholme, Stanmore; Dr. C. H. Cattle, Nottingham; Cheltenham General Hospital, Secretary of; C. F. G.; Messrs. Cuff Bros., Dover; C. M. K.; County Asylum, Whittingham.

D.—Dr. T. Downard, Ballinasloe; Messrs. H. Dawson and Co., Lond.; D. F.; Dr. D.; Mr. C. A. Dow, Glasgow; Dumfries and Galloway Royal Infirmary, Dumfries, Treasurer of; Dorchester Asylum, Medical Superintendent of.

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A Clinical Lecture
ON
MITRAL DISEASE.

Delivered in the Glasgow Royal Infirmary,

By JOHN LINDSAY STEVEN, M.D. Glasg.,
PHYSICIAN TO THE GLASGOW ROYAL INFIRMARY; LECTURER AND EXAMINER IN THE PRACTICE OF MEDICINE, QUEEN MARGARET COLLEGE, UNIVERSITY OF GLASGOW.

Gentlemen,—In the wards at present there are under treatment no less than 10 cases of disease of the mitral valve, and I propose this morning to make them the subject of a clinical lecture upon this affection. Of the 10 cases, nine are in the female ward; and six of them are very definitely associated with acute rheumatism as a causal factor. In the first place I shall read to you short summaries of the clinical histories, and in the second I shall direct your attention to the signs and symptoms of mitral disease which are illustrated by them.[1]

Case 1.—A married woman, aged 24 years, was admitted on Oct. 13th, 1899, suffering from acute rheumatism of three weeks' duration, the present being the second attack. The first attack occurred three and a half years previously and lasted with remissions for several months. There is in this case a very decided family tendency to rheumatic fever. The father and a brother of the patient have had acute rheumatism, and another brother died from chorea and mitral endocarditis in Ward 12 of this infirmary. On admission the patient had moderate pyrexia and the left knee, the right shoulder, and the left breast were the seat of pain and swelling. The pulse has ranged between 80 and 90 per minute and has been regular in force and rhythm and of good tension. There is a soft V.S. murmur at the apex without evidence of cardiac enlargement.

Case 2.—The patient, aged 37 years, married, was admitted on Oct. 23rd, 1899, suffering from mitral regurgitation, accompanied by dull præcordial pain, palpitation, and occasional faintness of nine weeks' duration. The present illness originated after her last confinement, nine weeks ago, when she began to suffer from shortness of breath, cough, and expectoration of pus and blood. She has not been much out of bed since the confinement, which was very laborious. She has been married for five years and has had three children. She suffered from rheumatic fever 15 years ago and was ill for three months. The apex beat is diffused and is situated in the fifth interspace, four and a half inches to the left of the middle line. There is a loud V.S murmur at the apex and the second sound is reduplicated at the base. In the third left interspace and in the tricuspid area a V.D. murmur is heard as well as the V.S. With the exception of slight bronchial catarrh the lungs are normal. The pulse is small, easily compressed, and averages from 65 to 70 per minute.

Case 3.—The patient, a married woman, aged 27 years, was admitted on Sept. 19th, 1899, suffering from mitral regurgitation of rheumatic origin. The illness is of five months' duration and has been characterised chiefly by increasing dyspnœa and œdema of the lower limbs. Her first confinement took place about one month after the onset of the illness, and although the labour was easy it gave no relief to the shortness of breath and the cough from which she also suffers. She had an attack of acute rheumatism 15 years ago and was six weeks ill. The family history is negative. The pulse averages between 85 and 90, but was much more rapid at the time of admission. It is somewhat irregular in force and rhythm. The apex beat is situated in the fifth interspace, about five inches to the left of the middle line, and the cardiac area is enlarged both to the right and the left. A musical V.S murmur is heard over the apex beat and in the fourth left interspace V.S. and V.D. murmurs are audible These murmurs are not heard in the aortic area and very faintly in the tricuspid area. The second sound is accentuated in the pulmonic area.

Case 4.—A girl, aged 12 years, was admitted on Oct. 19th, 1899, suffering from mitral regurgitation and obstruction of at least 13 or 14 months' duration. She suffered from chorea between the ages of five and seven years. She was admitted to the infirmary on Oct. 14th, 1898, suffering from great breathlessness of two or three weeks' duration and with signs of well-marked mitral regurgitation. She was dismissed after six weeks somewhat improved. She had never had acute rheumatism until the present illness and she was admitted in the course of a characteristic attack of rheumatic fever, which, however, subsided soon after admission and since Oct. 23rd there has been no pain in the joints. A sister died from chorea at the age of 14 years. The pulse at first was very rapid, numbering 120 per minute, but was regular in force and rhythm, and now it varies between 90 and 95. The apex beat is situated in the sixth interspace four inches to the left of the middle line. There were loud V.S. and V.D. murmurs at the apex. The V.D. murmur is strictly confined to the apex region. The second pulmonic sound is markedly accentuated. In the aortic area there is great muffling of the cardiac sounds and the V.S murmur is practically inaudible. Since the subsidence of the rheumatism there has been no urgent cardiac symptom. It is worthy of note that on Oct. 14th, 1899, it was observed that a short A.S. murmur preceded the apex systolic murmur.

Case 5.—The patient, a girl, aged 11 years, was re-admitted on Oct. 16th, 1899, suffering from a second attack of chorea, having been dismissed, after recovery from her first attack, on July 28th, 1899. Her pulse numbers 80 per minute and is small, irregular, and easily compressible. During her first residence the heart was normal, but now there is a soft systolic murmur to be heard at the apex. There is no other sign of cardiac involvement.

Case 6.—A female child, aged nine years, was admitted on Oct. 18th, 1899, suffering from shortness of breath and general weakness of about a month's duration. She also suffered from slight pains in the joints. Her pulse is small and easily compressed. At first it varied between 90 and 100, now it ranges between 70 and 80 A very pronounced V.S. murmur is audible over the apex beat, with a suggestion of an A.S. element. There is great accentuation of the second sound both at the apex and the base.

Case 7.—The patient, a man, aged 30 years, was admitted on Oct. 24th, 1899, suffering from mitral regurgitation with well-marked hypertrophy and dilatation of the left ventricle. He was also the subject of well-marked paresis affecting the whole right side and of distinct motor aphasia of an exceedingly pure and uncomplicated kind. No sensory aphasia could be made out.
developed suddenly while he
Before this date he had alw.
in very good health. No history of rheumatic fever could be obtained, though he admitted that he suffered occasionally from rheumatic pains. There is nothing in the history to indicate the duration of the cardiac lesion. The apex beat is situated in the fifth intercostal space four and a half inches to the left of the middle line. On placing the hand over the apex beat a slight diastolic thrill can occasionally be felt, and on auscultation a loud systolic murmur is heard, well conducted into the axilla.

Case 8.—The patient, a married woman, aged 53 years, was admitted on Oct.
dilatation, with a soft,
The symptoms were of
and consisted of pain in the præcordium, palpitation, orthopnea, and œdema of the lower limbs. No rheumatic history of any kind could be obtained. The temperature is normal, the face is livid, and the capillaries of the cheeks are injected. The pulse is exceedingly irregular both in force and in rhythm and numbers 110 The apex beat is situated in the fifth interspace, four inches to the left of the middle line, and over it a soft V.S. murmur is heard Comparative dulness is made out at the right base behind, where also numerous fine moist râles are heard.

Case 9.—An unmarried woman, aged 21 years, was admitted on Oct. 27th, 1899, suffering from mitral regurgitation with considerable dilatation of the left ventricle The symptoms were of two years' duration and consisted mainly of cough, shortness of breath, palpitation, and occasional hoarseness This is the fourth illness characterised by similar symptoms since October, 1893 She has suffered from scarlet fever and measles in childhood. She never had rheumatic fever, but she has frequently had severe growing pains. The mitral physiognomy is well marked and there is great œdema of the lower limbs. The pulse, numbering about 80, is very irregular in force and in rhythm. The apex beat is situated in the fifth interspace four and a quarter inches to the left of the middle line. A loud V.S. murmur is heard at the apex and a distinct systolic thrill can be felt.

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[1] As the [illegible]
"diastolic."

CASE 10.—A girl, aged 12 years, was admitted for the second time on Nov. 7th, 1899. Her first admission was on August 2nd, 1899, and she was dismissed somewhat improved on Oct. 24th. Her first admission was on account of well-marked symptoms of mitral stenosis of about two years' duration in all. Six months before her admission she had frequent attacks of hæmoptysis. The apex beat was situated in the fifth interspace two and three-quarter inches to the left of the middle line. A distinct presystolic thrill could be felt and a loud A.S. murmur, strictly limited to the region of the apex beat, was present. Her present admission is on account of the sudden occurrence of well-marked paralysis of the left side of the face and body. No history of rheumatic fever or of chorea could be obtained. The pulse at present averages about 90 in the minute and is regular in force and rhythm.

All the cases thus briefly summarised have been already brought under your notice in detail in the course of our daily ward visits, when the clinical histories and the physical signs have been minutely investigated and demonstrated. My object at present is to indicate to you in general terms the clinical phenomena of mitral disease which this group of 10 fairly characteristic cases serves to illustrate. In doing this I shall not follow any systematic plan, but shall take up a few of the chief points which are suggested by the clinical summaries which I have just submitted for your consideration.

THE MURMURS OF MITRAL DISEASE.

In all of these 10 cases, with perhaps one exception (Case 8), there is, I believe, definite structural deformity of the mitral curtains and therefore they are of value as enabling us to formulate some idea of the kind of murmurs which may be associated with actual lesion of the mitral valve. The murmur present in eight out of the 10 cases is an apex systolic (V.S.) murmur conveyed towards the axilla. Now it is to be remembered that this murmur need not indicate structural disease of the mitral curtains at all. This murmur may be present in cases where the curtains of the mitral valve are structurally intact. All that it necessarily indicates is that the curtains are not preventing the regurgitation of blood from the left ventricle into the left auricle and this may take place without structural change of the curtains themselves. There is only one murmur which invariably and unmistakeably indicates actual structural change in the mitral curtains and that is the presystolic (A.S.) murmur heard at the apex and limited to this region. As Balfour remarks in his classical lectures, "there is a murmur so invariably associated with disease of the mitral valve that, when once heard, it may be accepted as a positive proof of a permanent deformity of that valve, and that even although the murmur itself may cease to be heard, as not infrequently happens." In two of the above cases only (Case 6 and Case 10) is this positive auscultatory sign of disease of the mitral curtains present. It is a direct murmur and indicates stenosis of the mitral valve, causing obstruction to the passage of blood from the left auricle to the ventricle. Sometimes, however, another murmur is found which may also be regarded as affording fairly positive evidence of actual disease of the mitral curtains, and that is a murmur occupying the long pause, diastolic (V.D.) in rhythm and limited to the apex region in the third left intercostal space. Sometimes the murmur is definitely diastolic in character; sometimes it is heard as an indefinite blow in the long silence. Such diastolic murmurs may probably be regarded as modified or prolonged A.S. murmurs, produced by essentially the same mechanism, and therefore what I have just said of them does not invalidate my previous statement as to the positive signification of the latter murmurs. Both murmurs are direct murmurs. Mitral diastolic murmurs were heard in Case 2 and in Case 4, and in both they were associated with an apex systolic murmur. As regards four only of the ten cases, then, can it be said that we have positive auscultatory evidence of actual lesion of the mitral curtains. As regards the remaining six, however, in which we have only to deal with an apex systolic murmur, there are, I think, five in which we are pretty certain to have structural disease of the mitral curtains, the probable exception being Case 8. As I have said, an apex systolic murmur indicates merely regurgitation from the left ventri- into the auricle, and as this was the only murmur p sent in these five cases it is clear that structural char in the mitral curtains cannot be inferred from its preser above. This is precisely the point which I desire to pr home upon you. Where, in a case of mitral regurgitati you have on auscultation merely a V.S. murmur at the ap you are dependent upon other phenomena to enable you arrive at a diagnosis of pathological alteration of the mit cusps. Chief among these aids to diagnostic precision are history of acute rheumatism or chorea and the occurrence embolism. We find this additional evidence in the five cas which were characterised by the presence of an apex systo murmur alone. In Cases 1 and 2 very clear rheuma history could be made out, and in Case 9 there was a cle account of severe growing pains and of scarlet fever, t latter being capable occasionally of giving rise to end carditis. In Case 5 there occurred two attacks of chore after the second of which the heart became involved; and Case 7 we had to deal with a very definite embolic hem plegia. These are the circumstances, then, which lead me say that in these five cases characterised only by a V. murmur we have to deal with something more than a me regurgitation. In Case 10 we have the interesting combin tion of the positive auscultatory sign and the corroborati embolic phenomenon existing together. In only one ca (Case 8) of the series the apex murmur does not indica actual structural change of the valvular curtains, but mere regurgitation through the orifice. In this case I think is pretty clear that the cause of the incompetence primarily myocardial and not valvular. There is n evidence of endocarditis and the age of the patie is that at which myocardial degeneration is common. Th regurgitation is due to dilatation of the left ventricle an consequent insufficiency of the curtains, hence the ape systolic murmur. The causes and varieties of the murmur of mitral disease are thus well illustrated by the presen series of cases.

THE AGE AT WHICH MITRAL DISEASE OCCURS.

The group of cases also gives us some information on thi point. The youngest patient is nine years of age and th oldest is 53 years of age. Seven of these are under the ag of 30 years. The lesson taught is that structural lesions o the mitral curtains are more likely to originate in childhood and youth than after the middle period of life, and that mitral incompetence due to myocardial degeneration—e.g., Case 8—is essentially an affection of advancing years. It is well to bear this distinction in mind, as it has an important bearing upon the management and treatment of mitral disease. Acute rheumatism with its resulting endocarditis is perhaps the most common cause of disease of the cardiac valvular curtains. Acute rheumatism is essentially a disease of childhood and early manhood. It is also to be remembered that a certain proportion of cases of mitral stenosis in women are perhaps congenital in origin. Hence arises the preponderance of mitral disease due to structural changes in the valvular curtains in the earlier periods of life. While it is probably true that in the later decades of life mitral disease is more frequently primarily associated with organic affections of the myocardium than of the valvular curtains, it must also be remembered that in a certain proportion of cases the mitral regurgitation may be due to atheromatous changes in the curtains themselves.

THE PHYSIOGNOMY OF MITRAL DISEASE.

This is usually characteristic and is very well illustrated in some of the cases at present in the wards. Thus it is well demonstrated in Case 2, Case 4, Case 6, Case 8, and Case 9. In these cases the lips and cheeks are well coloured; the red colour of these features, however, is scarcely that of health, having a more or less livid hue, which is apt to become more pronounced on coughing or c exertion. The face also is sometimes rather puffy-looking and there is in the expression a suggestion of impaired breathing power. The physiognomy of mitral disease is thus generally in striking contrast with the marked pallor which so often prevails in cases of aortic regurgitation.

ASSOCIATION WITH ACUTE RHEUMATISM.

In six out of the ten cases summarised for the purposes of this lecture there is a definite and unmistakeable association with acute rheumatism—a proportion of 60 per cent. This association, however, may not always be in evidence before the onset of symptoms indicative of the presence of mitral disease. In Case 4 well-marked mitral obstruction and *regurgitation was known to be present at least a year* before the patient suffered from her first attack of acute articular rheumatism. She had, however, between the ages of five and six years suffered from chorea, and no doubt this is to be regarded as a manifestation of the rheumatic diathesis. It is noteworthy, however, that she had never suffered from acute articular rheumatism till her second admission to the ward on Oct. 14th, 1899, when she was 12 years of age. This is a feature of the rheumatic manifestations of childhood to which Dr. Cheadle first directed attention and which I have had frequent opportunities of demonstrating to my students in these wards. In the remaining four cases of the 10 there is only one in which acute articular rheumatism can be quite excluded—Case 8. In the other three cases two own to having suffered from "growing pains," or "rheumatics," so that it may be fairly concluded that acute rheumatism is the exciting cause of lesions of the mitral valve in from 60 to 70 per cent. of the cases.

THE PULSE OF MITRAL DISEASE.

The characteristic pulse of mitral disease is well illustrated in only two of the 10 cases. In these cases there is the well-marked irregularity in force and rhythm which is so typical. It is worthy of note also that this extreme irregularity of the pulse is often obtained comparatively early in cases of rheumatic mitral disease before any very marked symptoms of failing compensation have set in. Increased frequency of the pulse is a very common condition in mitral disease, and in five of the cases (Cases 3, 4, 6, 8, and 10) pulse-rates varying between 90 and 120 were recorded. This increased frequency of the heart's action in mitral disease is often very obstinate, and a reduction of the pulse-rate to the normal is not uncommonly one of the first indications of improvement under treatment.

THE SECONDARY RESULTS OF MITRAL DISEASE.

Secondary results are various and only those illustrated in the present series of cases need be referred to in closing this clinical lecture. Failing compensation, with its accompanying passive congestion of the lungs, liver, and kidneys and œdema of the lower limbs, is, perhaps, most to be dreaded. Fortunately, in only two of the cases—Case 3 and Case 8—is this exceedingly grave condition well marked. In all the other cases the compensation is fairly well maintained and the great aim of treatment must be to maintain it. Embolism is a frequent result of structural disease of the cardiac valves and, as in two of the cases—Case 7 and Case 10—this complication is most formidable when it occurs in one of the cerebral arteries. The last complication to which I will refer, that of hæmoptysis, is illustrated in only one of the cases—Case 10. Hæmoptysis is an exceedingly frequent occurrence in well-marked cases of mitral stenosis and it may occur repeatedly. I have frequently thought that it is not altogether to be regarded as a bad symptom, the frequently repeated attacks so often witnessed without serious results following being, perhaps, nature's method of relieving the greatly congested lungs.

Into a discussion of the great and vital question of the prognosis of mitral disease I do not intend to enter. The formulating of precise statements, if that is really ever possible, with regard to the future progress of cases of mitral disease demands an experience much greater than I yet possess. The principles of treatment have been explained in the course of our ward visits. My object in the present lecture has been to direct your attention to some of the more practical points connected with the physical signs and symptoms of mitral disease, in so far as these are illustrated by the cases at present under review.

MÜLLER'S ORPHAN HOUSES, BRISTOL.—The sixty-second annual report of this institution, which has just been issued, shows that 171 orphan children were admitted during 1900, and that 1435 remained in the homes at the end of the year. The average expense of each orphan per annum was £16 8*s* 5*d*. The financial statement was satisfactory and showed that from the foundation of the homes £1,066,943 had been received without anyone having been personally applied to for anything. Up to now only children bereaved of both parents have been eligible for admission, but it has been decided that children who have only lost one parent may be admitted in future.

THE COMPARATIVE VIRULENCE OF THE TUBERCLE BACILLUS FROM HUMAN AND BOVINE SOURCES.[1]

By MAZYCK P. RAVENEL, M.D.,

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(*From the Laboratory of the State Live Stock Sanitary Board of Pennsylvania.*)

THE relation existing between the various types of the tubercle bacillus found in man and in the lower animals has been the subject of much discussion for several years past, and studies of the morphology, biology, and virulence have been undertaken with the object of determining whether or not constant differences could be detected in the organism from these two sources sufficient to justify their classification as distinct species. From a purely practical standpoint the question is narrowed to a study of the bacillus as found in man and in cattle, and in the determination of the relation they bear to each other. The importance of this study is immense, not only to the physician anxious mainly for the protection of his patients, and to the general public who look to the medical profession for guidance in such matters, but perhaps even more so to those who are concerned in the framing of laws and direction of public measures looking to the suppression of tuberculosis in man and animals. Efforts in this direction often meet with strong opposition and extreme statements are made on very scanty evidence, which render the task of the hygienist much more difficult and may result in the failure of his purpose. The lack of positive and authoritative knowledge in regard to this matter has in recent years led to the adoption of retrograde measures in several places The problem is one that can be entirely cleared up only by a long series of observations and carefully conducted experiments, which are tedious and exacting and require a considerable lapse of time before results can be had The correct interpretation of these results is in many cases not an easy matter.

The identity of the tubercle bacillus as found in the mammalia went unquestioned for many years, and laws for the prevention of the transmission of the bacillus of cattle to man have been based mainly on this belief. In America Dr. Theobald Smith was the first to take up the systematic study of the bacilli isolated from various of the lower animals and man, and to call attention to certain fairly constant differences observed in the organisms from the two sources which he considers sufficient to justify classifying them as distinct varieties or races, though his experiments "show unmistakably the close relationship existing among the various cultures studied."[2] Dr. R. R. Dinwiddie,[3] pathologist and bacteriologist of the Arkansas Agricultural Experiment Station (U.S.A.), has carried out extensive experiments, in which he has compared the virulence of the human and bovine tubercle bacillus, and also human tuberculous sputum, with bovine material, for a number of the domestic animals, his results showing a greater power for both the bovine bacillus and material than for the human.

The vast practical importance of the matter, no less than its great scientific interest, was early realised by Dr. Leonard Pearson, State Veterinarian of Pennsylvania, and under his direction we have devoted much of our attention at the laboratory of the State Live Stock Sanitary Board for more than two years past to the study of the tubercle bacillus obtained from various cases of tuberculosis in man and in cattle. In the carrying out of this work I have had throughout the efficient assistance of Dr. S. H. Gilliland, on whom a large share of the labour has fallen, and to whom is due much of the credit in its successful issue To him and to the several physicians who have interested themselves in obtaining material for us I beg to express my obligation During a considerable portion of the time that Part (1) of the experiment was in progress Dr. W. O. Shaw was in charge of the animals and did much of the work, while the bovine material for the inoculations was obtained and prepared by Dr. J. J. Repp; both of these workers were at the time connected with the laboratory.

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[1] A paper read before the British Congress on Tuberculosis, Section III., Pathology, including Bacteriology, on Thursday, July 25th, 1901

[2] Transactions of the Association of American Physicians, 1896.

[3] Arkansas Agricultural Experiment Station, Bulletin No. 57, June, 1899.

Our experimental work has been divided into two parts: (1) isolation and study of pure cultures from various sources in man and cattle; and (2) testing the pathogenic power of tuberculous material of human and bovine origin.

Under the first division 13 cultures, seven of human and six of bovine origin, are included in this report. Of these, two human and two bovine have been compared under conditions as nearly identical throughout as it was possible to obtain them. Culture H (bovine) and culture K (human) were isolated within a few days of each other, while L (bovine) and M (human) were made on the same day. The first sub-cultures of both pairs were made on the same day and all transfers since have been made simultaneously. The comparative pathogenicity of these cultures is shown in Table I. and Table II. Cultures H and K were tested also for puppies and pigs by feeding, as described below. Culture H was recovered from a horse, a goat, two puppies, two hogs, and a man; while Culture K was recovered only from two puppies and two hogs, the absence of lesions in other animals inoculated making it impossible to obtain a series comparable to Culture H. The virulence of these recovered cultures, with the exception of that from the horse, was tested for guinea-pigs and rabbits, the results being given in Table III. Human cultures I, J, U, and W, and bovine cultures F, Q, QQ, and T, were isolated as occasion arose, and their virulence tested only for guinea-pigs and rabbits. The dose and mode of inoculation were uniform in all cases and the animals were kept under the same conditions, but beyond this the tests are not entirely parallel. The results are given in Table IV. In addition to the cultures here mentioned we have isolated and examined nine others both morphologically and culturally. These have been taken into account in forming our conclusions, as well as the very careful descriptions given by Dr. Theobald Smith of the cultures studied by him. The terms "human" and "bovine" have been applied to cultures to denote their origin from man or from cattle. Each culture is designated by a letter of the alphabet, and the generation indicated by a small figure at the lower right corner. Cultures which have been inoculated and recovered retain their original letter, a second letter inclosed in brackets being added to mark the recovered culture.

The second part of the work has been the inoculation of animals with tuberculous material from man and cattle. The plan and methods are described in another section, while the results are given in Tables V. and VI. As a part of this experiment human tuberculous sputum has been fed to two calves and four have been inoculated with the same material. These have been included in Table V. and are described further on.

PART I.—ISOLATION AND STUDY OF PURE CULTURES FROM VARIOUS SOURCES IN MAN AND CATTLE.

Method of isolating pure cultures.—The isolation of cultures has been obtained by the method devised by Dr. Theobald Smith,[4] the principal features of which are as follows:—1. *Test-tubes* are fitted with a ground on cap like that of the well-known Miquel flask. The small tubulation in the cap is plugged with glass wool. 2. The medium is dog's serum. The animal is bled with the strictest aseptic precautions and the blood conducted to sterile jars through sterile rubber tubes. The serum is drawn off with pipettes and distributed at once into the test-tubes, put in the hardening oven, and coagulated at a low temperature (76° C.). Prepared in this way the serum needs no sterilisation and is much softer than when a higher temperature is employed. 3. The tubes are kept always inclined. 4. The tuberculous tissue selected for planting in our culture tubes is not crushed or rubbed over the surface, as advised in other methods. Young nodules from the omentum, spleen, liver, or a lymphatic gland are cut out and a block of considerable size is placed on the surface of the serum. After remaining from two to three weeks in the incubator at from 37·5° to 39° C. the tissue is pressed against the sides of the tubes with a stout platinum wire and rubbed over the surface of the medium. Examination of the fluid squeezed out of the tissue at this time will generally indicate the final result. The tubes are replaced in the incubator and within a week or 10 days colonies of the tubercle bacillus usually appear. The nodules for inoculation of the tubes are best obtained from guinea-pigs which are to be inoculated with the original matter from which we wish to obtain cultures. As soon as these show marked illness they are chloroformed and the cultures made. In general terms, the more recent the lesions the greater the chances of successful culture. As a rule, guinea-pigs can be killed in from three to four weeks after inoculation. If our material is of human origin the inoculation should be intra-peritoneal; if bovine, subcutaneous inoculation will generally cause a sufficiently rapid involvement of the organs. 5. The incubator should contain a dish of water to insure an abundance of moisture in the atmosphere. With the same object in view it should be opened as seldom as possible. The only modification of the above method in our work has been the addition of a 50 per cent. solution of glycerine in water to the serum in such proportion that the resulting mixture contains 5 per cent. of glycerine. This seems to make coagulation slightly more tardy, but the serum does not dry as quickly, and the growth of the tubercle bacillus is facilitated. Serum prepared in this manner has been employed throughout for the cultures used in our inoculations.

Preparation of cultures for inoculation and dosage.—The course of an experimental tuberculosis depends so largely on the number of bacilli introduced that exact dosage is an important factor in comparative work. Weighing naturally suggested itself, but a trial soon convinced us of its impracticability. The growth of human cultures is usually so abundant by the second generation that it is easy to obtain fairly dry masses which can be weighed quite accurately, but bovine cultures often grow very scantily for many generations as a thin film resembling ground glass. We have adopted as a uniform practice the method of Dr. Theobald Smith—the use of a suspension of a given opacity. A portion of the growth is removed to the wall of a dry and sterile test tube and rubbed round and round with a glass rod until no lumps can be seen. Bouillon is then added and after stirring thoroughly the mixture is allowed to stand quiet for two or three hours so that the clumps may settle. The upper portion is poured off and bouillon added until the suspension equals in turbidity a 24-hour old culture of the typhoid bacillus. The test culture is killed with formalin vapour and sealed so that it can be used as a standard for a considerable time. Cover-glass preparations were made always as controls. In the accompanying tables the generation of the cultures is indicated by the exponent and the age of each culture is given in days in a separate column. For guinea-pigs and rabbits the dose has, throughout, been one cubic centimetre of the suspension introduced under the skin of the abdomen. For the other animals the dose and mode of inoculation are given in the tables.

Morphology and cultural characteristics of bacilli examined.—The morphology of the bacilli in cultures of bovine origin is more uniform and constant than in cultures from man. The bovine bacilli are short, seldom more than two microns in length and averaging less. In early generations many are seen which are oval, their length not more than double their breadth. They are thick and straight. They stain with carbol-fuchsin evenly and deeply and beading is markedly absent, even in old cultures. The human bacilli are, as a rule, much longer from the start and tend to increase rapidly in length in sub-cultures. They are generally more or less curved and some cultures contain many S-shaped forms, as culture M noted below. They stain with carbol-fuschin less deeply and beading is a marked characteristic, often seen in the earliest growth. These characteristics are most persistent in cultures on blood serum. On glycerine agar, glycerine bouillon, and potato with glycerine the bacilli from the two sources approach each other in appearance and morphology much more closely.

The human cultures isolated have without exception grown more luxuriantly than the bovine cultures, though in at least two instances (Culture U and Culture BB) the first growth was very long in appearing. This was due no doubt to their feeble virulence and consequent slow production of lesions in the tissues of guinea-pigs. A saprophytic life once established they grew vigorously. The bovine cultures are apt to grow as discrete colonies in the first culture and for several generations are likely to grow as an exceedingly thin layer over a part of the medium, resembling closely ground glass. The human bacillus can usually be induced to grow on glycerine agar in sub-cultures made from the original growth on blood serum. All attempts to obtain a like result with

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[4] Journal of Experimental Medicine, vol. iii., No. 4 and No. 5, 1898.

TABLE I.—SHOWING THE VIRULENCE OF BOVINE AND HUMAN CULTURES.

Bovine Culture H.

	Age in days.	Animals.	Date of inoculation	Method of inoculation.	Dose in cubic centimetres.	Initial weight.	Weight at death.	Loss or gain in weight.	Died.	Killed.	Length of life.	Average.
	15	Guinea-pig.	Sept. 2nd.	Sub-cutaneous.	1	290 grammes.	174 grammes.	116 grammes loss.	Sept. 25th.	—	23 days.	28⅓ days.
	15	„	„ 2nd.	„	1	310 „	224 „	86 grammes loss.	Oct. 9th	—	37 „	
	15	„	„ 2nd.	„	1	300 „	200 „	100 grammes loss	Sept. 27th.	—	25 „	
	15	Rabbit.	„ 2nd.	„	1	1730 „	—	—	Nov. 7th.	—	66 „	56½ „
	15	„	„ 2nd.	„	1	1580 „	—	—	Oct. 19th.	—	47 „	
	29	Dog.	„ 16th.	Intra-pulmonary.	2	20 pounds.	18 pounds.	2 pounds loss.	Nov. 14th.	—	59 „	62½ „
	29	„	„ 16th.	„	2	60 „	—	—	„ 21st.	—	66 „	
H_3	73	Horse.	Dec. 9th.	„	14	1030 „	990 pounds.	40 pounds loss.	—	June 25th.	6 months 16 days.	—
„	73	Goat.	„ 9th.	„	4	79 „	61 „	18 pounds loss.	Dec. 31st.	—	22 days	24 „
„	73	„	„ 9th.	„	4	29 „	20¼ „	8¾ pounds loss.	Jan. 4th.	—	26 „	

Human Culture K.

	Age in days.	Animals.	Date of inoculation	Method of inoculation.	Dose in cubic centimetres.	Initial weight.	Weight at death.	Loss or gain in weight.	Died.	Killed.	Length of life.	Average.
K_2	15	Guinea-pig.	Sept. 2nd.	Sub-cutaneous.	1	380 grammes.	270 grammes.	110 grammes loss.	Oct. 14th.	—	42 days.	33 days.
„	15	„	„ 2nd.	„	1	320 „	175 „	145 grammes loss.	Sept. 30th.	—	28 „	
„	15	„	„ 2nd.	„	1	310 „	215 „	95 grammes loss.	Oct. 16th.	—	44 „	
„	15	Rabbit.	„ 2nd.	„	1	1375 „	1970 „	595 grammes gain.	—	May 25th.	8 months 23 days	8 months 23 days.
„	15	„	„ 2nd	„	1	1500 „	1820 „	320 grammes gain.	—	„ 25th.	8 months 23 days.	
„	29	Dog	„ 16th.	Intra-pulmonary.	2	21 pounds.	20 pounds.	1 pound loss	—	April 20th.	7 months 4 days.	6 months 19 days.
„	29	„	„ 16th.	„	2	57 „	54 „	3 pounds loss	—	March 19th	6 months 3 days.	
K_3	79	Horse.	Dec. 9th.	„	14	1275 „	1370 „	95 pounds gain.	—	June 25th.	6 months 17 days.	—
„	79	Goat.	„ 9th.	„	4	73 „	75 „	2 pounds gain.	—	„ 29th.	6 months 21 days.	6 months 21 days.
„	79	„	„ 9th.	„	4	28 „	37 „	9 pounds gain.	—	„ 29th.	6 months 21 days.	

TABLE II.—SHOWING THE VIRULENCE OF BOVINE AND HUMAN CULTURES.

Bovine Culture L.

	Age in days.	Animals.	Date of inoculation	Method of inoculation.	Dose in cubic centimetres.	Initial weight.	Weight at death.	Loss or gain in weight.	Died.	Killed.	Length of life.	Average.
L_2	35	Guinea-pig.	Dec. 22nd.	Sub-cutaneous.	1	330 grammes.	210 grammes	120 grammes loss	Jan. 13th.	—	22 days.	26⅔ days.
„	35	„	„ 22nd.	„	1	424 „	240 „	184 grammes loss.	„ 13th.	—	22 „	
„	35	„	„ 22nd.	„	1	286 „	246 „	40 grammes loss.	„ 27th.	—	36 „	
„	35	Rabbit.	„ 22nd.	„	1	1720 „	1216 „	504 grammes loss	March 27th.	—	95 „	96½ „
„	35	„	„ 22nd.	„	1	2100 „	1450 „	650 grammes loss	„ 30th	—	98 „	
„	35	Dog.	„ 22nd.	Intra-pulmonary.	3	31 pounds.	30½ pounds.	1½ pounds loss	—	April 30th.	129 „	130 „
„	35	„	„ 22nd.	„	3	25½ „	27 „	1½ pounds gain	—	May 2nd.	131 „	
„	36	Goat.	„ 23rd.	„	4½	83 „	73 „	10 pounds loss	Jan 8th.	—	16 „	—

Human Culture M.

	Age in days.	Animals.	Date of inoculation	Method of inoculation.	Dose in cubic centimetres.	Initial weight.	Weight at death.	Loss or gain in weight.	Died.	Killed.	Length of life.	Average.
M_2	35	Guinea-pig.	Dec. 22nd	Sub-cutaneous.	1	350 grammes	260 grammes	90 grammes loss	Feb 14th	—	54 days.	34 days.
„	35	„	„ 22nd	„	1	410 „	300 „	110 grammes loss.	Jan 13th	—	22 „	
„	35	„	„ 22nd.	„	1	300 „	216 „	84 grammes loss	„ 17th.	—	26 „	
„	35	Rabbit.	„ 22nd.	„	1	1620 „	1740 „	120 grammes gain	—	May 25th.	154 „	154 „
„	35	„	„ 22nd.	„	1	1730 „	1930 „	200 grammes gain.	—	„ 25th.	154 „	
„	35	Dog.	„ 22nd.	Intra-pulmonary.	3	29½ pounds.	22 pounds.	7½ pounds loss	—	April 27th	126 „	92½ „
„	35	„	„ 22nd	„	3	21 „	18½ „	2½ pounds loss	Feb. 19th.	—	59 „	
„	36	Goat.	„ 23rd.	„	4½	52 „	48 „	4 pounds loss	—	June 29th.	6 months 6 days.	—

the bovine organism have failed. Three of the bovine cultures examined have been isolated from milk. Two of them, Culture L and Culture Q, have shown throughout the characters of the type described as "bovine," while T approaches the human bacillus in morphology, being long and slender. It is, however, more virulent than any human culture tested.

TABLE III.—SHOWING THE VIRULENCE OF CULTURE H (BOVINE) AND CULTURE K (HUMAN) FOR RABBITS AND GUINEA-PIGS AFTER RECOVERY FROM ORIGINAL ANIMAL.

Culture.	Recovered from.	Age in days.	Animals.	Date of inoculation.	Initial weight. Grammes.	Weight at death. Grammes.	Loss or gain in weight. Grammes.	Died.	Length of life. Days.	Average. Days.
$H(A)_3$	Goat.	22	Guinea-pig.	June 19th.	360	225	135 loss.	July 26th.	37	27⅓
„		22	„	„ 19th.	430	—	—	„ 13th.	24	
„		22	„	„ 19th.	410	—	—	„ 10th.	21	
$H(B)_2$	Puppy.	42	„	May 28th.	280	220	60 loss.	„ 2nd.	35	28⅓
„		42	„	„ 28th.	360	210	150 „	June 23rd.	26	
„		42	„	„ 28th.	260	184	76 „	„ 21st.	24	
$H(C)_2$	Puppy.	41	„	„ 28th.	310	210	100 „	July 2nd.	35	40
„		41	„	„ 28th.	295	210	85 „	June 29th.	32	
„		41	„	„ 28th.	308	230	78 „	July 20th.	53	
$H(D)_2$	Hog.	36	„	August 4th.	562	380	182 „	Sept. 8th.	35	33
„		36	„	„ 4th.	530	260	270 „	„ 7th.	34	
„		36	„	„ 4th.	470	270	200 „	„ 3rd.	30	
$H(E)_2$	Man (S. H. G.)	27	„	„ 2nd.	460	260	200 „	August 29th.	27	26⅓
„		27	„	„ 2nd.	640	400	240 „	Sept. 3rd.	32	
„		27	„	„ 2nd.	536	370	166 „	August 22nd.	20	
$H(F)_2$	Hog.	38	„	Sept. 13th.	1610	370	240 „	Oct. 29th.	46	40
„		38	„	„ 13th.	330	240	90 „	„ 22nd.	39	
„		38	„	„ 13th.	250	200	50 „	„ 18th.	35	
$H(A)_3$	Goat.	22	Rabbit.	June 19th.	2030	1680	350 „	July 18th.	29	53
„		22	„	„ 19th.	1800	1380	420 „	Sept. 4th.	77	
$H(B)_2$	Puppy.	42	„	May 28th.	1455	1300	65 „	August 28th.	92	84½
„		42	„	„ 28th.	1975	1180	795 „	„ 13th.	77	
$H(C)_2$	Puppy.	41	„	„ 28th.	1770	1050	720 „	„ 11th.	75	78½
„		41	„	„ 28th.	1818	1270	548 „	„ 18th.	82	
$H(D)_2$	Hog.	36	„	August 4th.	—	910	—	Sept. 12th.	39	65
„		36	„	„ 4th.	—	805	—	Nov. 3rd.	91	
$H(E)_2$	Man (S. H. G.)	27	„	„ 2nd.	2510	1626	884 loss.	Oct. 29th.	87	61½
„		27	„	„ 2nd.	1870	1620	250 „	Sept. 7th.	36	
$H(F)_2$	Hog.	38	„	Sept. 13th.	1530	1190	340 „	Nov. 12th.	60	63
„		38	„	„ 13th.	840	940	100 gain.	„ 18th.	66	
$K(B)_2$	Puppy.	39	Guinea-pig.	May 28th.	315	280	35 loss.	August 16th.	80	63
„		39	„	„ 28th.	310	270	40 „	July 26th.	59	
„		39	„	„ 28th.	330	240	90 „	„ 17th.	50	
$K(C)_2$	Puppy.	42	„	„ 29th.	380	220	160 „	„ 27th.	59	48
„		42	„	„ 29th.	440	280	160 „	„ 18th.	50	
„		42	„	„ 29th.	390	220	170 „	„ 3rd.	35	
$K(D)_2$	Hog.	29	„	August 7th.	530	—	—	Sept. 8th.	32	29½
„		29	„	„ 7th.	390	330	60 loss.	„ 3rd.	27	
$K(E)_2$	Hog.	38	„	Sept. 13th.	350	220	130 „	Oct. 16th.	33	32½
„		38	„	„ 13th.	320	260	60 „	„ 9th.	26	
„		38	„	„ 13th.	310	220	90 „	„ 21st.	38	
$K(B)_2$	Puppy.	39	Rabbit.	May 28th.	1445	1360	85 „	August 28th.	92	104
„		39	„	„ 28th.	1685	1610	75 „	Sept. 21st.	116	
$K(C)_2$	Puppy.	42	„	„ 29th.	1560	2010	450 gain.	*	128	128
„		42	„	„ 29th.	1560	2610	1050 „	*	128	
$K(D)_2$	Hog.	21	„	August 7th.	—	—	—	Oct. 1st.	55	71½
„		21	„	„ 7th.	—	—	—	Nov. 3rd.	88	
$K(E)_2$	Hog.	38	„	Sept. 13th.	1260	1290	30 gain.	„ 3rd.	51	62½
„		38	„	„ 13th.	1050	855	195 loss.	„ 26th.	74	

* Killed Oct. 4th.

Among the human cultures only one (M) has been isolated from sputum. Through the kindness of Dr. Alfred Hand, pathologist of the Children's Hospital, to whom I beg to make grateful acknowledgments, I have been able to obtain cultures from three cases of tuberculosis in young children in which the intestine was involved. One of these, from which Culture BB was isolated, was considered by Dr. Hand to be "more clearly than any other he had ever seen, of intestinal origin," and was therefore studied with peculiar interest. Its pathogenicity has not yet been determined, but the course of the disease in the guinea-pigs inoculated to obtain the culture indicated a very feeble virulence, one living 66 and another 96 days. The bacilli, even in the first generation, are unusually long and thick. They stain deeply with carbol-fuchsin, but are beaded in a striking manner, the brightly stained portions being quite regularly disposed along the rod. They are, in every way, most unlike what I have described as the bovine type. Cultures U and W, also from children with intestinal lesions, correspond to the human type in every particular, both as regards morphology and virulence.

The following is the comparison and history of Culture H (bovine) and Culture K (human) :—

Culture H (bovine) was isolated from the mesenteric gland of a Jersey Grade cow about seven years old which had been slaughtered for beef but being found to be extensively diseased was condemned The lungs were the seat of an extensive and long continued [illegible] had undergone caseation [illegible] he foci [illegible] but to a less extent The gland [illegible] the culture was obtained had undergone cheesy degeneration On May 17th, 1899, guinea-pigs were inoculated intra peritoneally with an emulsion made from the centre of this gland On July 6th one pig was killed and cultures were made on dog's serum On July 28th the first growth was observed, and on August 18th sub cultures were made from the omentum The growth was fairly abundant The bacilli were short, thick, straight, and stained evenly and deeply Culture K (human) was isolated from the lung of an adult male negro The disease was not severe and was confined almost entirely, to the lungs Death was due to heart trouble Guinea pigs were inoculated intra peritoneally with an emulsion made from nodules taken from the lungs on June 10th 1899 On June 28th a pig was killed and cultures were made on dog's serum Growth was first observed on July 29th the cultures from the spleen being used for sub cultures, the first of which was made on August 18th This culture grew rapidly and abundantly from the beginning. The bacilli were long slender, and curved They stained somewhat faintly and showed marked tendency to beading (See Table I)

The following is the comparison and history of Culture L (bovine) and Culture M (human) :—

Culture L (bovine) was obtained from the milk of a cow with tuberculosis of the udder On May 22nd, 1899, a guinea pig was inoculated with 10 cubic centimetres of this milk It died on July 8th and from it a second guinea pig was inoculated intra peritoneally with an emulsion made from the spleen and omentum On August 25th this pig was killed and two others were inoculated intra-peritoneally with an emulsion from [illegible] killed on Sept [illegible] On Oct 20th gr[illegible] On Nov 17th sub-cultures were made The growth for several generations was very scanty The bacilli were extremely short and many were oval in shape They took the stain evenly and deeply Culture M (human) was obtained from the sputum of a young adult female Throat symptoms were not marked in this case The disease was rapid and virulent, death occurring in about five weeks after the sample of sputum was obtained It contained large numbers of tubercle bacilli On July 12th 1899 a guinea pig was inoculated subcutaneously with the sputum It was killed on August 25th and two pigs were inoculated intra peritoneally with an emulsion made from the spleen and omentum On Sept 18th a pig was killed and cultures were made on dog's serum Growth was first observed on Oct 15th and sub-cultures were made on the 17th Growth was rapid and abundant from the outset and the first transfers made from the original culture [illegible]

TABLE IV.—SHOWING THE VIRULENCE OF THE TUBERCLE BACILLUS FROM VARIOUS SOURCES FOR RABBITS AND GUINEA PIGS

Culture	Age in days	Animals	Initial weight Grammes	Weight at death Grammes	Loss or gain in weight Grammes	Date of inoculation	Died	Killed	Length of life Days	Average Days
J_6 Human	20	Guinea pig	610	370	240 loss	July 16th	Sept 24th	—	70	79⅔
,, ,,	20	,,	514	320	194 ,,	,, 16th	Oct 1st	—	77	
,, ,,		,,	434	310	124 ,,	,, 16th	,, 16th	—	92	
,, ,,	20	Rabbit	920	1450	530 gain	,, 16th	—	Dec. 19th	156	156
,, ,,	20	,,	855	1470	615 ,,	,, 16th	—	,, 19th	156	
I_6 ,,	32	Guinea pig	695	510	185 loss	,, 16th	August 4th	—	19	54⅓
,, ,,	32	,,	700	420	280 ,,	,, 16th	Sept 12th	—	58	
,, ,,	32	,,	454	360	94 ,,	,, 16th	Oct 10th	—	86	
,, ,,	32	Rabbit	900	1850	950 gain	,, 16th	—	Dec. 19th	156	—
U_3 ,,	24	Guinea pig	390	210	180 loss	Jan 14th	Feb 20th	—	37	43
,, ,,	24	,,	360	290	70 ,,	,, 14th	,, 21st	—	38	
,, ,,	24		330	265	65 ,,	,, 14th	March 9th	—	54	
,, ,,	24	Rabbit	1710	2040	330 gain	,, 14th	—	June 15th	152	152
,, ,,	24	,,	1490	2130	640 ,,	,, 14th	—	,, 15th	152	
W_3 ,,	19	Guinea pig	745	—	—	—	—	—	All animals living at the end of 60 days	
,, ,,	19	,,	730	—	—	—	—	—		
,, ,,	19	,,	700	—	—	—	—	—		
,, ,,	19	Rabbit	1470	—	—	—	—	—		
,, ,,	19	,,	1750	—	—	—	—	—		
P_6 Bovine	23	Guinea pig	404	320	84 loss	Jan 19th	Sept 7th	—	60	42⅔
,, ,,	23		480	320	160 ,,	,, 19th	August 16th	—	28	
,, ,,	23	,,	546	340	206 ,,	,, 19th	,, 28th	—	40	
,, ,,	23	Rabbit	2350	1380	970 ,,	,, 19th	Nov 23rd	—	127	126½
,, ,,	23	,,	910	670	240 ,,	,, 19th	,, 22nd	—	126	
Q_4 ,,	35	Guinea pig	380	270	110 ,,	,, 19th	August 4th	—	16	24⅔
,, ,,	35		510	420	90 ,,	,, 19th	,, 12th	—	24	
,, ,,	35	,,	800	560	240 ,,	,, 19th	22nd	—	34	
,, ,,	35	Rabbit	1580	980	600 ,,	,, 19th	Oct 13th	—	86	79½
,, ,,	35	,,	895	875	20	,, 19th	Sept 30th	—	73	
QQ_3 ,,	25	Guinea pig	560	380	180 ,,	August 4th	August 22nd	—	18	24
,, ,,	25	,,	510	370	140 ,,	,, 4th	Sept 3rd	—	30	
,, ,,	25	Rabbit	1930	1500	430 ,,	,, 4th	Oct 17th	—	74	40½
,, ,,	25	,,	1340	1000	200 ,,	,, 4th	August 11th	—	7	
T_3 ,,	35	Guinea pig	390	200	100 ,,	Sept 11th	Oct 21st	—	40	36⅓
,, ,,	35	,,	420	265	155 ,,	,, 11th	,, 10th	—	29	
,, ,,	35	,,	455	340	115 ,,	,, 11th	,, 21st	—	40	
,, ,,	35	Rabbit	1210	1090	120 ,,	,, 11th	,, 18th	—	37	49½
,, ,,	35	,,	1090	860	230 ,,	,, 11th	Nov 12th	—	62	

agar grew luxuriantly. The bacilli in the original culture were rather short, irregular in shape, many S-shaped, and as a rule stained quite evenly and deeply. In sub-cultures the bacilli soon became much longer, straighter, and showed beading (see Table II.).

It will be seen from Table I. and Table II. that for each culture 10 animals were used. Of the 10 inoculated with Culture H (bovine), nine died, while only one had to be killed, this being the horse; while of those inoculated with Culture K (human) only three died, while seven had to be killed. With each of Culture L (bovine) and Culture M (human) eight animals were inoculated. Of those inoculated with Culture L six died and two were killed, while for Culture M four died and four were killed. Taking the totals of these four cultures, 18 animals were used for the bovine cultures and 18 for the human. Of those inoculated with bovine tubercle bacillus 15 died and three were killed, while of those inoculated with the human cultures seven died and 11 were killed. By making a closer study of the tables further differences in virulence between the bovine and human cultures may be brought out. All the guinea-pigs inoculated with these four cultures died, the extent of the post-mortem lesions being practically identical in all of them. Those inoculated with Culture K (human) lived almost 10 days longer than those inoculated with Culture H (bovine), while those inoculated with Culture M (human) lived seven and a third days longer than those inoculated with Culture L (bovine). All the rabbits inoculated with both of the human cultures had to be killed and showed no post-mortem lesions whatever, while those inoculated with the bovine cultures died with extensive lesions. These lesions varied somewhat in the different animals, necrotic areas at the point of inoculation and complete involvement of the lungs being common to them all. The kidneys were also generally involved. Only one animal had generalised tuberculosis, involving the lungs, liver, kidneys, spleen, and omentum.

Dogs.—The dogs showed a varying degree of susceptibility to all the cultures. Both of those inoculated with Culture H (bovine) died, one in 59 days, the other in 66 days. The smaller of the two had shown signs of illness for some days before death. The point of inoculation was well marked in the lung by a mass of tubercles 2·5 centimetres in diameter. Both lungs were infiltrated throughout with grey nodules from two millimetres to four millimetres in diameter. Both pleural cavities contained a considerable amount of purulent effusion. The right pleura was roughened, without adhesions. The outer surface of the pericardium was thickly sown with minute nodules about two millimetres in diameter, its interior being smooth. The liver was infiltrated throughout and necrotic, giving a nutmeg appearance. The right kidney contained a number of tuberculous nodules; the left was congested but otherwise normal. The spleen had escaped infection. Through an accident no post-mortem examination was obtained on the other dog, but from his symptoms for some days before death it is reasonably certain that the disease was general, affecting particularly, perhaps, the lungs. Both of the dogs inoculated with Culture K (human) had to be killed, the lesions in both being insignificant. In one the only marked change which could be found corresponded to the point of inoculation in the lung, where a small excavation was found almost completely filled in with scar tissue, radiating from the centre in star shape. Scrapings from cut surfaces of this area revealed the presence of tubercle bacilli. All the other organs were entirely normal. In the other dog the point of inoculation was marked by a large nodule in the pleural surface of the lung. The surfaces of both lungs showed a great number of minute nodules. Scrapings from cut surfaces revealed tubercle bacilli in small numbers. On the external surface of the pericardium was a nodule about one inch in diameter, which contained calcareous foci encapsulated in dense fibrous material. The mediastinal glands were enlarged and contained a number of caseous foci. In all other respects the animal seemed normal.

Horses.—A marked difference was noted in the effect of the cultures on the horses. The horse inoculated with bovine Culture H showed no ill-effects from the injection for some months. In the latter part of March, nearly four months after the injection, some emaciation could be noted, and the respiration was quickened, being on an average 22 a minute and somewhat laboured. On April 1st the temperature averaged 102 2° F. The symptoms grew slightly more marked, and on June 25th, six and a half months after inoculation, the animal was killed. It had lost 40 pounds in weight, though its condition was still fair. The costal pleuræ were extensively covered with masses of nodules of from two millimetres to 18 millimetres in diameter, averaging nearly 12 millimetres in thickness. These growths were somewhat more extensive on the left side than on the right and tended to be more isolated and somewhat larger in size. The lungs were a greyish pink, the blood-vessels being plainly outlined in a delicate network over the surface. They were covered with nodules, varying from one millimetre up to six millimetres in size and closely packed. Both lungs were hard, dense, and devoid of elasticity, having much the feel of liver. At the point of inoculation on the right lung a small depression was found filled in with a star-shaped cicatrix. This cicatricial tissue was surrounded with a nodule about 2·5 centimetres in diameter, containing cheesy areas and much fibrous tissue. In the posterior part of the left lung a tuberculous abscess about 2·5 centimetres in diameter was found, and in the bottom of the lung several similar in size and character were seen. The bronchial glands were enlarged to twice their normal size but showed no caseation. The surface of the pericardium was studded with minute nodules. The thoracic surface of the diaphragm was covered over a large portion of its surface with nodules of the size of a pea, some of them pedunculated. Among the nodules were many shreds of fibrin, some of them 2·5 centimetres in length. Similar masses were seen also on the costal surface of the lung. The liver, spleen, and kidneys appeared normal. The horse inoculated with culture K (human) showed no clinical evidence of injury. On April 1st its respiration was 12 a minute and its temperature was 100·5° F. It was killed on June 25th, about six and a half months after inoculation. Its condition was good. It had gained 95 pounds in weight. There was considerable fat subcutaneously and about the abdominal organs. All of the abdominal organs were entirely normal with the exception of the liver, on the surface of which many fringes of fibrin were found. In the thoracic cavity both pleuræ were smooth and shiny except at the point of inoculation on the right side, where a mass of small nodules with fringes of fibrin were seen. At the point of inoculation in the right lung was a cheesy abscess 4 centimetres in diameter, and incapsulated with dense fibrous tissue, the walls being 6 millimetres thick. Otherwise the lung was entirely normal. In the left lung were three small tuberculous nodules about 12 millimetres in diameter, situated near the surface; these had undergone caseation. The disease was evidently non-progressive and was probably retrogressive.

Goats.—Both the goats inoculated with Culture H (bovine) died, one in 22 days and the other in 26 days, the lesions being much the same in both. There were thickening of the pleura and adhesions at the point of inoculation; otherwise they were normal. The lungs were covered with myriads of minute tubercles about one millimetre in diameter, which gave a gritty feel to them. In the substance of the lung no tubercles could be found. The cut surfaces presented a pneumonic appearance, most marked in the smaller of the two animals. Scrapings from a cut surface in any portion of the lung revealed enormous numbers of tubercle bacilli. The mucus in the bronchial tubes throughout the lungs also contained large numbers of tubercle bacilli. In the larger animal the liver, spleen, kidneys, peritoneum, and diaphragm were normal. The animal lost 18 pounds in weight in the 22 days of its life after inoculation. The smaller goat showed involvement of the abdominal organs also. The omentum was studded with pearly tubercles two millimetres in diameter, one of which had undergone caseation. The surface of the spleen was thickly covered with tubercles one millimetre in diameter. In the substance of the spleen no nodules could be found, but scrapings from cut surfaces showed a large number of tubercle bacilli. The liver showed no macroscopic tubercles, but scrapings from cut surfaces were rich in bacilli, and in sections under the microscope tubercles were seen with a few giant cells. Microscopic examination of the lungs, however, revealed no tubercles. The infection in this animal was diffuse and it is considered to be a case of tuberculous septicæmia. Both of the goats inoculated with Culture K (human) gained in weight and were killed after six months and 21 days. Both were in good condition, having a considerable amount of fat in the subcutaneous tissues and around the abdominal organs. In the larger animal at the *point of inoculation there was an area of adhesion to the* pleura about eight millimetres in diameter. On the surface of the left lung were two or three nodules about three millimetres in diameter which had undergone caseation. This lung is attached at its lower edge to the diaphragm by fringes of fibrin, and along this edge a few nodules about 12 millimetres in diameter and containing cheesy pus were found. The entire surface of the left lung was covered with fringes of fibrin of a reddish pink colour. In both lungs the elasticity was preserved and neither revealed nodules either by palpation or on section. The left pleura was covered with a network of fibrin similar to that seen in the lung; the right was normal. The mediastinal *glands were much enlarged and calcareous.* In the liver two small nodules were found near the surface, the organ being otherwise normal. In the smaller animal the omentum contained upwards of 100 nodules from two to 12 millimetres in diameter. The left lung was attached to the pleura at its edge by numerous bands of fibrin and at its posterior surface to the diaphragm in the same manner. Along the lower border were a number of nodules about six millimetres in diameter which had undergone caseation. The right lung was normal. The mediastinal glands were enlarged and calcareous. The left pleura showed 10 or 12 nodules six millimetres in diameter, which were cheesy, besides a large one corresponding to the point of inoculation. The diaphragm was attached *to the spleen and* to the stomach by bands of fibrin but no nodules were found. The liver was normal; the portal glands were enlarged and contained many cheesy nodules. The left kidney contained a number of cheesy nodules. The right kidney was normal. The mesenteric glands were enlarged and several of them contained calcareous areas.

The comparative virulence of Culture H (bovine) and Culture K (human) for puppies and pigs when introduced through the alimentary tract was as follows:—

Puppies.—Four puppies eight weeks old, from the same litter, were selected; two of them received a suspension in milk of Culture H (bovine) and two a similar suspension of Culture K (human), equal amounts being given on 10 days—six days in succession, with an interval of seven days, then four days in succession. The regular food was sterilised milk, bread, and boiled beef. Only one of the four puppies died—the one which received Culture K (human)—death occurring after 57 days. There was a generalised tuberculosis most marked in the lungs and liver. The other puppy of this pair was killed after 65 days. The only lesions found were small cheesy nodules on the surface of one lung, in the parotid and mesenteric glands. The two puppies fed with Culture H (bovine) showed no ill effects whatever and were killed on the eighty-fifth and eighty-seventh days respectively. Both were in good condition, the only lesions found being in the parotid and mesenteric glands, which contained minute caseous areas, none larger than 2 millimetres in diameter.

Pigs.—As with the puppies, four pigs from the same litter, eight weeks old, were taken, two being fed with Culture K (human) and two with Culture H (bovine), equal amounts of a suspension in sterile water being soaked into bread and given for 10 days, with an intermission *of only one day.* The regular food was sterilised milk, ground oats, bran, and corn meal. All four of the pigs died, the average life of the two fed with human bacilli being 118½ days, as against 100¼ days for the two which received the bovine culture. One pig of each pair lived 123 days, dying on the same day. The total difference in gain of weight was only half a pound. All showed post mortem a generalised tuberculosis. While some differences were noticed in the extent of the disease in various organs it cannot be said that these were such as to indicate a greater virulence of one culture than the other. In all the mesenteric glands were extensively diseased, while in one only, fed with bovine bacilli, was there ulceration of the mucous membrane of the intestine. Three of the four showed tuberculous ulceration of the tonsils. The remaining one presented no gross changes in this gland but microscopically areas of necrosis apparently in the lymph follicles were found and sections stained with carbol fuchsin revealed large numbers of tubercle bacilli. The two pigs which lived longest, one of which had received bovine culture and one human culture, both had extensive involvement of the joints, so that for several weeks before death walking was almost impossible.

The result of this experiment is inconclusive as far as the puppies are concerned except as showing that they are readily infected through the alimentary tract. The pigs *showed practically an equal susceptibility to the two cultures.* The ease with which they were infected and the extent of the lesions produced in so short a time were both most striking features and should serve to put farmers on their guard against feeding their swine on milk from tuberculous cattle. In Pennsylvania we have observed several instances in which neglect of this precaution has led to considerable loss.

The cultures included in Table III. were all recovered from animals which had been inoculated or fed with Culture H and Culture K. Their virulence was tested only for rabbits and guinea-pigs. The most striking thing to be noticed in the results is the increase in virulence in the human bacillus *recovered from the hogs K (D) and K (E).* The average length of

original Cu

after eight

infection

hogs killed guinea-pigs in 29½ and 32½ days and rabbits in 71½ and 62½ days respectively, showing a virulence for these animals which corresponds to that seen in bovine cultures. Culture H (F) was recovered from a nodule on the hand of Dr. S. H. Gilliland who accidentally inoculated himself while making a post-mortem examination of one of the goats which had succumbed to the original Culture H. Particular interest attaches, therefore, to this culture. No marked *difference can be detected in the virulence of this culture as* compared with the original. Considerable difference has been noted in the readiness with which the recovered cultures grew in the early generations. Cultures H (A), H (B), H (D), and H (E) all grew vigorously from the start, the last three growing without any stirring of the tissue on the original tubes, while Culture H (G) grew on tubes sealed with paraffin, a result which I have been able to obtain only with the human bacillus with this exception. The morphology of all the recovered cultures corresponded closely to the original.

The following is the comparison and history of other human and bovine cultures (see Table IV.):—

Culture F (bovine) was obtained from a large tumour on the diaphragm of a cow which had been slaughtered for beef. The tumour was 13 centimetres long and from seven to nine centimetres in diameter. On the surface were a number of grape-like masses of pearly lustre. On section numerous caseous areas were found from which an emulsion was made. It contained many tubercle bacilli. A guinea-pig was *inoculated intra-peritoneally* May 18th, 1899. Death occurred on June 6th and from tissues a second pig was inoculated intra-peritoneally. This pig was chloroformed July 31st and a third pig inoculated in the same manner; this third pig was chloroformed August 21st and cultures were made from the spleen and omentum. Scanty growth was observed on Sept. 27th. Under the microscope the bacilli were thick, short, and showed little tendency to beading, staining deeply and uniformly. The further history of this culture is given in the paragraph on "*Retention of* Characteristics in Culture."

Culture Q (bovine) was obtained from the lungs of a cow, No. 5986. This cow was brought to our department on July 6th, 1898, for experimental purposes, being considered then to be in an advanced stage of tuberculosis. The animal was emaciated and coughing badly. Many tubercle bacilli were found in the mucus it coughed up; they were long, thin, and much beaded. The animal died Feb. 12th, 1900. The lungs were infiltrated throughout, many of the areas having undergone caseation and calcification. It was difficult to understand how the animal had lived as long as it did. The mediastinal glands formed a tumour 35 centimetres long by 15 centimetres in diameter which was cheesy on section. The mesenteric glands were enlarged and cheesy. A guinea-pig was inoculated in the peritoneal cavity on Nov. 15th, 1899. On Nov. 30th the animal was killed and cultures were made. Growth was observed first on Jan. 10th, 1900, and sub-cultures were made on the same date. Growth was always scanty.

Culture QQ (bovine) was obtained from the mesenteric gland of cow No. 5986. An emulsion from the centre of the gland was inoculated into the peritoneal cavity of a guinea-pig on Feb. 13th, 1900. On March 5th it was chloroformed and cultures were made. Growth was observed on April 12th and sub-cultures were made on April 17th. Growth was more abundant than that of the preceding culture (Q), but still scanty.

Culture T (bovine) was obtained from milk sent in for examination by a dairyman in Philadelphia. It was inoculated into the peritoneal cavity of a guinea-pig Jan. 24th, 1900. The guinea-pig was chloroformed on April 6th. With an emulsion of its spleen two other guinea-pigs were inoculated intra-peritoneally on the same date. One of these was chloroformed on April 28th and cultures were made. Growth was observed first on June 23rd and cultures were made the same day. Growth was abundant and luxuriant.

Culture U (human) was obtained from a child, three years of age, whose death was due to tuberculous meningitis. At the necropsy the lungs and bronchial lymphatic glands were full of miliary tubercles. The anterior mediastinal glands were much enlarged. The spleen was extensively involved, but the liver less so. On the abdominal surface of the diaphragm were a number of flat yellow nodules. The mesenteric glands were enlarged and contained old yellow, cheesy nodules. One small tubercle was found in the right suprarenal body. Purulent and cheesy nodules were found in the meninges and in the encephalon. The culture was obtained from the mesenteric glands. The pathologist, Dr. Hand, was uncertain as to the origin of this case. Guinea-pigs were inoculated intra-peritoneally on June 15th, 1900. One was killed on July 23rd and with its tissues a second was inoculated intra-peritoneally. This was chloroformed on Sept. 12th and cultures were made. On Oct. 11th, no growth having taken place, the blocks of tissue were transferred to fresh serum and stirred. On Dec. 4th growth was first observed and on Dec. 15th sub-cultures were made. Growth has since been rapid and abundant.

Culture W (human). Obtained from a child nine months old, of scrofulous parentage. The cervical glands on both sides were enlarged. At the necropsy a double broncho-pneumonia was found. One small tuberculous nodule was found on the surface of the left lung and several at the apex of the right lung. The bronchial glands were not enlarged. The tonsils were normal in size, but the glands on each side of the pharynx extending in front of and behind the sterno-mastoid muscle were enlarged and tuberculous, and several contained creamy pus. Three mesenteric glands were enlarged and cheesy; an ulcer was found in the jejunum and another at the ileo-cæcal valve. Peyer's patches and the lymphatic glands about the cæcum were enlarged. The spleen and the liver contained tubercles. The mesenteric glands were employed for the isolation of the culture. This case was considered by Dr. Hand as being probably of tonsillar or pharyngeal origin. Guinea-pigs were inoculated intra-peritoneally on Oct. 5th, 1900. From one which died on Jan. 4th, 1901, a second was inoculated intra-peritoneally. This was killed on March 4th and cultures were made. Growth was first observed on April 12th and sub-cultures were made the following day.

Culture BB (human) was obtained from a child 17 months of age. Death was due to tuberculous meningitis. At the necropsy the lungs were normal, except the posterior and part of the right upper lobe, which was consolidated, red on section, and had excess of connective tissue. The bronchial and mediastinal glands were not enlarged. The spleen, the liver, and the kidneys showed pearly tubercles. Two feet from the lower end of the ileum was an ulcer one centimetre by two centimetres, the long diameter of which was transverse to the axis of the gut. Nodules were seen on the peritoneal surface. Four small ulcers, two above and two below, were found in the ileum. The mesenteric glands were enlarged and cheesy and some were purulent. The meninges showed yellow tubercles, most marked along the longitudinal fissure, in the choroid plexus, and over the cerebellum. The mesenteric glands were used in obtaining the culture. This case was considered by Dr. Hand to be the clearest one of primary intestinal tuberculosis ever seen by him. Guinea-pigs were inoculated intra-peritoneally with an emulsion made from the mesenteric glands on March 9th, 1901. One was chloroformed on April 1st and cultures were made. Scanty growth on one tube was found on June 8th and sub-cultures were made.

The results given in Table IV. show for all the bovine cultures a greater virulence than for any of the human cultures. The average life of the guinea-pigs inoculated with human bacilli was more than twice that of those inoculated with bovine. All the rabbits which received human cultures gained in weight and had finally to be killed, while for the bovine they died, and presented, post mortem, extensive lesions, the lungs and kidneys being the chief seats of the disease in all animals.

(To be continued.)

THE MORTALITY FROM PHTHISIS AND FROM OTHER TUBERCULOUS DISEASES CONSIDERED IN SOME ASPECTS WHICH MAY BE DEMONSTRATED BY MEANS OF LIFE-TABLES.[1]

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HERE are gathered together those who are most competent to make clear the conditions under which the battle is raging between tubercle bacilli and the human race, to explain how these, it may be, originally saprophytic fungi have acquired the power of existing in, and preying upon, living animal bodies, and under what circumstances these latter may have their vital resisting power so lowered that they fall a readier prey to their assailants. Here also are those who by position and capacity are best able to plan and to arrange details of sanitary administration which shall give effect to the scientific knowledge laboriously attained by those who have made study of life and disease. Others, too, are here who in various ways have sought to throw light upon the problems involved by means of statistical methods. There is need on a field of battle for some to be told off to count the numbers of the killed and wounded, and without unduly exalting the position of statisticians it may be claimed that those who in the past as well as at present have been working at vital statistics have had some share in awakening the great public interest and attention of which this Congress is the outcome. Exact representations of the numbers of the living who year by year are being cut off by the germs of tuberculosis, together with gradually increasing certainty that phthisis and other tuberculous diseases are to a very large extent *preventable*, have brought together this great assembly. The simplest mode of statistical representation, of course, is merely to show how many die out of so many living. The next step in advance is by classifying the living population and the deaths into age and sex groups to show the special incidence of the mortality from some particular disease in the respective sexes, and at different periods of life. But instead of asking how many die from a disease out of a thousand or million living we may ask, supposing that this disease could be made extinct, *how many more would be alive at certain ages and how much longer would they live?* Now these questions can be answered by means of life-tables.

In some respects this Congress is being held at an unfortunate time. A year hence it might have been possible to utilise the data of the census recently taken and also the tabulated mortality for the decennium just completed, 1891–1900, and so to have obtained results brought down to a very recent period. As it is we have to go back to the numerical facts relating to the decennium 1881–90. What I propose to do is to show how the life-table for England and Wales for 1881–90 would have been affected supposing there had been during the period no deaths from phthisis or from the other tuberculous diseases, and that all the other causes of mortality had retained their proportional intensity. This is, of course, a mere hypothesis, but it is a necessary working hypothesis. It is possible that the extinction of one kind of disease germs might leave room for the more active development and diffusion of other kinds, but we can only work on the assumption already made that if some one disease should be eliminated those saved from dying from it will be exposed to the chances of all other diseases in the same proportion as before, and that their average exposure to these chances will be for half the year. This is not the time or place for going into details as to what a life-table is or how it is constructed. Such knowledge has to be assumed as possessed by those addressed. I would, however, desire to emphasise the fact that the work of constructing a complete or "extended" life-table—that is, one for every separate year of life—entails an enormous amount of laborious calculation, and that if the object be to have not merely one life-table but a series of life-tables to compare with each other it is practically impossible for one unaided individual to undertake the labour of doing the work by an extended method. The existing duration of life is too short—one would need to be a Methuselah. Even the late Dr. William Farr, with his untiring industry and with the advantage of a staff of trained calculators to help him, employed for the purpose of some comparative life-tables, based on the mortality of England and Wales, for the decennium 1861–70, which were published in the Supplement to the Thirty-fifth Annual Report of the Registrar-General, a short or abbreviated method, details of which are given in the same supplement. Another point which I would wish to lay special stress upon is that, in order to be fairly comparable with each other the life-tables must be calculated by the same method. If the occasion permitted I could give ample proof of this by comparative figures, worked out from the same data by different methods Now, in some experimental work on life-table calculation I happened about three years ago to hit upon some very simple modifications of Dr. Farr's original method of constructing a short life-table, which gave results approximately to those of an extended life-table with remarkable closeness [2] By this method the expectation of life can be

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[1] A paper communicated to the British Congress on Tuberculosis. Section I., State and Municipal.

TABLE I.—*Comparison of Life-table Results as regards Mean Expectation of Life obtained by (a) an Extended Method, and (b) the Modified Short Method used in the Construction of the Succeeding Tables* *

A.—Expectation of Life or Mean after Lifetime at exact age x.

Age.	Males.			Females.		
x.	a.	b	Differences of b from a.	a.	b.	Differences of b from a.
0	43·28	43·32	+ 0·04	46·66	46·67	+ 0·01
5	52·24	52·30	+ 0·06	54·26	54·27	+ 0·01
10	48·59	48·65	+ 0·06	50·64	50·65	+ 0·01
15	44·28	44·33	+ 0·05	46·40	46·40	± 0·00
25	36·28	36·34	+ 0·06	38·50	38·51	+ 0·01
35	28·91	28·87	− 0·04	31·16	31·08	− 0·08
45	22·06	22·04	− 0·02	24·05	24·01	− 0·04
55	15·74	15·71	− 0·03	17·23	17·12	− 0·11
65	10·31	10·24	− 0·07	11·26	11·17	− 0·09
75	6·10	6·06	− 0·04	6·68	6·62	− 0·06
85	3·29	3·32	+ 0·03	3·71	3·69	− 0·02
95	1·72	1·72	± 0·00	2·05	1·97	+ 0·08

* The foundation data are those for England and Wales 1881–90, but for (a) the official life-table has been modified by the calculation of a new set of p_x values from p_3 to p_{2x}, the other p_x values having been left unaltered.

B.—Showing how the Total Expectation of Life at Birth is Distributed with Respect to the Age-periods indicated

Age period	Males			Females.		
	a	b	Differences of b from a	a.	b	Differences of b from a.
0—5	4·02	4·02	± 0·00	4·16	4·16	± 0·00
5—15	7·33	7·34	+ 0·01	7·63	7·65	+ 0·02
15—25	7·05	7·03	− 0·02	7·35	7·33	− 0·02
25—35	6·62	6·61	− 0·01	6·90	6·89	− 0·01
35—45	5·97	5·97	± 0·00	6·30	6·30	± 0·00
45—55	5·10	5·10	± 0·00	5·55	5·54	− 0·01
55—65	3·91	3·91	± 0·00	4·49	4·48	− 0·01
65—	3·28	3·34	+ 0·06	4·28	4·32	+ 0·04
Total ..	43·28	43·32	+ 0·04	46·66	46·67	+ 0·01

C.—Mean Expectation of Life of the Individuals at all Ages from x to x + n comprised within the Age-groups x to x + n indicated.

Age groups x to x + n.	Males			Females.		
	a	b	Differences of b from a	a.	b.	Differences of b from a.
0—5	51·76	51·76	± 0·00	54·07	54·07	± 0·00
5—10	50·57	50·58	+ 0·01	52·60	52·56	− 0·04
10—15	46·43	46·49	+ 0·06	48·52	48·53	+ 0·01
15—25	40·27	40·33	+ 0·06	42·44	42·46	+ 0·02
25—35	32·60	32·61	+ 0·01	34·83	34·82	− 0·01
35—45	25·51	25·48	− 0·03	27·66	27·65	− 0·01
45—55	18·95	18·93	− 0·02	20·67	20·63	− 0·04
55—65	13·09	13·06	− 0·03	14·30	14·24	− 0·06
65—75	8·35	8·34	− 0·01	9·08	9·06	− 0·02
75—85	4·94	4·94	+ 0·00	5·41	5·41	± 0·00
85—95	2·80	2·78	− 0·02	3·16	3·11	− 0·05
95—	1·57	1·62	+ 0·05	1·66	1·67	+ 0·01

TABLE II.—*Life-table for England and Wales for the Decennium 1851–60 based on the true Mean Numbers Living deduced from the Census Returns of 1851 and 1861 and on the Deaths from all Causes during the Ten Years 1851–60.*

Age.	Chance of living one year in the interval from age x		Number of survivors at age x out of a million born.		Expectation of life, or mean after-lifetime at age x, expressed in years.	
	p_x		l_x.		E_x.	
x	Males	Females	Males.	Females	Males.	Females.
0	0·83236	0·86227	1,000,000	1,000,000	42·06	42·15
1	0·93537	0·93820	832,364	862,266	47·06	47·82
2	0·96502	0·96527	778,567	808,980	49·28	49·93
3	0·97607	0·97596	751,336	780,882	50·04	53·71
4	0·98225	0·98222	743,353	762,110	50·78	50·95
5	0·99149	0·99158	720,337	748,559	50·16	50·86
10	0·99512	0·99494	690,211	717,585	47·24	47·95
15	0·99230	0·99205	673,528	699,616	43·35	44·12
25	0·99046	0·99010	623,450	645,945	36·43	37·37
35	0·98754	0·98783	566,449	581,755	29·51	30·77
45	0·98212	0·98183	499,705	517,529	22·80	24·12
55	0·96944	0·97322	417,233	444,190	16·34	17·30
65	0·93646	0·94276	306,883	338,585	10·53	11·19
75	0·86297	0·87390	158,655	187,797	6·03	6·45
85	0·73198	0·74700	36,343	48,731	3·29	3·48
95	0·55138	0·56783	1,605	2,637	1·73	1·81

TABLE III.—*Showing the Differences from Table II. produced by Excluding Phthisis as a Cause of Mortality in England and Wales during 1851–60.*

Age.	Chance of living one year in the interval from age x		Number of survivors at age x out of a million born.		Expectation of life or mean after lifetime at age x, expressed in years.	
	p_x		l_x		E_x.	
x	Males	Females	Males.	Females	Males	Females
0	+0·00306	+0·00168	—	—	+3·37	+4·01
1	+0·00171	+0·00166	+ 2,053	+ 1,892	+3·92	+4·54
2	+0·00097	+0·00100	+ 3,352	+ 3,201	+4·09	+4·75
3	+0·00069	+0·00063	+ 3,937	+ 3,901	+4·19	+4·86
4	+0·00059	+0·00068	+ 4,336	+ 4,301	+4·25	+4·94
5	+0·00052	+0·00062	+ 4,620	+ 4,670	+4·30	+5·00
10	+0·00076	+0·00120	+ 6,270	+ 6,718	+4·35	+5·04
15	+0·00317	[illegible]	+ 8,712	+11,132	+4·29	+4·83
25	+0·00400	[illegible]	+23,503	+36,414	+3·10	+3·41
35	+0·00375	+0·00414	+50,256	+61,827	+2·06	+1·91
45	+0·00376	+0·00500	+66,567	+71,212	+1·14	+0·97
55	+0·00321	+0·00230	+73,960	+84,500	+0·51	+0·49
65	+0·00217	+0·00152	+66,301	+73,529	+0·16	+0·12
75	+0·00073	+0·00062	+38,931	+44,671	+0·04	+0·02
85	+0·00034	+0·00031	+ 9,433	+12,020	+0·01	+0·01
95	—	—	+ 431	+ 613	—	—

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[2] For a description of the methods and for comparative figures in illustration and proof reference may be made to Public Health, vol. xi., page 330, July, 1898, and to the Journal of the Royal Statistical Society,

calculated at quinquennial age-intervals, with results differing by only from 0 01 to 0·10 of a year, from the result obtainable by what I believe to have been the most accurate extended method—that is practically only varying to the extent of from a few days to a few weeks. *Indeed, the results approximate much more closely than do those obtained by extended life-tables worked out by different methods.* It has been, perhaps, necessary to say so much in support of the claim to be made that the method which has been adopted in working out the appended tables is a sufficiently accurate instrument for statistical research. Table I., with its three divisions—A, B, and C—is intended to illustrate and support this preliminary claim. What has been hitherto published of the references already given has relation only to the results in division A; certain other simple devices, by which the short method may be made to yield the results set down in divisions B and C, have occurred to me while engaged in preparing this communication. At some time ere long I hope to publish the details of the arithmetical methods employed. The other tables will to a large extent be left to speak for themselves. The data upon which the calculations have been made are to be found in the Annual Report and Decennial Supplements of the Registrar-General. As it seemed desirable to make at least one comparison with an earlier period I have prepared Tables II. and III., which are intended to demonstrate the effect of excluding phthisis as a cause of mortality in England and Wales during the 10 years 1851–60. Table II. is one of a series as yet unpublished. Table III. has the same relation to Table II. as Table V. has to Table IV. The comparison serves to further illustrate what already was evident by the ordinary death-rate—that the mortality from phthisis has much diminished. Some of the decrease may be, of course, only apparent—we have to consider the less accuracy of diagnosis at the early period and also possible cyclical variations in the intensity of the disease; but the opinion is at least very generally held that a large proportion of the lessened mortality is real and is the result of improved sanitation and bettered conditions of life. Attention may be specially directed to the altered sex incidence of this disease, the mortality being greater among females in 1851–60, from age two to age 35, whereas, except at ages four, five, 10, and 15, during 1881–90, it was greater among males. The remaining Tables relate to the 10 years 1881–90. Tables IV., V., and VI. afford answers to these three questions—supposing that (1) phthisis and (2) the whole group of tuberculous dieases had had no existence as causes of mortality in England and Wales during 1881–90, at each of the ages indicated respectively—(*a*) how much greater would have been the chance of surviving to the end of one year? (*b*) how many more would be living at each age? and (*c*) how much greater would be the mean expectation of life, or, in other words, the mean after-lifetime of each age? With regard to the *lx* columns—that is, the successive numbers of survivors at age *x*—it must be borne in mind that the results of the short method are more and more in excess of those obtained by the extended method from about 25 years of age onwards. However, as the three Tables IV., V., and VI. are worked out by the same method the results are fairly comparable in their proportions to each other. The *Ex* columns are of the greatest importance, and these, as has been shown, are practically identical with those to be obtained by the extended method. The fact which stands out from all

TABLE IV.—*Life-table for England and Wales for the Decennium 1881–90, based on the Data of the Official Life-table, but Calculated by the same Modified Short Method as that Used for the Other Tables in the Series.*

Age. *x.*	Chance of living one year in the interval from age *x*. *px.* Males.	Females.	Number of survivors at age *x* out of a million born. *lx.* Males.	Females.	Expectation of life, or mean after-life-time at age *x*, expressed in years. *Ex.* Males.	Females.
0	0·83896	0·86887	1,000,000	1,000,000	43·32	46 67
1	0·94270	0·94729	836,964	863,874	50·56	52·66
2	0 97617	0·97700	790,891	823,072	52·61	54 56
3	0·98461	0 98487	772,046	804,142	52 88	54 83
4	0 98859	0·98893	760,167	791,973	52·70	54·66
5	0·99467	0·99475	751,494	783,244	52·30	54·27
10	0·99705	0 99669	731,669	762,910	48·65	50·65
15	0·99504	0·99504	720,942	751,135	44·33	46·40
25	0 99226	0 99265	685,947	714,724	36·34	38·51
35	0·98768	0·98946	634,654	663,820	28·87	31·08
45	0 98080	0·98500	560,634	597,164	22·04	24 01
55	0·96537	0·97192	461,836	513,384	15·71	17·12
65	0·93190	0·94132	326,327	386,134	10·24	11·17
75	0·86328	0·87726	161,189	210,907	6·06	6·62
85	0·73462	0·76126	37,056	56,934	3·32	3·69
95	0·54941	0·59522	1,696	3,721	1·72	1·97

TABLE V.—*Showing the Difference from Table IV. produced by Excluding Phthisis as a Cause of Mortality in England and Wales during the 10 Years 1881–90.*

Age. *x.*	Chance of living one year in the interval from age *x*. *px.* Males.	Females.	Number of survivors at age *x* out of a million born. *lx.* Males.	Females.	Expectation of life, or mean after-life-time at age *x*, expressed in years. *Ex.* Males.	Females.
0	+0 00088	+0·00076	—	—	+2·58	+2·57
1	+0·00074	+0 00072	+ 874	+ 758	+3·02	+2·90
2	+0 00039	+0 00037	+ 1,442	+ 1,345	+3·15	+3 02
3	+0 00030	+0 00027	+ 1,710	+ 1,619	+3·21	+3·07
4	+0·00023	+0 00026	+ 1,883	+ 1,816	+3·24	+3·11
5	+0 00025	+0 00033	+ 2,039	+ 2,007	+3·27	+2·12
10	+0 00034	+0·00070	+ 2,912	+ 3,209	+3·29	+3·11
15	+0 00177	+0 00205	+ 4,113	+ 5,810	+3·26	+2·93
25	+0·00301	+0·00278	+16,284	+20,510	+2·58	+2·19
35	+0 00352	+0 00271	+35,065	+38,420	+1·75	+1·29
45	+0 00342	+0 00202	+52,430	+52,048	+0·96	+0·61
55	+0·00278	+0 00146	+61,072	+56,299	+0·41	+0 25
65	+0 00164	+0 00089	+53,939	+48,815	+0·12	+0·08
75	+0 00059	+0 00036	+29,938	+28,936	+0·02	+0·01
85	+0 00018	+0 00013	+ 7,195	+ 8,074	+0·01	±0 00
95	—	—	+ 334	+ 535	—	—

TABLE VI.—*Showing the Difference from Table IV. produced by Excluding Phthisis and all other Tuberculous Diseases as Causes of Mortality in England and Wales during the 10 Years 1881–90.*

Age. *x.*	Chance of living one year in the interval from age *x*. *px.* Males.	Females.	Number of survivors at age *x* out of a million born. *lx.* Males.	Females.	Expectation of life or mean after-life-time at age *x*, expressed in years. *Ex.* Males.	Females.
0	+0·01007	+0·00785	—	—	+3·86	+3·72
1	+0·00639	+0·00524	+10,062	+ 7,844	+3·94	+3·76
2	+0·00274	+0 00228	+14,910	+12,025	+3·79	+3·65
3	+0·00156	+0·00143	+16,762	+13,654	+3·72	+3·60
4	+0·00123	+0·00113	+17,734	+14,621	+3·69	+3·58
5	+0·00081	+0·00087	+18,486	+15,375	+3·66	+3·54
10	+0·00063	+0·00103	+21,062	+18,375	+3·54	+3·39
15	+0·00196	+0·00226	+23,092	+22,064	+3·44	+3·18
25	+0 00314	+0 00291	+36,087	+37,855	+2·73	+2·29
35	+0·00363	+0 00282	+54,825	+55,929	+1·81	+1·35
45	+0·00352	+0·00210	+71,201	+68,943	+0·99	+0·64
55	+0·00288	+0 00154	+77,658	+71,616	+0·42	+0·26
65	+0·00173	+0·00096	+66,416	+60,874	+0·12	+0·09
75	+0·00063	+0·00040	+36,432	+35,769	+0·02	+0·01
85	+0·00019	+0·00015	+ 8,706	+ 9,962	+0·01	±0·00
95	—	—	+ 404	+ 660	—	—

Vol. lxii., parts 3 and 4, September and December, 1899. My friend Dr. A. Newsholme has also done me the honour to insert a description of this method in the last edition of his well-known work on "Vital Statistics" (see Chapter xxiii., page 279).

others is that *if there had been no phthisis the average length of life for each individual born would have been increased by two and a half years.* Another prominent fact is that those who have survived to the age of 15 years would have their average expectation of life increased by about three and a quarter years. Now these hypothetical results are greater than those which would be obtained by abolishing the whole group of ailments classed together as "the seven principal zymotic diseases." As regards the three diseases to combat which the expensive machinery of isolation hospitals chiefly exists—viz., typhoid fever, scarlet fever, and diphtheria—if they could be entirely exterminated the average increase in length of life of those at birth would only be increased by about a year, and those at age 15 would only have about the fourth part of a year to add to their life expectation. Table VI brings out prominently the fact that the group of tuberculous diseases other than phthisis exert their maximum efforts at the earlier ages of life, these being more marked during the first five years, and after 15 years becoming comparatively insignificant. There is another aspect, however, under which the increased length of life brought about by doing away with phthisis may be considered. It has been seen from Table V. that those at the very outset of life would on the average have two and a half years longer to live. Now it is of importance to ascertain, if

TABLE VII.—*Showing how the Increased Expectation of Life at Birth represented in Table V. as produced by Eliminating Phthisis, would be Distributed over the Periods of Life indicated, and also a comparison with a similar Distribution of the Expectation of Life at Birth calculated in Table IV.*

Life period	Age-limits of period	Length of period in years	Males: Values from Table IV. b	Males: Values from Table V. c	Males: Differences of c from b	Females: Values from Table IV. b	Females: Values from Table V. c	Females: Differences of c from b
Infancy	0–5	5	4·02	4·02	± 0·00	4·16	4·17	+ 0·01
School age	5–15	10	7·34	7·37	+ 0·03	7·65	7·69	+ 0·04
Working period of life	15–25	50	7·03	7·14	+ 0·11	7·33	7·46	+ 0·13
	25–35		6·61	6·86	+ 0·25	6·89	7·19	+ 0·30
	35–45		5·97	6·41	+ 0·44	6·30	6·75	+ 0·45
	45–55		5·10	5·67	+ 0·57	5·54	6·09	+ 0·55
	55–65		3·91	4·49	+ 0·58	4·48	5·00	+ 0·52
Totals for working period of life			28·62	30·57	+ 1·95	30·54	32·49	+ 1·95
Decline	65 and upwards	—	3·34	3·94	+ 0·60	4·32	4·89	+ 0·57
Total	All ages	—	43·32	45·90	+ 2·58	46·67	49·24	+ 2·57

TABLE VIII.—*Showing the Results of Tables IV., V., and VI., Re-worked out so as to give the Mean Expectation of Life possessed by the Individuals at all ages from x to x + n comprised within the respective Age groups x to x + n indicated.*

Age groups x to $x + n$	Males: b	Males: c	Males: d	Females: b	Females: c	Females: d
0–5	61·76	+ 2·660	+ 3·390	64·07	+ 2·380	+ 3·070
5–10	59·58	+ 3·290	+ 3·600	62·56	+ 3·115	+ 3·465
10–15	46·49	+ 3·275	+ 3·490	48·53	+ 3·045	+ 3·285
15–25	40·33	+ 2·920	+ 3·055	42·46	+ 2·565	+ 2·735
25–35	32·61	+ 2·165	+ 2·270	34·82	+ 1·740	+ 1·830
35–45	25·48	+ 1·355	+ 1·400	27·65	+ 0·950	+ 0·995
45–55	18·93	+ 0·685	+ 0·705	20·63	+ 0·430	+ 0·450
55–65	13·06	+ 0·265	+ 0·270	14·24	+ 0·165	+ 0·175
65–75	8·34	+ 0·070	+ 0·070	9·06	+ 0·045	+ 0·050
75–85	4·94	+ 0·015	+ 0·015	5·41	+ 0·005	+ 0·005
85–95	2·78	+ 0·005	+ 0·005	3·11	± 0·000	± 0·000
95—	1·62	± 0·000	± 0·000	1·87	± 0·000	± 0·000

The values deduced from Table IV. are headed by (b), the differences produced by eliminating phthisis are headed by (c), and differences produced by eliminating phthisis and all other tubercular diseases by (d).

TABLE IX.—*Showing, expressed in Years, the Total Life Capital in England and Wales at the Middle of the Year 1891, and to what extent this Life Capital would have been Increased by Eliminating (1) Phthisis and (2) all other Tuberculous Disease as Causes of Mortality.*

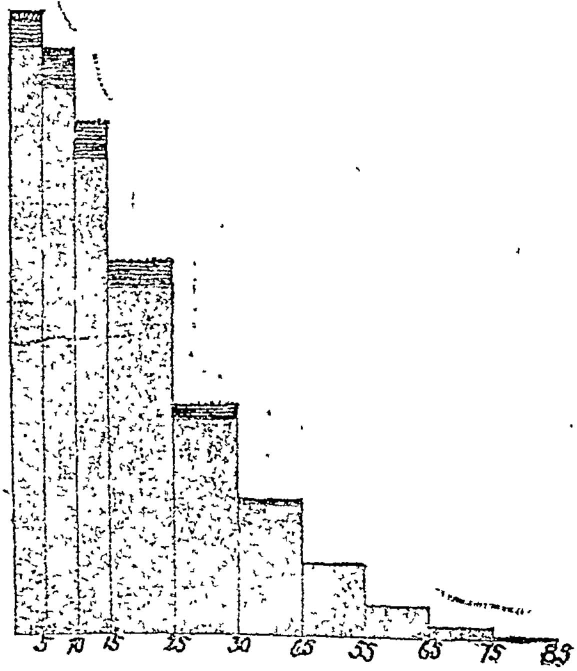
Age groups	Males (b)	Males (c)	Males (d)
0–5	91,741 447	4 750 137	1 253 431
5–10	85 887 276	6,500 [illegible]03	543 375
10–15	75 095 517	6 290 124	347 291
15–25	109 697 690	7,912 420	448,001
25–35	68 310,629	4 535 193	219 953
35–45	41,163 557	2,169 035	72 [illegible]
45–55	22,622 863	818,630	23,902
55–65	10 065 599	204 617	3,861
65–75	3 720 674	31 229	0
75–85	720 608	2,163	0
85–95	44 116	79	0
95—	642	0	0
Total at all ages	509,009 868	31 333,250	2,91[illegible] 312

Age groups	Females (b)	Females (c)	Females (d)
0–5	96,831 607	4,262 241	1 256 601
5–10	89 694 030	5 315 770	697,277
10–15	78 490 820	4,921 256	398 119
15–25	122,604 802	7 477 675	433,903
25–35	79,913 151	3,993 763	183 003
35–45	47 626 298	1 836,3[illegible]8	77,611
45–55	26 998 237	562,736	20 174
55–65	12 064 018	146 7[illegible]9	4 447
65–75	4 951 028	24,891	0
75–85	1 079,957	970	0
85–95	82,788	0	0
95—	1 795	0	0
Total at all ages	561,118,572	28 344 627	2,946 720

Sums of males and females—(b) 1 070,209 440; (c) 59 677 937; (d) 5 [illegible]65 012

—	Average life capital for each individual living: —	Increase by eliminating phthisis	Further increase by eliminating all other tuberculous diseases	Proportion per cent. of life capital expended in a year: —	With phthisis eliminated	With phthisis and all other tuberculous diseases eliminated
	(b)	(c)	(d)	(b)		
Males	36·13	2·22	0·21	2·768	2·606	2·584
Females	37·43	1·69	0·20	2·672	2·543	2·530
Persons	36·80	2·06	0·21	2·718	2·574	2·570

[illegible] given in the [illegible] the census [illegible] estimated [illegible] year 1891. [illegible] Table IX. [illegible] will [illegible] possible, how much of this added life would be lived during the part of life extending from age 15 to age 65, which may be considered as the working period of life? This question is answered by Table VII., which shows that the *working period of life would be lengthened on the average by very nearly two years.* The matter may be illustrated in yet another way. The *Ex* values in Tables IV., V., and VI. apply to those *at the exact age x*, but if these values can be translated into those applying to age-groups, that is, into average values of expectation of life with relation to all the individuals at all ages from x to $x + n$ comprised within the respective age-groups x to $x + n$ (for example, from birth to age five, from age five to age 10, &c.), we shall then have a ready method of calculating what has been happily termed the "*Life-capital*" of a whole community. In Table VIII. such values have been worked out, and in Table IX. they have been used to show what was the total life-capital of the population of England and Wales as it existed at the middle of the year 1891, and to what extent the life-capital would have been increased (1) by abolishing phthisis and (2) by doing away with all other tuberculous diseases. A diagram also represents the results graphically to scale. However, the one striking and outstanding fact, which cannot be emphasised more than by the mere statement of it, is that if phthisis had not existed as a cause of mortality in England and Wales every person living in the year 1891 would have had an average increase in life-capital of two years, and that the abolition of all other tuberculous diseases would only have increased the average life-capital by the fifth part of a year.



The areas of the parallelograms represent to scale the life-capital of the respective age-groups numerically stated in Table IX. The columns indicate the life-capital deduced from Table IV. The transversely marked tops to the columns indicate the increase of life-capital after excluding phthisis. The vertically marked tops to the columns indicate the still further increase of life-capital after excluding all other tuberculous diseases.

The question may now be asked, Are there any practical conclusions and deductions to be drawn from the statistical points which it has been sought to establish and to represent? Now years of human life are capable of being translated into terms of pounds, shillings, and pence, and it is evident that the ravages of phthisis must entail a very serious financial loss to the community. About 10 years ago, after reading a paper upon Life-table Construction before the Royal Statistical Society, I was met by a criticism, good-humouredly, but at the same time pointedly, made, by a member of the actuarial profession present, that it would be better for a medical man to stick to his stethoscope and not to meddle with matters which properly belong to actuaries. My reply was to the effect that, whatever might be the case with medical men as practitioners, it was certainly open to a medical officer of health to utilise such little mathematical knowledge as he might possess in demonstrating the relations between lives and deaths. Should he, as only too probably he may, come short of the mathematical skill of the actuary he may gratefully accept such correction as the latter may be able to give. But when it comes to translating years of life into pecuniary value the writer gladly concedes that this is the special work of the actuary and one for the dealing with which the community owes to him a debt of gratitude. Therefore I can make no attempt to measure the financial loss due to phthisis or the possible gain by abolishing or considerably mitigating the effect of this disease. I would simply desire to represent to those concerned with the management of the industrial and other life assurance societies that it might be not merely an act of benevolence and charity, but one of self-interest and profit, to subscribe something towards the establishment and maintenance of sanatoria for the treatment of phthisis, so as to aid in the restoration to health and the prolongation of life of those who are stricken with this disease and at the same time to be limiting the diffusion of the infective germs to others. This course would not be without precedent for such exists and is already given in Germany. It is only the adoption of a similar principle to that long ago acted upon in their own self-interest by companies insuring against loss by fire—viz., either to maintain fire brigades of their own or to subscribe largely to those established by municipal enterprise.

ON THE PHYSIOLOGICAL CURE OF THE MORPHIA HABIT.

BY W. OSCAR JENNINGS, M.D. PARIS, M.R.C.S. ENG.

IN 1890 I published a little book on the cure of the morphia habit, giving an account of different means of treatment, based upon my researches concerning the craving that had enabled me to wean a considerable number of *habitués* from their addiction, with a minimum of distress and suffering. It may seem an invidious thing to say, but I have no hesitation in declaring that before this there existed no treatment of the morphia craving founded upon therapeutic indications. There was, in fact, no treatment of the craving at all, which is tantamount to saying that there was no systematic treatment of the morphia habit.[1] The so-called "methods" described by contemporary writers consisted of suppressing the morphia suddenly, slowly, or semi-brusquely, and those who could be persuaded to give up their liberty, when they did not die suddenly or commit suicide, were sometimes cured temporarily after indescribable sufferings,[2] but the same ignorance, or rather indifference, concerning the means of alleviating the craving, extended to the means of preventing the discomforts that are liable to occur to those who are left to their own devices after the suppression, and in nine cases out of ten the temporary suppression was followed by a speedy relapse.

I would say at once—for I have long ceased to make any secret of the matter—that my first observations were made in my own case. I endeavoured to analyse and to dissociate the different factors of the miserable wretchedness known as the morphia craving, and I was able to satisfy myself that they were always intensified by a certain number of errors and imprudences that the morphine

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[1] I except that of Dr. Mattison of Brooklyn, who treats his patients by bromides, codeine, and cannabis indica.

[2] A physician, quoted by Dr. Mattison, expresses himself as follows: "Let him (the patient) quit it short, absolute, and entirely. If he have the will power, trust him; if he cheats, lock him up; put a Hercules over him as a nurse." As it *is absolutely certain that* no one whose addiction is of sufficient standing to warrant the expression "morphia *habitué*" could leave it off suddenly by an effort of the will the Herculean nurse would become a necessity. Here is a picture of the treatment by the same authority. "All substitutes are simply a prolongation of the agony he must go through. ...... The patient who quits morphia, after a long-established habit, suffers from insomnia, diarrhœa, nausea, vomiting, achings all over, and debility to such a degree that it is a marvel how he lives. ...... All this suffering will last from five to ten days. No medicine will do any good, the stomach rejects everything, even a mouthful of cold water. ...... At last, after several centuries of torture, little by little, and without medicine or substitutes, *nature accomplishes the cure.* This terrible treatment, I am sure, is not only the best, but the only safe one to cure, and secure the patient from relapse."

habitué always commits, and that on the other hand, they could be prevented in a remarkable degree by simple dietetic and hygienic observances and remedied by a number of means of treatment that result clearly from unmistakeable therapeutic indications. During the last ten years I have had the opportunity of verifying my first observations and I can now affirm that when the line of conduct which I indicate is followed intelligently, the craving can often be entirely prevented, and in every case attenuated to such an extent that there should be no difficulty about suppression for anyone who is really desirous of giving up the addiction.

It might be supposed that the mere fact of a person consenting to commence treatment would be *primâ facie* evidence of a real desire to be cured and that when the reduction is prematurely stopped it is good proof of the failure of the treatment. This is, however, a false conclusion for there are a great many patients who commence treatment under pressure from relatives or in alarm at certain menacing symptoms and when, as is nearly always the case, a slight reduction has led to a disappearance of these symptoms or when the restraint to which they are necessarily subjected begins to become irksome the first resolutions or rather good intentions are thrown to the wind and the patient resumes his liberty of action. He has not given up the treatment *because of any suffering or even discomfort* but because it has turned out that he has not sufficient unity of purpose to carry out what he was momentarily persuaded or frightened into undertaking.

Besides these two classes of patients—those who would get well if the craving could be moderated sufficiently or entirely, and those who do not intend to do so—there is an intermediate class, those who do want to get well and who have no real craving that prevents but who suffer from an hysterical neuromimetic craving. As is the case in all painful hysterical manifestations it cannot be affirmed that there is no suffering because there ought to be none and because there is no reason for any. It is in these cases that great tact is necessary and that experience is more especially requisite. Such patients should never know how much morphia they are taking, or what other agents are being administered, and as the symptoms although really distressing are entirely ideal, ideal treatment must be adopted. In the case of one lady as soon as she knew that she had been reduced to a small dose of morphia the most distressing scenes occurred, but after a temporary return to larger doses a reduction was carried on rapidly without her knowledge and she had given up the morphia entirely for three weeks before she had any suspicion that she was near the end.

Supposing however that a patient is sincerely desirous of giving up his addiction he should commence by consenting to renounce all liberty of action whilst under treatment—he should give up his syringe and his solution to a sure friend, a medical man or a tried and reliable attendant. It may seem superfluous to take such precautions with a treatment that claims to do away with all real sufferings but with the morphia *habitué* it is better to guard against temptation or impulse and the best evidence of a will to get cured is the temporary renunciation of all freedom of action. It requires a considerable exercise of will to renounce one's free will and the re-education of the will is one of the best guarantees for the future.

When the morphia is associated with some other addiction the first thing is to suppress the other stimulant whatever it may be. If it is alcohol or cocaine there is no difficulty worth speaking of in so doing—indeed the quantity of morphia taken becomes more satisfying being antidoted as it were in a certain degree by the other stimulants, when they are taken. A medical man in London who consulted me by letter was astonished when I told him that he could give up the cocaine without trouble, having been accustomed to look upon this as the most difficult part of his addiction. He wrote shortly afterwards to say that he had not experienced the slightest difficulty in carrying out my instruction. A gentleman who afterwards came under my care had commenced treatment with a London practitioner at the time when he was taking eight grains of morphia and an immense quantity of whisky besides brandy, four grammes of albumin representing the result of the kidney irritation. The practitioner offered to allow him extra whisky if he would give up the morphia, a plan which would probably have resulted in delirium tremens. Fortunately he recognised his danger and shortly afterwards he came to Paris. All alcoholic stimulants were stopped in ten days and six weeks later there was not a trace of albumin.

As regards the rate of reduction I have always been a partisan of gradual progression but the actual time necessary for the cure of any given case, depends entirely upon the thoroughness with which the craving can be prevented by the means adopted. Starting from the fact that it is possible without any other treatment whatever, to wean a person from the morphia habit without his knowledge by a sufficiently slow progressive reduction it is evident that the slower the reduction the less distressing is likely to be the craving. The plan which I have adopted is to proceed as fast as possible, but *as slowly as necessary to effect a cure without distress*. If there were no other means of relieving the craving the treatment would then resolve itself into a suppression sufficiently gradual for each patient but this is no longer the case, and when the patient is perfectly docile, allowing his mode of life to be so arranged that all increasing causes of the craving are eliminated, the residual craving is reduced to its simplest expression and can be so alleviated by the means which I use that suppression may sometimes be obtained in ten days or a fortnight.

It is desirable first to bring about a change as soon as possible in the mode of administration of the morphia. If this can be effected earlier in the treatment so much the better, but if not there should be a gradual substitution of *rectal for hypodermic injections from the moment the patient* is reduced to two grains by the skin. Two grains would seem to be the vital requirement. Above two grains morphine can be found in the urine; below this amount it seems to be entirely consumed. It is not, as a rule, possible to get below this figure without discomfort and here a subterfuge should be adopted. From this point downwards twice as much should be given by the rectum as is suppressed by the skin. In consequence of this the patient who has commenced these substitutive rectal injections at two grains hypodermically will be taking four grains by the rectum when the hypodermic injections are suppressed. But this is in no sense whatever a relapse. The great point to be accomplished is renunciation of the syringe—to wean the patient from his accustomed *stimulant*.

Hypodermic injections of morphia give energy and "go" and it is for this reason that the syringe is resorted to on the slightest pretext. It is the exact equivalent of brandy nipping. For the person who has been accustomed to hypodermic injections the effect of rectal injections is quite different. There is no sudden or sensible stimulation and recovery of energy but in its place an even sedation. This sedative effect inasmuch as the dose is larger compensates largely for the want of a syringe but as it is not in the same way stimulating it does not give rise afterwards to the same degree of craving. It is moreover an inconvenient thing to inject morphia by the rectum; the patient will do so to prevent suffering from the effects of hypodermic suppression but it is without the fascination which leads to the constant use of the syringe; he is satisfied to content himself with what is really required to prevent discomfort and has ceased to be the subject of morphia intemperance. It is now that the different means of preventing and remedying the craving that would otherwise result from continued decrease of rectal injection must be resorted to.[3]

The want of morphia shows itself by certain symptoms which, as has been said, are natural indications of the treatment required. It should be borne in mind that when giving up morphia it is a question of giving up not an habitual sedative but principally a stimulant and a stimulant of such transcendent power that the vital collapse which results from its suppression far exceeds anything that could result from the privation of any other stimulant.[4] By gradual reduction and change from the more stimulating hypodermic, to the sedative rectal injections, the collapse that would have resulted from sudden hypodermic suppression is avoided, but if there were nothing to be done beyond progressive reduction of the morphia (as is the case outside of my treatment), the final suppression would, unless spread over a long time, still give rise to a great deal of discomfort. Observation shows that the suppression of morphia, which amounts practically to the suppression of a fictitious vital force, gives rise to general functional depression, and in the glandular organs to metabolic perversions, and these disturbances constitute our therapeutic indications.

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[3] I taper off the morphia as fast as is possible but, as I say elsewhere, as slowly as is necessary *for each case. During the period of* rectal substitution there should be no craving whatever, but when the [illegible] injections are [illegible] and the rectal injections have [illegible] will be proportional to the [illegible] to the means of prevent[illegible] [illegible] this stage in a few days [illegible] and when the last fraction [illegible] render the transition from easy still [illegible] using doses of Duquesnel's [illegible] i.e., a preparation of opium in which the narceine alkaloid is retained after elimination of morphia, codeine, and all the others. This makes the last jump free from the discomfort that there might otherwise have been, for there is very little addiction and no craving that cannot be relieved. After a few days to enable all desire for morphia to disappear it is easily stopped. I have, like many French specialists, also tried at this time an alkaloid derived from aconite known as "napelline." Once or twice it seemed to be useful but further experience has not confirmed what I first hoped from it. It is however harmless and very slightly toxic but it costs 10 francs a gramme and is very difficult to obtain.

The heart always suffers and the sphygmographic tracing shows a sluggishness that is only too eloquent as regards discomfort. This constitutes my first indication of treatment and heart tonics form, then, my first means of preventing the craving.

As is the case with each of the means of treatment that I have proposed, the utility of heart tonics has been endorsed by every subsequent French observer. I shall content myself with one quotation only. Dr. Pichon expresses himself as follows:—

> The pulse of the morphia *habitué* does not afford to the finger any important indication. ...... But there is a registering apparatus, the sphygmograph, which compensates for this insufficiency as regards delicacy of touch and which analyses the slightest arterial anomalies. It is in this manner that the experiments to which we refer and which we had the good fortune of witnessing were made. ...... These researches were made by Dr. W. O. Jennings, attached to the laboratory of Professor Ball, upon the numerous morphia *habitués* who were attending the clinic at the time. ...... Before arriving at a definite result Dr. Jennings took a series of tracings from patients in different stages of morphinism—state of want, state of satisfaction, intermediary condition, and normal condition.

Dr. Pichon then gives the conclusion of the communication presented by Professor Ball and myself at the Academy of Medicine, and he adds: "Nous avons contrôlé à plusieurs reprises ces savantes recherches. Nous avons pris un très grand nombre de tracés et nous sommes arrivés au même résultat." He then points out that the sphygmographic examination of the pulse is, as I have always taught, the best way of telling whether the patient is honest or not in carrying out the prescribed reduction. If the *plateau* is not obtained when the patient ought to be in a state of want there need be no hesitation in concluding that he takes morphia secretly. Dr. Pichon continues:—

> This discovery has been the pivot of the physiological method which appears to have been given (as we shall see at the end of the chapter) very good results. After numerous trials Dr. Jennings found that the sphygmographic tracings, after use of sparteine and trinitrine, gave the same results as morphine. The problem was solved physiologically and clinically. It [the treatment] often gave before us excellent results. ..... Most interesting practical consequences result from these physiological discoveries both as regards diagnosis and treatment.

Further on, after passing in review the different treatments that have been advocated, Dr. Pichon concludes:—

> We should prefer the physiological treatment of Jennings based upon the action of sparteine and trinitrine. ...... We have seen that these two therapeutic agents replace absolutely the circulatory action of the morphinic euphoria, and overcome the state of want by causing the disappearance of the plateau.

Although the administration of heart tonics has been described under my name in some of the monographs as the "physiological method" of treating the habit I have never claimed more from heart tonics than the power of relieving the craving in so far as it is caused by heart sluggishness. This is something—I may even say a good deal—but it is not all, and there are other factors of the craving that are equally important. Before passing to them I would say that in my first memoir I used sparteine because it was easy to demonstrate to the students (when I was attached to the clinique of Sainte Anne) the recovery of the heart, but in my more recent publications I expressed the opinion that it was better to avoid hypodermic injections of any kind in convalescing *habitués*, and that a more even strengthening could be obtained by digitalis given in the usual way. I have recently had occasion to go back to my first opinion. In a case where the digitalis appeared to have lost its efficacy, sparteine did all that was necessary, being even more comforting than I should have expected from a simple cardiac tonic.

The next great factor of the craving is hyperacidity of the stomach and organism generally, and this naturally suggests as a treatment the administration of bicarbonate of soda. For 13 years I have been calling attention to this fact in English publications, and although still apparently unknown in England its importance is now recognised by every writer on the continent, Professor Joffroy of the Paris School of Medicine being the last one to endorse it and to recognise my claims to its authorship. It may seem strange to make a therapeutic agent like bicarbonate of soda play an important part in the treatment of the morphia habit, but some go even farther than this, and make it little less than a panacea. Erlenmeyer has even given this means of treatment the name of "chemical demorphinisation" and he labours under the impression that he was the first in 1895 to suggest its use. As I pointed out in four different publications before that date that hyperacidity is an important factor of the craving and insisted in each instance upon the value of bicarbonate, the only thing that can be claimed truly by Erlenmeyer is to have given a high-sounding name to a discovery of mine and to have correspondingly exaggerated its importance.[5]

It is quite evident that hospital or asylum patients can be forced to give up their morphia whether treated by bicarbonate or not, but bicarbonate will not help to the extent of suppressing the craving by itself, which is the only case in which it would deserve the name of an adequate method. Bicarbonate relieves the craving in so far as it is caused by over-acidity in the same way that heart tonics relieve it *quâ* cardiac sluggishness and nothing more; but it is none the less satisfactory to find that according to others I have understated rather than exaggerated its value.

Various other means of relief may be applied according to symptomatic indications, but the last of my therapeutic triad is the hot-air bath.[6] And here, again, I have certainly not overstated my case, for the author of a Montpellier thesis makes alternate douching with hot and cold water a method by itself, and there is now an institution for the cure of the habit by hot-air baths alone. It is highly probable that other means are used concurrently, for however valuable the hot-air bath may be the cure will never be too easy, and there can be no reason for rejecting any one of the means that have been proved to be useful. In a recent case, wishing to test the value of the baths alone, a very unmanageable patient was submitted to this treatment, but he contrived to cheat and it did not prove nearly as satisfactory as my *confrère*, the exponent of this treatment *and who was directing it, had promised. Being* afterwards placed under conditions which prevented all deception the system of rectal injections, with bicarbonate of soda, was substituted, and he was cured without knowing when he had passed the Rubicon. In alluding to this case I am not desirous of detracting from the value of the hot-air bath inasmuch as here, again, whatever may be the value of the idea, it is my own and forms an integral part of my method of treatment. It is better, however, not to expect from it more than it can do, and in most cases, however great the relief obtainable from the bath, it stands to reason that it cannot be as helpful alone, as the association of the different means of treatment. The effect of the bath, I feel sure, is largely due to its tonic and sedative action, but it may also act as an eliminator of some excitant of craving. This may possibly be the oxi-di-morphine which is formed in the body and is considered by Marmé as its chief cause, experiments having shown that oxi-di-morphine when injected into the system in a virgin subject produces the symptoms of craving. It may be also, as I have always maintained, that it is a moderator of acidity, and this would explain its value in the after-treatment, when the ex-*habitué*, unless extremely abstemious, is saturated with acidity and when it would be difficult to explain the spurious cravings by oxi-di-morphine.

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[4] Some years ago I treated a patient at Sainte Anne—a girl who walked from Brussels to Paris *through* the snow because she had not the money to pay for the train. During her journey she lived upon what bread she could purchase for two or three sous a day, being entirely kept up by frequent injections of morphia.

[5] In my contribution to the *Encéphale* in 1887 I say: "The only medicines that have always seemed to me useful are bicarbonate of soda and preparations of valerian;" and in a note I asked whether this is due to a neutralising action on the acid products of imperfect combustion, &c. In three or four other places I allude to the possible rôle of acidity in the morphia habit and to the value of bicarbonate of soda also in the after-treatment. In 1890 ("Cure of the Morphia Habit," p. 80) I say: "One of my invariable recommendations when there is any stomach difficulty is the administration of bicarbonate of soda in the form of Vichy water. Its effect in the relief of the craving is often immediate, not being limited to the neutralisation of over-acidity of the stomach. Alkaline solutions increase the efficiency of the heart's action and cause contraction of the capillaries, a result which lessens abdominal stasis and helps to facilitate the general circulation." In the Medical Annual, 1894: "Dr. Haig has pointed out (as I hinted seven years ago) that the condition of the organism as regards acidity is one of the factors of the craving. This accounts for the immediately soothing effect of bicarbonate of soda. ...... During this period the discomforts which are caused by the overcharging of the system with uric acid ...... everything should be done to prevent the formation of acid and to promote its excretion. ...... Bicarbonate of soda should be given according to indication, &c." These quotations show pretty conclusively that Erlenmeyer, who announced his discovery in 1895, has copied from me, perhaps unconsciously, although curiously enough he contributed a paper to the *Encéphale* the same year as myself. The treatment therein described—his so-called rapid method—is the one recommended by the few writers, Clifford Allbutt among others, who were not acquainted with mine. Since then Erlenmeyer himself has solemnly renounced this method (*Progrès Médical*, 1896) for his so-called "chemical demorphinisation," which is in reality part of my treatment.

[6] Until within the last year, I wrote in 1890, I generally used to prescribe some kind of hypnotic at the last critical moment, chloral, methylal, hydrate of amylene, sulphonal, &c., but now I rely mainly on the hot-air bath, repeated, if necessary, and followed by the cold douche. For some time after the termination of the treatment I continue these baths, which are also the best means of preventing and combating any revivescence of the craving, and it was through their action as a preventive of relapse that I was led to use the hot-air bath as a means of treatment. ..... The moderate restlessness which occurs when patients are properly treated, disappears entirely in the hot room of the Turkish bath; and the subsequent massage and cold douche form the most perfect sedative that a morphia patient can be allowed. There is no better means, moreover, of dealing with the revival of the craving that occurs from time to time, especially under the influence of indigestion. (On the Cure of the Morphia Habit. Baillière, Tindall, and Cox, London, 1890.) In several of the cases reported, moreover, its use is especially noted; it is mentioned in one case that for the last week the patient took Turkish baths regularly. As a matter of fact, I used the Turkish baths long before 1890, for in a reprint of my paper in the *Encéphale* in 1887 I stated that it was an "excellent means of calming the agitation caused by attempts at suppression, giving rise to sensations that resemble morphia and being foll [illegible] to the [illegible] which agitated"; and speaking of th [illegible] the paper is founded, I said: [illegible] ic or as [illegible] calmant is felt he has recourse [illegible] uld be [illegible] difficult to find a more efficacious means. In the *Medical* [illegible] *l* (1894) I was even more emphatic as to its value and as to its importance as a regular part of my method.

Such, then, are the main factors of my treatment. But *considering that acidity of the system in general, as well as* hyperacidity of the stomach plays a part in the causation of the craving, I always insist on a moderate and, as a general rule, on a non-alcoholic *régime*. In cases where there is at the same time neurasthenia there may be spells of restlessness and a tendency to movement, but at the same time a disinclination to exertion. Here a hammock or a rocking chair affords the means of combining both movement and repose. The patient must try to woo back sleep, and *for this purpose there must* be no reading in bed during the progressive reduction, a practice by which the effects of the previous night's dose are wasted in keeping him awake and sustaining intellectual activity. For insomnia cerebral galvanisation is sometimes magical, but if unsuccessful the best hypnotic is trional. Fluid extract of coca and sometimes kola are used frequently and the only other drug that is taken constantly by my patients is valerianate of ammonia (as prepared by Pierlot) which was taken for the same reason many years ago by Coleridge.

I would give a warning against the synthetic derivatives of morphia recently devised—dionine and particularly heroin which is largely vaunted now as the treatment of the morphia habit *par excellence*. The craving following its use is infinitely more unmanageable than is that of morphine and in two cases treated by me recently the doses were rapidly increased and the patient became violent when it was attempted to suppress it. It is only second to cocaine as a drug to be avoided.

It has been said and repeated that ex-morphine *habitués* are subject to periodical revivals or tides of craving and that these discomforts are more likely to occur in those who have undergone a slow reduction. Both statements are errors of interpretation. In the ex-*habitué* there is always a most extraordinary return of vitality after suppression, a kind of vital exuberance which is so certain that however grave may be the condition of a patient during his addiction, restored health may be promised if the habit is renounced.

One of the best proofs indeed of the advisability of the progressive plan is the fact that when properly carried out patients generally put on flesh during the treatment, and as soon as the morphia is entirely set aside the increase of weight is hourly visible. I have several times known patients to gain two pounds and even a little more per day. This physical recuperation has been taken as an indication to gorge such patients with food, but although the power of assimilation is good, the nervous equilibrium is unstable and when the patient is overfed it leads to metabolic perversions of different kinds. The ex-*habitué* has acquired more or less completely the congestive habit of body which goes with vital exuberance and nervous instability, and one of the consequences of this is a tendency both to hyperchlorhydria and excess of uric acid, both of which are factors of craving. Besides this the ex-*habitué* is generally polydipsic and boulimic and, being encouraged in the matter, he does not restrain his appetite, drinks as a rule freely of fermented drinks and eats in proportion. As he is easily tired and has a disinclination to active exercise he is nearly always saturated with uric acid and on the imminent verge of bilious or gastric failure. This is the real cause of what are called the "after-cravings," for it is easy to understand that when saturated with acidity generally and perhaps suffering also from acute or chronic acidity of the stomach the symptoms experienced will be those associated in the past with these conditions—that is to say, a feeling of morphia craving. We must also remember that every morbid sensation during the past addiction having been uniformly treated by the injection of morphia every malaise in the future will suggest by association the idea of craving for morphia. The best proof that these are not real cravings is in the result of treatment, for if properly treated the craving will disappear and when the ex-*habitué* is careful to lead an abstemious life he is not liable to any such revival. Besides these remedial measures, the ex-*habitué* should do everything he can to promote a healthy tone of the system, taking as much exercise as possible without undue fatigue, to which end he will find cycling—for preference the tricycle—invaluable. Another prophylactic precaution is the regular use of Turkish baths, and with these means the bogey of returning tidal cravings may be set at defiance.

The following cases represent aptly the different points insisted on in the preceding paper. The first is an example of a "demorphinisation" in which all the different means of treatment recommended were employed methodically, *according to therapeutic indications. The patient* was not only cured without suffering but thanks to the observance of a suitable *régime*, was entirely free from any kind of suffering afterwards.

CASE 1.—A man aged 46 years, commenced the use of morphia 20 years ago for gastralgia and had continued it on account of the relief which it gave to business anxieties and the increase which he experienced of business capacity. Besides which his wife having left him when he was just beginning its use he *had drifted into two irregular liaisons*, and he at first found the morphia invaluable for keeping him up to the mark. From twelve grains which he was taking when he commenced treatment we proceeded by half-grain reductions to eight grains, thence by one-third of a grain to four grains, and from four grains onwards by one-quarter grain reductions till the end of the cure. Towards four grains there was a tendency to acid dyspepsia which was, however, kept in check by bicarbonate. But henceforth he consented to be abstemious in *food and moderate in* wine, and his digestion was much improved. From four grains downwards he took a hot-air bath night and morning. As we neared two grains he was less complimentary than usual concerning the result of the treatment, but on my having to put him on a somewhat slower reduction I heard no more complaints of discomfort. At two grains rectal substitution was commenced and the syringe was given up with the greatest satisfaction. The four grains of rectal morphia were reduced by thirds to three grains, by fourths to two grains, and by fifths till the end, and from two grains onward the hot-air baths, which had been temporarily suspended in the course of the rectal substitution, were resumed. No medicine besides sparteine, bicarbonate, valerianate, and coca were used at any time. On the day following the last centigramme of morphia the patient took three cubic centimetres of Duquesnel's meconarceine solution, two on the following day, and one cubic centimetre on the succeeding night. He left Paris on the day after and in several letters, one as late as seven months afterwards, he assured me that he had never had any discomfort that could be said to amount to craving. Infractions of temperance were surely followed by pseudo-craving, but knowing its cause he very [illegible] them and was always able to remedy them by the means which I have so much insisted upon. The only drug he had taken on leaving me was trional, which he had given up a month afterwards. He fully endorsed my statements as to the value of the Turkish baths and of the use of cycling, but when he had fully recovered his strength he preferred golf. In his last letter he made the remark with which I will close—that with such means of preventing and remedying the discomfort that might otherwise occur any morphia *habitué* who relapses does so because it is his pleasure.

The next patient shall give his own account of his experience.

CASE 2.—The patient was a medical man who had given up the practice of the profession for another career, in which he occupied a most distinguished position. I first heard from him in a letter from Tasmania. He says:—

> Nearly a year ago I read a reprint of your paper on the morphia habit. As a morphia victim of some years' standing, though only 43 years of age and still in excellent health, it opens up a new hope to me. I am convinced that under your treatment I can escape from this frightful bondage. Alone or under the ordinary treatment I know I cannot. I implore you as a matter of common humanity, as a brother physician, to reply to my letter at once. ...... It is life or death to me, my future depends on your reply. For God's sake do not neglect this.

His next letter was from London eight months later and he wrote reminding me of his previous communication. He began by giving some information about himself and he confessed that he had at first written under an assumed name. He had taken morphia for 11 years. In my answer I told him that I was quite willing to undertake his case if he would conform absolutely to my conditions, and I advised him either to go to St. John de Dieu or to place himself as a boarder in a nursing institute which I recommended where he could obtain a comfortable room and could have as his attendant the son of the directress, who had acted in that capacity before for several of my patients and whom I had found to be unusually intelligent and competent. I warned him, however, that his attendant would be in a certain way his keeper and that although he would be free to go about as he liked he would have to submit to constant surveillance. In his reply he expressed himself as follows:—

> I am glad you can accede to the idea of constant personal attendance; but he must be a man I cannot bribe, as I know I cannot hold myself responsible under certain conditions. You need not fear any resentment on my part at any measures you may think essential for treatment. And I can tell you plainly beforehand that when suffering for medicine as I have done a few times in my life when the accidents that one is subjected to in a wild country have cut off my supplies suddenly I think I would commit any crime to obtain relief; and, indeed, I have ridden alone, night and day, through 200 miles of the most dangerous Indian country in the world, to renew my supply. ...... My main fear is that while I may succeed in getting rid of the habit there will be such a constant craving afterwards that in some moment of despair I shall fall back again.

The patient came over to Paris and, as suggested, took a room at the nursing institute with the attendant I had advised. During his treatment he used to get up late in the morning, take a lesson in French, then lunch, after which another lesson on the 'cello. Then he would go to different places of amusement and interest. After dinner he played whist at my house, seldom leaving before midnight. When the morphia was entirely left off, he continued as an act of precaution to reside where he had been living and to retain the services of his attendant. He did not leave Paris until he felt perfectly sure that there was no fear of the after-cravings of which he had expressed so great a dread. Before leaving he sent me the following account of his experience:—

> It being now nearly two months since my cure was completed, I will endeavour to give you a brief *résumé* of my feelings, condition, &c. I have experienced not the slightest desire for morphine since I gave it up, and to my astonishment if it ever enters my mind at all it is as something that in my present condition would only congest and benumb me. So that I do not feel that it would be pleasant even if it were not harmful to take. I shall preserve this illusion as long as possible. My strength is slowly coming back, though much impaired at present by a severe influenza. I expected to suffer much from want of sleep, and the first few nights after my cure did not get an hour's sleep. But as soon as I obtained the galvanic battery that you recommended me and passed a constant current of three milliampères through the brain, for a few minutes on going to bed, I at once became intensely sleepy and the same thing happens nightly ever since. I had no belief in its efficacy in my own case, but it has certainly succeeded, and I have not taken a grain of chloral, bromide, or other hypnotic since. I used to have periodical headaches; since my cure I have had none. The bowels that formerly could only be moved by artificial means are quite regular again. I have lost nearly all the fat that was rather marked in the
> suffered fro e reducing the morphia I
> it. With sl l the years I have taken
> since when until I had given it up,
> have a natural (never loose) movement about every second day. The whole world has taken on a different and brighter aspect to me, and I can only finish by saying that I am firmly convinced that you are the only person that could have assisted me to be cured and, above all, *to have no desire for morphia left* in a reasonable time, and without experiencing any actual suffering or unbearable discomfort.

What follows is from fuller notes sent to me six months later:—

> I began with an ordinary dose of 12 grains a day. For the first two weeks there was absolutely no discomfort. This was whilst reducing to four grains by the skin. A certain *ennui* only due to the substitution of regular habits for the more careless life I led. Sleep and appetite, the latter rather poor for years, remained as usual. Then came two or three days' discomfort, the craving coming on before the morphia was due and causing that restlessness that I believe to be indescribable by a person that has not experienced it.[7] *But, after all, it was only discomfort and could be thrown aside and forgotten temporarily if I could only get absorbed in some interesting occupation,* such as a game of cards or billiards. This was between four grains and three. After this little hitch the reduction proceeded without any serious discomfort, though always a certain *ennui*, until I reached the point where you give up the hypodermic
> s morphine by the rectum. This
> v eatment for me. The long-con-
> t sed dose of morphia much more
> than compensated for the less active effect given. Fairly good nights were obtained by reserving nearly half of the 24 hours' allowance for the evening dose, but a little discomfort during the daytime. As the day's dose diminished down to a few centigrammes, the discomfort became more marked, *but always endurable, as shown by the fact that my condition was never such as to prevent me taking a daily lesson in French and on the violoncello, going to your house, and playing whist afterwards.* Indeed, I attributed much of the ease with which I got through the ordeal to following your advice in regards to keeping myself interested and busied as far as possible even when I had little inclination for it.
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> The end of the cure was not particularly hard except that for some nights I was troubled with a sleeplessness that was rapidly demoralising me when you fortunately recommended a constant current from a weak battery. I tried it without the slightest hope or belief that it would help me; but the result was instantaneous and constant. It put me to sleep in from 10 to 20 minutes, and during the first few days of lassitude and weakness gave me from five to six hours of good sleep nightly. Later I slept naturally six hours, and since my return home, four and a half months after treatment, I sleep naturally seven or eight hours and never read over 10 minutes on going to bed. In the past three months the only drug I have taken has been two doses of bromide of potash. I had no looseness of bowels during my treatment and since its completion have taken neither medicine nor injection, they being perfectly normal. I have gained 20 pounds in flesh, though not about the abdomen; have my normal appetite of former times, and excepting a decided sensitiveness of the respiratory tracts suppose I am as well and strong as I could ever expected to be at middle age. I do not find that indiscretion in eating or drinking produces any craving for sedatives, however uncomfortable I may feel. This condition of things I owe to you and am happy to acknowledge it. With a somewhat long experience of morphia and its *habitués*, I must express as my firm belief that the only possible way that I have ever heard of by which I could succeed in escaping from the use of the drug as well as from all craving for it was by following the principles you so forcibly and frequently laid down for me—i.e., gradual but voluntary suppression, constant surveillance without restraint, and absolute truthfulness with you as to my position; nor could I have carried these out without your constant encouragement and your insistence that success was plainly and certainly within my reach if I would only keep up the necessary patience and strength of mind to fight off the tedium and feeling of weakness.

I will add only one detail that my patient omits, which is that his virility, which was suspended as is usual in morphine *habitués*, returned in a remarkable degree after suppression.

Those who have experience of the morphia habit will understand how slight the discomfort which was felt by this patient must have been in comparison with what it otherwise would have been. It did not prevent him taking a lesson each day, in French and on the 'cello, and he was able to play whist all the evening. I find, moreover, on reference to his note-book, that the discomfort that did occur coincided with an attempt on his part to hasten the reduction. I do not recollect now (for it is not stated either in my notes or in the patient's report) for what reason he was unable to take the Turkish bath. Satisfactory as was the result it would have been even better had he been able to do so.

The third case is interesting from the fact that the patient was addicted, not to morphia, but to opium, and that the addiction had lasted nearly 20 years. It shows the ease with which a hopeless addiction may be given up if properly treated.

CASE 3.—The patient, a married medical man, commenced the use of opium at Cambridge between 19 and 20 years ago, taking it as a mental stimulant whilst working for the mathematical tripos. For some time the dose did not exceed a few drops; but it gradually increased until from two to three ounces daily were consumed. At different times attempts were made to effect a cure, on one occasion the progressive reduction lasting from May to December and ending in a failure. To quote the patient's own words: "The agony which I suffered during the attempt is only to be understood by those who have gone through it." Since then, although there was a speedy relapse, the doses have been kept within limits, the daily quantum varying between two and four drachms. In the month of April the final treatment may be said to have commenced, the patient substituting for the laudanum the use of crude opium which was taken to the amount of 12 grains a day, this having been decreased to eight and finally to four grains daily. It was found, however, that no further progress could be made, and when there were east winds or cold weather it was necessary even to increase this daily dose. From the time he commenced treatment with me progress was uniformly satisfactory. To say that he was entirely free from discomfort would be an exaggeration, but for the whole duration of the treatment he never failed to eat two hearty meals a day and, thanks to the effect of cerebral galvanism, to sleep well. The bowels were constipated or irregular and occasionally the seat of restless pain, besides which there were headaches, exhaustion, and depression of spirits, symptoms which may be attributed to difficulty of digestion.[*] From the beginning of the treatment in Paris digitalis was given, and great benefit was derived from the use of nitro-glycerine in the form of Burroughs and Wellcome's compound tabloids, which contain also nitrite of amyl and capsicum. The daily ration was being taken in one dose only, the first thing in the morning, and the patient who was waiting for his dose at from 6 to 8 A.M. was frequently able to fall asleep after the nitro-glycerine and so to economise several hours, only taking the opium at 11 or 12 o'clock. Within a month from the commencement of the treatment the patient attended a meeting of the Société Médicale de l'Elysée, where I read a short note of his case, and the treatment seemed to have come to a successful termination. I have not given the daily progression for the reason that there were no incidents of interest to record. From the first day to the last the progression was followed as laid down, and the last dose of opium was taken on the day anticipated. The following day, however, possibly in consequence of a chill taken on going to the meeting of the society in an open carriage, diarrhœa and tenesmus supervened, [illegible] what is worthy of [illegible] symptoms lasted for [illegible] maining in bed three days. He remained with irritability of the bowels until I gave him some bromide of sodium which had the happiest effect in that respect. After he returned home he wrote to me that the appetite and diarrhœa were unsatisfactory, but they are now all that could be expected.

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[7] I find from my own notes that the reason of this was that the patient had neglected to pay attention to the bowels, which had been obstinately confined for five days.

In the preceding cases little difficulty was met with, and there was in consequence but little discomfort, but in those which follow there wer[illegible]

[illegible] medical officer to a hospital and was unable to give up, even temporarily, his duties. Nothing could have looked less promising, but by constant encouragement he was brought through satisfactorily.

CASE 4.—In his first letter the patient told me that he was addicted both to morphine and cocaine as well as chloral, and he asked me to advise him. I replied that I could give him no aid whatever as long as he took cocaine, which when taken with morphine could be given up without any suffering at once. I gave him to understand that there might be considerable difficulty about resisting the impulsion to take cocaine, but that if that were the case he should at once give up his liberty of action in this matter and place himself under restraint. There was a mental impulsion only, not a physical craving. When he had given up cocaine he was to write again. Nothing could express so accurately the psychology of this case as the patient's own letters, which I copy. The first two refer to the suppression of the cocaine:—

> I can't tell you how grateful I am for your letter received this morning. It is indeed good of you to take [illegible] almost on the point of suicide these h[illegible] was *no* way out of my bondage. I hop[illegible] at least in a week. I have given your [illegible] asked him to act on it, how I wish I c[illegible] such absolute faith in you. As you say [illegible] I have never taken it by the skin. Wh[illegible] I do re chloral and morphine? I n[illegible] mouth. Will you let me know? Please don't forsake me yet, my only hope [illegible] I shall leave the cocai[illegible] morphine and 25 gr[illegible] write soon that I have stopped the cocaine. I can only offer you my most heartfelt thanks. God knows I want to become once more what I was and I feel it is only you that can do it, so please don't drop me. I have such [illegible] me faith because one can see you [illegible]
>
> Thanks to you and my faith in you I have taken my last dose of cocaine and my father has thrown in the fire all the cocaine I had. I believed your words that it was a "mental impulse," although I would not have believed anyone else, and I have found, I must say, little trouble in giving it up. I can't understand it, as all the books I have read speak of it as the cocaine fiend and give one the idea that it is almost impossible to break [illegible] to me now. I have so much faith in you, and you alone. Already I am beginning to feel once more a man. I can only thank you and from my heart ever think of you as my saviour.

I gave him the necessary instructions in reply and his next letter was as follows:—

> I have n[illegible] program[illegible] but I ca[illegible] and two [illegible] to do aw[illegible] First he[illegible] night, had I better take them with the night doses of morphine? [illegible] t do any harm? Fourthly, had I [illegible] local chemist is not, I am afraid, [illegible] much and sometimes too little? [illegible] grains. Please excuse me bothering you so much but you are the only one I [illegible] and even [illegible] physical c[illegible] cocaine? [illegible] after a good meal I [illegible] better take some light [illegible] me up just yet, but I feel very sensitive about troubling you so much. I will try my best to carry out your instructions, it is such a help to receive a letter from you.
>
> P.S.—Does a large dose of morphine produce similar feelings to a want of morphine? I have an idea it says so in your book. May I not read, say for 20 minutes, in bed? The reason I ask is it makes me a little sleepy. I quite understand that longer reading would produce a want of morphia sooner. Have you written any other books on this subject? Although a morphine *habitué*, believe me I tell you the whole truth.

It was two months and a half before I heard from him again, after sending the necessary instructions, which consisted chiefly of a warning against over-eating, and the following was his last letter:—

> I would have written sooner only I thought it as well to wait a little before I report progress. By next Friday I shall have been five weeks since the last dose of morphine. I have not forgotten my promise to write to you. Would you like me to write my experience from the commencement of the practice, or only a few notes on the treatment? I shall be only too glad to do anything you require, as I have to thank you for getting me out of it, so if you would like the whole of my experience please let me know. I am afraid I can't supply details of the treatment as I should wish as I became too bad to keep notes, however, I have notes of the last week.
>
> I have taken as you a[illegible] only a few times as I can't [illegible] speaking now of my experie[illegible] ing off the habit. I do no[illegible] has been, as you warned me, not to exceed at meals. I find if I do that I get an almost intolerable uneasiness, however, that is getting better and I only have it sometimes chiefly in the early morning. I sleep well, six to eight hours. I can now take actual walking exercise, although at first I thought I should never be able to do so.
>
> My chief object in writing you now is to ask what you would like as regards my experience. Please don't think it will be any trouble as I am most anxious to show you my gratitude even in a small way as I can't in any other.
>
> I still have very loose motions not exactly diarrhœa, but still troublesome. I clear out the rectum daily with hot enemata. Do you advise me to go on with this? I also have a great many gumboils. Is that anything to do with the past habit, also occasionally a chilly feeling particularly in the back, often accompanied with attacks of sneezing. I don't feel quite ready for work as I wish to avoid all [illegible] till I get [illegible] a little to [illegible] and again [illegible] all never forget.

This case shows most plainly the rôle of plethora and hyperacidity. It checked his progress when he was at four grains, and I gave him to understand then that he could only succeed finally by adding abstemiousness to the other means indicated. After his last letter I again told him that his too excellent appetite was the cause of the tiredness and other discomforts and of "the certain kind of craving" to which he referred.

The difficulties in the next case consisted of the extreme duration of the addiction, the invincible [illegible] and the shattered state of the health which was as unsatisfactory as possible.

CASE 5.—The patient, who was a high official in one of the Central American Republics, began the use of opium 23 years before for supraorbital neuralgia, it having been given him by a New York specialist who guaranteed that he would cure him for $100. The bargain having been accepted he gave him a tablespoonful of the mixture which took away the pains as if by magic. "J'ai cru," said the patient, "que c'était un spécialiste admirable." He found, however, that he was obliged to increase his dose, and drifted into the habit until three years later, when he was taking 24 grains a day. At this juncture an attempt at suppression was made, and as a result five grains of morphia were substituted. Ten years ago the daily dose was 24 grains of morphia, when an attack of pneumonia occurred during which it was reduced to 12 grains, at which it remained. Continuing to enjoy good health, he did not make any further attempt at giving it up, but at length symptoms of dyspnœa set in with stomach troubles that made matters less pleasant. Sleep at night had now become a thing of the past. It was impossible for the patient to repose in bed, and he sat up in his arm-chair reading all night. In the daytime he dosed in the intervals of his receptions. He did not lose his mental vigour or memory. Finally, however, the gastralgia became chronic and his legs began to swell. When I saw him the swelling had disappeared; but in other respects he was the same as he had been for the last three years. The insomnia was absolute at night; the little sleep he had consisted of intermittent dozes in the intervals of receptions. There were also the dyspnœa, which caused him to pass the night in his arm-chair as already related, and painful dyspepsia which made everything but coffee and milk difficult to take. There were great emaciation, his weight being 57 kilogrammes, and extreme exhaustion. Besides this he suffered from occasional attacks of malarial fever. He was to have placed himself under my treatment at once, having left Central America for that purpose only, but being seized with an attack of fever he was induced by his friends to call in an eminent professor of the Paris Faculty, who declared that reduction of morphia in such a state of emaciation would mean death but that when a certain amount of flesh had been put on and the general health had improved the morphine could be diminished without danger. The patient objected that the emaciation was caused by the morphia and that he ought to pick up flesh by leaving it off, but the threats of death being repeated and it being promised that he should gain a pound a week by the treatment he allowed himself to be persuaded. For seven weeks the patient's health continued to decline and his weight decreased to 55 kilogrammes. Another professor who was now consulted gave it as his opinion that it was a very difficult case and advised hydrotherapy, but the patient did not like the idea and decided to place himself in my hands forthwith. He had increased from 10 to 12 grains of morphia and had lost a corresponding number of kilogrammes of weight during the preceding two months.

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[*] This case was treated 10 years ago, before my means of treatment were as complete as they are to-day.

On commencing treatment he was taking the 12 grains by the mouth, and in one dose only. This was to be taken at 8 A.M., a third of a grain to be diminished daily. On Nov. 1st he had reduced as per programme to seven and one-third grains and now entered the Maison St. John de Dieu. By the 10th sleep, which had been better since the beginning of the treatment, now came rarely before 4 A.M. On the 12th one and a half grammes of hydrate of amylene, repeated every two hours after 12 P.M., gave six hours' uninterrupted sleep. On the 17th the patient felt wonderfully well and was at two grains. The stomach was better than for years previously, the digestion was good, with no craving, and the sleeplessness was remedied by hydrate of amylene. The patient had all the time been taking digitalis and bicarbonate of soda. On the 19th he had morphia, one and two-thirds grains. The patient began to complain of discomfort; and I was most anxious to slow the progression, but his friends (and whenever I called upon him I found him surrounded by half a dozen of them) were all for "firmness." He was therefore constrained to continue at the same rate of reduction. The time for giving the morphia was now changed to 9 P.M. Until the 25th the progression was kept up in the same manner, although extra doses were given when the patient would bear it no longer. Bromide of potassium was now tried, but the next day the patient was miserable, sitting almost in the fire to keep warm. Morphia, one grain. From this date (Nov. 25th) when the patient was taking one grain of morphia, until the 30th, it was decreased by one-sixth of a grain daily, cannabis indica being given in increasing doses from 30 to 70 drops, and laudanum in rectal injections to the amount of 25 drops on the last two days. By Dec. 1st the patient was to have no further medicine of any kind but to rely on the hot-air bath, but he could not bear the feeling of suffocation and the attendant gave him a small dose of chloral. On Dec. 3rd he had slept very little, but he was free from craving. Two days later he left the establishment, still suffering from insomnia, and three months later I heard that with this exception he was doing well, having recovered his health and his ability to sleep, when he could manage it, on a couch.

The most interesting question arising out of this case, in my opinion, is that of the conduct which should be adopted when the patient begins to complain of suffering. I think myself that when a morphine *habitué* has given proofs of firmness and goodwill he should be credited with good faith and encouraged for what he has accomplished, instead of being suspected of a desire to relapse. To put on moral pressure, to make a man do a little more when he has really done his best and has arrived at the limit of endurance, is unwise. Almost the whole secret of treatment in a morphia case consists of knowing when to take the initiative and to counsel slower progress. If the progress has been too fast one may even go back a day or two, but by slowing in proper time all suffering may be obviated and a temporary increase, which is a bad precedent, prevented. It is better for the medical attendant to prescribe the reduction than to be obliged to yield to the patient's requirements.

The next case I report more on account of its intrinsic interest than as an example of a successful conclusion, for though the present condition of the patient was entirely unhoped for I am very much afraid that there is every likelihood of a speedy relapse.

CASE 6.—A gentleman, 30 years of age, wrote to me from England describing his case and asking me to undertake his treatment. Eight years before he had had malarial fever in South Africa with black urine, albuminuria, and general œdema, followed by the most extreme emaciation and prostration, to such an extent that he had to be carried about. For some time he was also annoyed by phthiriasis. Returning to England to die he picked up on the voyage home to a certain extent. But rheumatic arthritis now intervened and the joints became contracted and ankylosed besides being the seat of constant, with periodically increased, pains. The left knee became ankylosed at the right angle. Three years afterwards, consulting Sir William Mac Cormac, this was broken down, the limb being straightened to the position of standing at ease and one of the arms is now fixed at a right angle, the other assuming naturally this angle but having slight motion of flexion and extension. After the breaking down of the knee the patient began the use of morphia, and his life was passed in going from one health resort to another with his nurses. Besides morphia he became addicted to excessive quantities of alcohol and in driving recklessly under this influence he was twice pitched out of his dogcart on to his damaged limbs. The inflammatory condition had been aggravated by gonorrhœa and his health had not been improved by syphilis. Two years ago he suffered from an acute attack of rheumatic fever and was given such doses of salicylate of soda that the heart's action became extremely slow and imperceptible. The patient remained in a state of coma for 10 hours. His medical attendant having given hypodermic injections of atropine for this condition this alkaloid was also used abusively until he took a tubeful of tabloids a day, symptoms of mental derangement being ultimately caused.

The letter in which I was made aware of these facts was so strange and excited that I did not like the look of the case at all and advised that someone should be sent to me who was well acquainted with the patient and could furnish me with the fullest particulars of his case. A few weeks later his mother came to Paris, and her account of his unmanageableness was such that I would not hold out any encouragement, but I consented to treat him without guaranteeing any kind of result. On his way to Paris he was persuaded to put himself into the hands of a "specialist" who told him that the immediate danger was the morphia and that he would allow him even more whisky to enable him to give this up. He had at this time four grammes of albumin per litre. After a short time he came on to Paris. I saw the wreck of what had been a good-looking fellow, a face and body puffed and bloated from alcoholic excess. Besides the symptoms already described, he was suffering from morning sickness, for which brandy was taken as a medicine, whisky being pegged at during the rest of the day, and wine being taken liberally at meals. There were four grammes per

litre of albumin. I declined to discuss the question of morphia until the last drop of alcohol had been renounced, the cessation of the added addiction being in such a case a *sine qua non*. I felt convinced that my connexion with the case would last at the outside but a week, and, indeed for about this time he trifled with the treatment, but at the end of the week I called one day when he was more than usually fuddled and it appears that he felt so ashamed of himself that he took a
sudden re
all stimu
entirely
baths on account
although he had
For a couple of months the progression went on, but when he had got to about half a grain he was taken with a painful subacute attack of his joints, and thinking that the Paris air did not agree with him he left for Ostend to recruit. Instead of being away six weeks, as was intended, from Ostend he returned to Brighton, relapsing as regards morphine but keeping strictly away from alcohol. His face and body had resumed gradually a healthy appearance; he was able to put on clothes that had been too small for years, and his friends all considered the change in his appearance as miraculous. Five months later he began to experience uncomfortable sensations about the heart and once more he returned to Paris. On this occasion the treatment was renewed, and in the course of a couple of months he got down to a few centigrammes of morphine by the rectum. I begged him to stay until he was entirely cured, pointing out how surely he would relapse, but he was no longer afraid of pain as I had found means to suppress that entirely and he felt sure that he would be able to effect the remainder of the reduction by himself. In Brighton he had two returns of the pains and on each occasion he discovered that he had committed infractions of the treatment that had prevented it unawares. On each occasion the pain disappeared as soon as this was rectified. Finding a month later that he had again relapsed he came back once more to Paris, as I hoped until I should allow him to leave. Besides his crippled condition which always made walking difficult, a swelling had developed on one of the flexor tendons of the foot which was painful on pressure, so that he was unable to relieve his restlessness by walking about. He was then taking two grains of morphia by rectal injections. In 10 days these were suppressed without discomfort, but the day after he felt an uncomfortable restlessness and had 20 drops of laudanum. He admitted that he had frequently had similar restlessnesses as a result of his rheumatic condition and enforced immobility so that it could not, according to him, be fairly ascribed to craving. To indulge him I allowed him to have a small dose of heroin, but I found that in the course of a few days he was increasing the dose and he admitted looking for it with greater desire than he had ever experienced before. It caused also great disturbance of sight and a condition of sub-delirium. It was stopped and a small dose of meco-narceine was given instead. But he was not yet destined to be entirely cured for the nurse let him fall out of bed on his worst arm and a few hours afterwards there was considerable local inflammation and swelling, with a temperature of 103° F. Fearing mischief and in view of his restlessness and sleeplessness I gave him half a grain of morphia hypodermically with the result that the next day the temperature was normal and the joint which had been wrapped up in glycerine of *belladonna* was no longer tense and tender. As I would give him no more morphia he had to fall back on the meco-narceine solution, and the next morning I found that he had taken about a grain. For some days this was continued and my patient then declared that he must go back to Brighton on important business, being convinced that he could give up the meco-narceine by himself in the course of 10 days. It should be noted that with the exception of the two occasions above mentioned there had never been the slightest return of pain whereas for years previously he had never been a week at a time without experiencing it, especially in bad weather such as we had been constantly having. Much against my wish the patient left for Brighton promising to write for guidance if in difficulty. For three weeks there was no news and then came a telegram saying that he was dangerously ill and calling for my presence at once. On arriving in Brighton I found that he had relied upon having a sufficient provision of meco-narceine, but that it had run out unexpectedly and it had been impossible to procure any in Brighton. I had felt sure that whatever folly was committed he was safe with the albumin before his eyes from returning to whisky, but this is what he had actually done. He had when I arrived been five days without meco-narceine, steadily drinking whisky, and his heart was in a most unsatisfactory condition. Half a grain of morphia was given to enable the whisky to be stopped immediately. The face was looking bloated and distorted and the urine was slightly albuminous. The next day the meco-narceine was resumed and I stayed for a fortnight until he was taking only three cubic centimetres. A week later he gave me to understand that it was all finished and as far as any real difficulty is concerned there is no reason why this should not be so. The return to alcohol, however, makes me think that there is very little hope of a permanent result, and if one or the other must be taken it is better that it should be a moderate quantity of rectal morphia. In the course of the treatment he had lost over two stones of unhealthy fat.

This case is one of the most remarkable that I have ever met with. The patient was handicapped by his crippled condition which condemned him to immobility and his incapacity to bear hot-air baths. I did not at first expect to meet with any success at all. The case was also remarkable for the excruciatingly painful feelings caused occasionally in the head by certain injections of morphia. Nearly every *habitué* experiences sometimes a painfully constrictive feeling after injections which are supposed to have been thrown straight into the veins, but in this th
speechless and paralysed
his anxiety. In this ca
it probably is—was it
the patient had given up the alcohol and his albumin had disappeared the courage with which he continued the treatment made me hope that he might be weaned without suffering. For although when away from me he relapsed there was no nonsense when he came back and he did not make his discomfort a pretext for delaying progress. Notwithstanding the fact that he was so heavily handicapped in not being able to comply with so many of my recommendations (Turkish baths, amusements, and occupation) I was greatly disappointed that he should feel any discomfort, but instead of grumbling he would seek to console me by assuring me that he had had such discomforts independently of morphia and that although the treatment adopted had put an end to his rheumatic pains the restlessness he experienced was probably due to this cause.

The last three observations are examples of the class of cases to which I have alluded in which reduction of morphia results in hysterical affirmations of discomfort which are in reality false. In such a case it is the knowledge that a small dose is being given that causes the distress which if the progression is properly carried out is purely imaginary. And the patient is not satisfied until he is convinced that he has obtained what he supposes he requires. The psychology of such cases is very complex, but the practical upshot is that these patients should never know how they stand in their progression or what other medicines are being given for their relief.

a cure under difficulties
29 years was sent to me by
before he had had tuberculosis and pneumothorax. He had taken morphia for three years altogether and had been demorphinised five times. Two months previously the morphia had been suddenly cut off, and on leaving the institution where he was treated he had immediately relapsed, declaring to his father that he would always return to the morphia if treated by compulsion, but that he would consent to a gradual reduction on the principles laid down in my book with which he was acquainted. His mother warned me that he could not be believed, that he was the most vicious being in existence, and I afterwards found that he took a positive pride in keeping up his reputation. His body was covered with sores resulting partly from abscesses and having all the appearance of rupia, and the existence of syphilis was proved by other symptoms, amongst them destruction of the nasal septum. He refused to submit to anti-syphilitic treatment in order to prevent the sores from improving and the numerous abscesses [illegible] to continue to have a pretext for keeping up the morphia.

To begin with, the cocaine which he was also taking to the amount of 15 grains was suppressed in a few days. The morphine had been reduced from six grains to a fifth of a grain, and he was beginning to put on flesh. The emaciation had been excessive. My assistant unfortunately allowed himself to be persuaded at this moment to give him a small dose of heroin and in a few days he became quite unmanageable and developed a condition of semi-mania and agitation. When I was told this I stopped the heroin at once, allowing four grains of morphia, and after a fortnight's resistance, rectal injections being substituted and the patient professing to be entirely free from discomfort, the treatment was organised in a much severer manner. He had previously supposed himself to be getting cured voluntarily. After a week it was discovered that he had all the time managed to deceive. Each time the rectal supply of morphine was given he had slipped the cannula off the syringe and fixed it to a hypodermic needle previously inserted in the skin of the abdomen. When this was discovered the possibility of its repetition was guarded against, and the treatment was henceforth carried on without reference to his wishes or recriminations. In 10 days more the morphia was suppressed without his knowing it. He acknowledged that he had had no feeling of craving, but notwithstanding this he felt an irresistible impulse to take any drug that might be left at his hand. A fortnight after the last morphia he recognised that the mercurial treatment which he had been persuaded at last to adopt had been of the greatest benefit. All his sores and abscesses were cleaning and healing; but here, again, to make up for lost time he would treat himself in his own way by excessive doses. He declared that the protoiodide of mercury gave him feelings of euphoria.

The patient in this case is certain to relapse, for although he admits that he has no craving his one wish is to find a pretext for returning to morphia. He is in the same state of mind as the greater number of those who have been cured by compulsion in special houses, and is an example of the hopelessness of a cure being permanent when so conducted.[9]

CASE 8.—An American lady, 28 years of age, voluntarily submitted to be treated in order to please her protector; but when the morphine was getting low, although she did not ask for more, she manifested every hysterical symptom imaginable calculated to force my hand. It began by hysterical vomiting and anorexia. This condition not having been considered by me as a sufficient reason for moderating the treatment, a consultation was asked for with Professor Raymond who endorsed my statement that it should be continued as before. As the progression continued the intention of returning to morphia was admitted, the bitterest complaints were made as to craving, and symptoms of extreme hysterical agitation developed. Fortunately, all her servants recognised that it was their interest to prevent her relapsing and combined to coöperate in the treatment; and the different medical men whom she insisted on seeing, with one exception, declared that the treatment should be carried through. To counteract this rather strange exception I fortified myself by the coöperation of Professor Labadie-Lagrave and henceforth no further interference was allowed and the progression was continued mercilessly. It is not that there was any real suffering, but a refusal to give a supplement of morphia to relieve the terrible craving that was simulated would throw my patient into the most violent excitement. On one occasion, in her anger at not being able to have her own way, she very nearly managed to drown herself in a large American bath. After being received with speechless indignation when it was not with tearful reproaches, I could always manage to excite her interest, and 10 minutes later she would be gaily talking about some absorbing matter, toilette, jewellery, or the races, or, perhaps, the progress of my other morphia cases, in which she took great interest. She recommended to me, for them, "the greatest firmness." The complaints of "craving" would be repeated at first from time to time; but after she had forgotten them two hours would often elapse without its being remembered. The reduction was carried out under these conditions, imaginary extra doses being sometimes accorded, and the morphia was given up as per programme. Unlike the next case to be related, when she recognised that she was cured she was most grateful.

CASE 9.—A lady, aged 50 years, but looking 70 years of age, was sent to me by Dr. Bérillon. She was covered with abscesses, she had scarcely a tooth left in her head, the urine was slightly albuminous, and she was in so great a state of prostration that her ordinary medical attendant in the suburbs did not expect her to live and looked upon her removal to Paris as most dangerous. Before coming under my care the morphia had been kept within bounds to a certain extent by her medical man and she was then only taking 12 grains. In this case the same thing occurred exactly as in the previous one. When the last hypodermic syringes were reached the patient, who was resolved to compel me to return to larger doses, manifested all kinds of hysterical symptoms and claimed to be suffering from the most acute craving. She had begged me on her knees not to delay the commencement of her treatment at first, when alarmed about her condition, for there had been some question of a delay for a few days. But as occurs in these hysterical cases when the morphia was reduced to the period of rectal injections, in which period it is impossible to feel craving, she became loath to give up the syringe and wanted, as a fact, not to renounce all treatment, but to order the progression herself with me to countersign it. She had already been treated by dozens of other medical men who had been compelled either to look on or to throw up the case and she did not intend to allow herself to be constrained by me any longer than it suited her inclination. Supported, however, by her husband, she really took what had been arranged, thinking all the time that she was working her own sweet will. She had been having no morphine whatever for three weeks before she had any idea that she was near the end. Here the strange perversity of the hysterical temperament was fully shown. For tired at last of carrying on a comedy of a scene each night before I would allow myself to give the (imaginary) extra morphine, I informed her one evening that she had taken none for three weeks and that I would not lend myself to this nonsense any longer. Instead of being pleased she became simply enraged, and, having recovered her health, persuaded her husband to give me my *congé*. A few days later she was again taking large doses of morphia, and six weeks after she was found dead in her bed from an overdose of chloral.

There are two interesting points in this case: the first is that notwithstanding her protests of craving when she was aware of what she was taking, she was cured by my plan without discomfort; the second is the fact that in the morphia habit, however bad the physical condition may be, recovery is possible if the morphine is given up.

Paris.

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[9] My previsions have been realised since writing this paper, the patient having relapsed to cocaine, not morphine—that is, not on account of a craving, but in order to re-taste the regretted stimulation.

PASTEURISATION OF INFECTED MILK.

BY E. SYDNEY ST. B. SLADEN, M.D. CANTAB.,

JOHN LUCAS WALKER STUDENT.

THE danger of using milk containing micro-organisms that cause scarlet fever, typhoid fever, diphtheria, and consumption is diminished by heating it to 80° C., and keeping it at that temperature for 10 minutes. If the milk be heated to 85° C. all such danger appears to be removed. In order to obtain exact information on this point I have collected the statistics contained in the following table in which are given the temperature and time required to bring about the death of, or to inhibit the action of, the tubercle bacillus. This temperature of 85° C. is higher than is required to kill the micro-organisms of scarlet fever, typhoid fever, and diphtheria.

The first column gives temperatures rising by five degrees from 50° to 90° C. The second, third, fourth, and fifth columns give a summary of the results arrived at by G. Sims Woodhead[1] in his report to the Royal Commission on Tuberculosis. The sixth column gives the opinions of various workers on this point.

The danger of using milk yielded by cows that have not passed the tuberculin test is without doubt a real danger, especially in the case of infants, young children, delicate people, and all those who have to be fed on a milk diet.

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[1] 1. Report of the Royal Commission appointed to inquire into the Effect of Food derived from Tuberculous Animals, 1895, Part I., p. 19. 2. Appendix to the above report, pp. 145 to 179. 1 and 2 refer to experiments made with milk.

TABLE SHOWING THE TEMPERATURE AND TIME REQUIRED TO BRING ABOUT THE DEATH OF, OR TO INHIBIT THE ACTION OF, THE TUBERCLE BACILLUS.

Temperature	Inoculation	Feeding			Results of various experiments by—
		Guinea-pigs	Cats	Pigs	
50° C	15 hours	5 hours	4 hours	Not stated	—
55° C	7 ,,	3 ,,	Not stated	,,	Forster and C de Man * four hours
60° C	8 ,,	25 minutes	15 minutes	Over the hour	Forster and C de Man one hour; Bonhoff † 20 minutes; and Schroeder,‡ 15 minutes
65° C	4 ,,	2 hours	10 ,	Over 40 minutes	Forster and C de Man, 15 minutes; Forster § 15 minutes
70° C	45 minutes	20 minutes	30 ,,	,, 45 ,,	Forster and C de Man 10 minutes, Yersin,|| 10 minutes; Lidoux Libard ¶ one minute
75° C	30 ,	15 ,,	Over 15 minutes	,, 15 ,,	Bitter ** 15 minutes at 75° C, Forster and C de Man, not stated
80° C	Simply heated to	Simply heated to	Simply heated to	,, 10 ,,	Forster and C de Man, five minutes, Copenhagen Milk-supply Company,†† 30 minutes.
85° C	2½ minutes	,, ,,	Not stated	Not stated	Forster and C de Man, not stated, Bang ‡‡ a few seconds
90° C	Not stated	,, ,,	,, ,,	,, ,,	Forster and C de Man, two minutes

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* [illegible] 1892 No 23 ‡ Bulletin of the United States Bureau of Animal [illegible] de l'Institut Pasteur, tome ii p 64 ¶ Grancher and Lidoux [illegible] [Zeitschr]ift für Hygiene, 1890 Band viii, p 240 †† A Steward MacGregor, [illegible] p 22

The danger of using milk that is not heated in any way is sometimes present where the water for washing the milk-cans is contaminated with the typhoid bacillus, or where the milk is infected by the persons employed in the dairies who may be suffering or recovering from mild attacks of scarlet fever or diphtheria. With regard to the above well-authenticated outbreaks have occurred The following evidence is conclusive as to the danger of using raw milk containing virulent tubercle bacilli Dr Harold Scurfield[2] quotes Bang as follows "In any large herd in which tuberculosis is rife one will be certain to find one cow the milk of which contains tubercle bacilli and which has tuberculosis of the udder" Out of 144 samples of milk coming from the Liverpool cowsheds, four, or 2 8 per cent, were found to contain the tubercle bacillus, but of 24 samples of milk "from the country" taken at the Liverpool railway stations, seven, or 29 per cent, were found to contain this bacillus In some later experiments in Liverpool 12 out of 228 samples of town milk—i e, 5 2 per cent—were found to contain the bacillus and nine out of 67 samples of country milk—i e, 13 4 per cent In Manchester 17 out of 93 samples of country milk were found to contain the tubercle bacillus By permission of the farmers the city veterinary officer visited 16 farms from which the milk came, and on 14 of these farms he found at least one cow with tuberculosis of the udder Another example is cited by Nocard[3] The seventeen-year old daughter of a medical practitioner in Geneva was in perfect health up to the end of 1892. No case of tuberculosis had occurred either on the father's or the mother's side of the family for several generations In 1893 she began to waste away and the practitioner was able to assign no cause for the wasting, she died in a few months A post-mortem examination showed that tuberculosis of the bowels was the cause of death Inquiry showed that the family used to spend every Sunday at a small estate on the hills, and that this young girl was particularly fond of milk fresh from the cow Four of the five cows on the estate when tested with tuberculin were found to react and were slaughtered Two of the four had tuberculous disease of the udder Dr R. G Freeman[4] writes as follows: "It has been thought that a protection may be provided by a germicidal action of the gastric juice on the tubercle bacilli That such protection is not afforded by the gastric juice of guinea pigs has been shown by the experiments of Baumgarten[5] and of Fischer,[6] nor by artificially prepared gastric juice by those of Falk[7] As a matter of fact we know that primary intestinal tuberculosis does occur in man Woodhead[8] states that he has seen a very large number of cases in which infection seemed to be from the intestine. Cohnheim, Aufrecht, and Peterson[9] hold the same view Three cases of evident primary tuberculosis of the intestine have been reported recently, one in an adult by Dr Hodenpyl,[10] and cases in infants by Dr Northrup[11] and by Dr J Lewis Smith and the writer[12]

CLINICAL EVIDENCE OF THE TRANSMISSION OF TUBERCULOSIS BY MILK.

Clinical evidence of the transmission of tuberculosis by milk is less satisfactory than is that furnished by some other diseases on account of the long duration of the incubation period, the less acute character of this disease, and the varying degree of susceptibility to it found in different individuals Some cases, however, are reported in which the evidence against the milk is fairly strong Thus, in a dairy in Scotland[13] three cows were found to have tuberculous disease of the udder In the institution to which this milk was supplied the mortality from tuberculosis during the last year was 30 per cent and during the preceding year 40 per cent of the total mortality. Brouardel[14] reported that in a boarding school in which there were 14 girls five contracted tuberculosis from drinking the milk of a tuberculous cow Ollivier[15] tells of another boarding school in which milk from a tuberculous cow was used and in which 13 cases of tuberculosis occurred [illegible] the Children's Hospital at Berne [illegible] in intestinal [illegible] fed upon [illegible] ithack and Sladen[17] found on examination of the Cambridge milk supply that more than half the supplies tested—nine out of 16—proved infective while of the 90 guinea pigs inoculated in the course of the experiments no less than 23 (25 55 per cent) developed tuberculosis There is an opinion prevalent in some quarters that the conveyance of tuberculosis by cream is slight as compared with danger of its conveyance in milk These experiments point in exactly the opposite direction. Three times out of the nine cases in which a positive result was obtained did the cream produce tuberculosis when the sediment failed to do so, and in no single case was the sediment infective when the cream was not equally or more so

The following facts are taken from Professor Woodhead's paper on "Tabes Mesenterica and Pulmonary Tuberculosis":—

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[2] [illegible] the Prevalence of Tubercu[illegible] [illegible] p 73

[3] [illegible] of Disease, Medical Press [illegible] March [illegible]

[5] Lehrbuch der Pathologischen Mykologie 1890 p 540

[6] Archiv für Experimentelle Pathologie und Pharmakologie 1886, Band xx p 446

[7] Virchow's Archiv 1883 Band xciii, p 177

[8] Medical Press and Circular 1883, xiv, p 265

[9] Würzburg Therapeutische Monatshefte 1891 p 18

[10] Medical Record 1899 vol i p 313

[11] Proceedings of the New York Pathological Society 1900 p 42

[12] Smith and Freeman American Medical and Surgical Bulletin, 189[illegible] p 1161

[13] Woodhead: Medical Press and Circular 18[illegible] vol xlv, p 265

[14] Vide [illegible] Le Lait p [illegible]

[15] Bulletin de l'Académie de Médecine 1871 tome iv, p [illegible]

[16] Cornell University Agricultural Experiment Station Bulletin, vol lxv p 157

[17] THE LANCET Jan 19th 19[illegible] p 7[illegible]

> From post-mortem examinations at the Royal Hospital for Children in Edinburgh, in 127 cases of tuberculosis in children tubercular ulceration of the intestines were found in 43 instances. It is interesting to notice that the age incidence between this lesion and the meningeal lesion corresponds very closely.

—	Intestinal tuberculosis.	Tubercular meningitis.
During the first year	1	0
1 to 2½ years	14	15
3 to 5½ "	10	21
6 to 7½ "	7	8
8 to 10 "	5	8
11 to 15 "	6	2

> In 14 out of 100 cases in which the mesenteric glands were affected there was no tubercle found in any other part of the body. In the class from which the patients in the Royal Hospital for Sick Children are drawn the infants during the first year of their life, and sometimes for a longer period, are suckled at the breast. After this, however, the diet is extremely mixed, and as a rule it is extremely unsuitable, but it is in by far the larger proportion of cases partially composed of cow's milk. As we have already seen it is after this first year that there is such a rapid rise in the number of cases in which the mesenteric glands are affected. During the first year, whilst the child is suckled by its mother, it is not nearly so liable to mesenteric tubercle as at a later period. Anyone who has worked at the subject will have been struck by the fact that although tuberculosis in the human subj[illegible] et with in young married women, tubercular [illegible] rare—so rare, in fact, that Dr. D. Hubermaas [illegible] nd record only some eight cases. In cattle, on the other hand, where the mammary gland carries on its functions under conditions which are far from normal, this tubercular mammitis is not by any means of infrequent occurrence. Albert[19] has recorded the case of a litter of young pigs, the whole of which, fed on the rejected milk from a tuberculous cow, succumbed to tuberculosis. Numerous other observers—Klebs,[20] Bollinger,[21] Stein,[22] Johne,[23] Martin,[24] Bang,[25] Toussaint,[26] and many others besides Koch,[27] concur in stating that *if milk from cattle with tubercular udders be given for any lengthened period by the mouth (or injected into the peritoneal cavity) tuberculosis will be developed in calves, hens, &c.* ...... *Everyone* engaged in practice will readily recall the numerous cases in which tubercular disease of bone, of synovial membranes, &c., has followed on measles, scarlatina, small-pox, and similar conditions, or in which an attack of typhoid or intestinal mischief or some form had been looked upon as marking the date soon after which serious tubercular mischief was developed. ...... It is of course impossible to bring direct experimental proof to bear in the case of the human subject, but the indirect evidence recently adduced by various continental and home observers, and the examination of series of cases such as those I have brought forward, should be very strong evidence that in children, especially in those who are subject to the wretched hygienic conditions and bad feeding to which unfortunately so many of our poorer class children are exposed, *tuberculosis may be contracted as the result of the ingestion of milk from tuberculous udders.*

It has been shown above in Professor Woodhead's paper that "Everyone engaged in practice will readily recall the numerous cases in which tubercular disease of bone, of synovial membranes, &c., have followed on measles, scarlatina, small-pox, and similar conditions, or in which an attack of typhoid or intestinal mischief of some form had been looked upon as marking the date soon after which serious tubercular mischief was developed." It is precisely in these cases that a liquid but nourishing diet is required. Milk is at once the most suitable food, and it is prescribed and its use enforced for several weeks or may be months at a time. If, however, this milk be given in the raw state (unless it comes from cows certified to be free from tuberculosis) it is more than probable that at times or continuously it may contain virulent living tubercle bacilli. It does not, then, seem at all extraordinary that some of these patients after being thus infected may succumb to intestinal tuberculosis or to *tuberculosis commencing in the intestines*, but having become generalised is more manifest in the meninges or the lungs. Thus, in the extract mentioned above, out of the 127 cases in 100 instances the mesenteric glands were affected, and out of these 100 cases only 20 were diagnosed as abdominal tubercle, and this would be considerably reduced were the doubtful diagnoses eliminated. It should be remembered that all who drink tuberculous milk are not susceptible to the disease, and that even some of the infected may recover. The disease in the abdominal, mesenteric, and other glands may become stationary, and the nodules may calcify, just as the disease or nodules do in other parts of the body.

In Denmark whenever an owner of cattle requests that his cattle should be tested with tuberculin without charge to himself, the State demands that certain rules must be conformed to; amongst the more important of these are the following: 1. After the test has been applied the herd is separated into two portions, the sound and the reacting animals; the milk from the reacting animals must not be used as food by man or animals unless it has been boiled or heated to 85° C. 2. In large dairies, if any of the milk is not used during the day, this milk must be heated to 85° C. previously to its return to the farms where it may be used for the purpose of feeding animals. 3. On some farms it was found that although there was no tuberculosis amongst the cattle a number of pigs contracted tuberculosis and died from this disease. This led to an investigation when it was found that the heating of the milk returned from the larger dairies was not properly done, and that living virulent tubercle bacilli were found in the returned milk. The law now compels all dairies that return unconsumed milk to heat it to 85° C.

Professor Bang[28] states that by a short heating at 85° C. the tubercle bacilli are killed, and if immediately afterwards the milk be well and rapidly cooled it loses its cooked taste; establishments which are carrying out this process of "Pasteurisation" are doing a good business in Copenhagen and other large towns. Calves and pigs, when fed on milk, whey, and buttermilk containing living tubercle bacilli, are exposed to the danger of contracting consumption just as is the human subject. Experiments carried out in Denmark, Germany, and other countries, prove conclusively that this source of infection plays an important part in the dissemination of tuberculosis. Fortunately it has been proved that an excellent butter can be made with cream that has been heated to 85° C. For some years it has been the custom in Denmark to heat cream to 80° C. and more rarely to 85° C. before churning. The new law does not absolutely demand this, but we may consider that the law which demands that all buttermilk must be heated to 85° C. before being returned will as a consequence bring about the practice that almost all the cream will be heated to this temperature, thus removing the difficulty of having to heat the buttermilk separately after churning. In an address given on the occasion of a visit of Suffolk farmers to Copenhagen in June Professor Bang said that in an experiment on five calves that were free from tuberculosis he gave to each of them a feeding of 40 cubic centimetres of milk taken from a tuberculous udder, and repeated this a week later. On post-mortem examination made some time afterwards he found that all five were affected with tuberculosis, the starting point in each case being the intestine. He emphasised this point to show the great importance of maintaining the careful separation of the healthy milk and the tubercle-infected milk so that there may never be a single chance of the milk containing living tubercle bacilli being given to healthy calves.

Cambridge

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[18] Beiträge zur Klinischen Chirurgie; Mittheilungen aus der Chirurgischen Klinik zu Tübingen, Band ii., Heft 2.

[19] Quoted in the Journal of Comparative Medicine and Surgery, January, 1886, p. 93.

[20] Archiv für Experimentelle Pathologie und Pharmakologie, Leipsic, Band 7, p. 31, 1873.

[21] Ziemssen's Handbook, 1876, and Baier, Aerztl. Int. Bl., 1883.

[22] Inaugural Dissertation, Berlin, 1884.

[23] Fortschritte der Medicin, Band iii., 1885.

[24] Revue de Médecine, Paris, 10 Fév., 1884.

[25] Nordiskt Med. Arkiv, Band xvi., and Proceedings of the International Medical Congress, Copenhagen, 1884, vol. i., Pathological Section, p. 11.

[26] Comptes Rendus de l'Académie des Sciences, Paris, 1881, tome xcii., pp. 350, 741.

[27] Mittheilungen aus dem Kaiserlichen Gesundheitsamte, Band ii., Berlin, 1884.

[28] Nordiskt Med. Arkiv, 1899, N:O 22.

SURREY CONVALESCENT HOME.—Founder's Day at the Convalescent Home for Surrey Men at Seaford was celebrated on July 27th by a luncheon at the Esplanade Hotel, followed by a reception at the Home. Sir Trevor Lawrence, Bart, the chairman of the committee, said that the income for the year under review was £200 less than might have been expected. The committee submitted their ninth annual report which showed that 622 patients were admitted to the Home during the year from April 1st, 1900, to March 31st, 1901. The statement of accounts showed that the total income was £1657 and the total expenditure £1792.

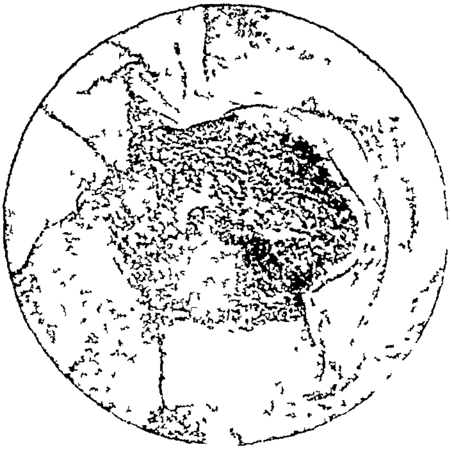
THE ELECTROLYTIC TRANSMISSION OF SULPHUR FROM THE HARROGATE SULPHUR WATER THROUGH A PIG'S SKIN, AND ITS THERAPEUTIC VALUE ON THE HUMAN SUBJECT UNDER SIMILAR CIRCUMSTANCES IN ECZEMA, GOUT, &c

BY FRANCIS WILLIAM SMITH, M D ABERD

IN a paper by me published in the *British Medical Journal* of Feb 16th 1901 I proved that patients could be covered with nascent sulphur in a bath of Harrogate sulphur water by passing a constant current of electricity through it. This was confirmed by Professor Smithells F R S (Professor of Chemistry in the Yorkshire College Leeds) I also stated that treatment of cases of eczema, gout, rheumatism and peripheral neuritis did better by this method than by the patients simply lying in the bath of Harrogate sulphur water for so many minutes I likewise said that I "believe nascent sulphur was driven through the patient s skin into the circulation." I have now proved that it must be so Mr Mark Woodhouse the assistant electrical bathman at the Royal Baths Harrogate, had been able to drive sulphur through three folds of blotting paper by electricity It suggested itself to my mind to try to do the same through a pig s skin

A piece of pig s skin was tied round the mouth of an open mouthed vessel the bottom of which had been previously knocked out A piece of blotting paper was placed outside the skin external to the vessel and the positive end of an anode was placed on the blotting paper The vessel was then filled from the bottom with Harrogate sulphur water and the negative anode was put into it Three milliampères from a 13-celled battery (constant current) were turned on for half an hour The result was that nascent sulphur was deposited on the pig s skin driven right through it, and on to the blotting paper at the positive pole

FIG 1.

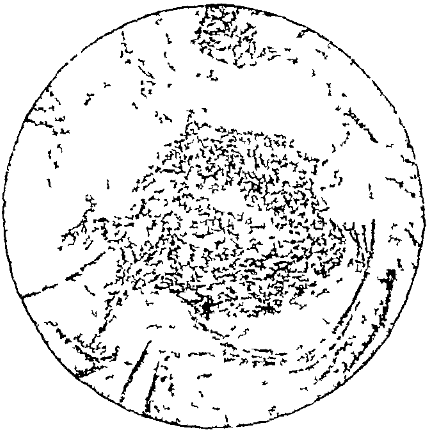


Sulphur deposited on a pig s skin by electricity from the Harrogate sulphur water

The three illustrations demonstrate what I mean They are reproduced from photographs taken the next day when the pig s skin was dry The first two (Fig 1 and Fig 2) lost their round shape as tied round the neck of the vessel This is from the puckering of the skin in drying The reproduction on the blotting paper (*Fig 3*) shows the exact size and shape because the blotting paper did not alter in drying

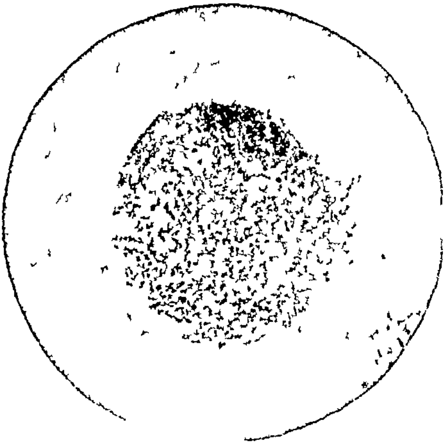
And now as to the therapeutic value of this discovery on the human being whose body *is subjected to the same* electrical treatment in the same kind of sulphur water bath with the constant current I consider that patients suffering from eczema do much better by treatment by this method than by simply lying in the sulphur bath During the last two months I have had good proof of this as the patients themselves and the attendants at the Royal Baths know I will not occupy valuable space with cases but such are the facts Many cases of long standing which had derived no benefit by the old simple sulphur bath yielded to treatment

FIG 2



Sulphur driven through a pig s skin by electricity from the Harrogate sulphur water

FIG 3



Sulphur driven on to a piece of blotting paper having been driven through a pig s skin by electricity

Of course driving sulphur through a dead skin must be a very different thing from sending it through a living one where all the vessels and nerves are alive and active I hope therefore that this simple discovery may be of benefit to those who suffer from eczema (especially gouty eczema) gout rheumatism and peripheral neuritis

Harrogate

Clinical Notes:
MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

CURIOUS SYMPTOMS AFTER ADMINISTRATION OF NITROUS OXIDE FOR DENTAL EXTRACTION.

By A. STANLEY GREEN, M.B., B.S. LOND.

ON July 26th, 1901, I administered gas for Mr. T. H. White to a man, aged 26 years, using Barth's inhaler and allowing plenty of air. No trouble was experienced in producing complete anæsthesia and four teeth were extracted. A few minutes after recovering consciousness the patient complained of a numb feeling occurring first in his hands and then in his legs and feet. His hands were pronated, the fingers being slightly flexed and the thumbs strongly adducted. His hands were vigorously rubbed, but he complained of great pain. His respirations became rapid, at first sighing in character and then accompanied by stridor. His pulse was 84 and his colour was excellent; he was very restless and was quite unable to keep still for a moment. He was placed in the prone position, but he begged to be allowed to sit up. He was quite unable to articulate. As the symptoms continued for more than 20 minutes I compelled him to lie down and the pain gradually subsided, and after an hour's rest he was sufficiently recovered to return home. I know the patient well and he is not by any means of a hysterical temperament. I have administered gas more than 1000 times during the past three years and have never met with such a case. I should like to hear if any of the readers of THE LANCET have met with a similar experience.

Lincoln.

PISTOL-SHOT WOUND OF THE ABDOMEN.

By COURTNEY NEDWILL, M.D.R.U.I., M.R.C.S. ENG.

THE patient was a boy, aged 10 years, who was admitted into Christchurch Hospital, New Zealand, on March 18th, 1900, under my care Dr. A. J. Orchard of Christchurch, who was the first to see him, ordered his removal to the hospital. Dr. Orchard also very kindly assisted me at the operation. On admission the boy vomited bloody matter and was suffering from shock. He had had a full meal a short time before the accident. A small perforating wound of the abdomen in the middle line and about two and a half inches below the umbilicus had protruding through it a piece of soiled omentum three inches long. The skin having been purified the abdomen was opened in the middle line and the protruding omentum was ligatured and cut off. Nine perforations of the bowel, most of them considerably ecchymosed and contused, were brought together by Lembert's sutures. The perforations on the side of entrance were easily brought together, but on the side of exit they required to have the mucous membrane pushed back. Out of one of these openings a solid plug of fæces protruded. Two additional wounds of the mesentery were closed by sutures. For a couple of days the boy complained of pain and had a temperature just under 100° F., but afterwards the history was uneventful. The bullet was not discovered and the patient was discharged in three weeks.

In THE LANCET of Feb. 3rd, 1900, p. 310, Mr. A. Pearce Gould reported a successful case in which there were four perforations of the small intestine. I am induced to record this case on account of the number of perforations, but in view of recent South African experiences I am not prepared to say that the boy would have died had I contented myself with removing the soiled omentum and not opened the abdomen, although I fear the excrement extruded from the gut would have produced bad results.

Christchurch, New Zealand.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

> Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

SALFORD ROYAL HOSPITAL.

A CASE OF SIMULATED APPENDICITIS AND A FATAL CASE OF RECURRENT HÆMORRHAGE FROM THE EAR.

(Under the care of Mr. HERBERT LUND.)

THE contracted condition of the ascending colon in Case 1 was in all probability due to scarring after ulceration occuring during the attack of typhoid fever, though it is rare indeed for typhoid ulceration in the large intestine to be sufficiently extensive to give rise on healing to any noticeable diminution in the lumen of the colon. In such a case as this lateral anastomosis between the lower end of the ileum and the transverse colon might be of benefit. Case 2 is a very striking illustration of the importance of treating early all septic affections of the ear, even of the external auditory meatus. It is doubtful if the fall had anything to do with the subsequent suppuration.

CASE 1. *Contraction of the ascending colon giving rise to symptoms simulating recurrent attacks of appendicitis.*—A man, aged 24 years, was admitted into the Salford Royal Hospital on Sept. 6th, 1900, suffering from repeated attacks of pain chiefly confined to the region of the appendix and accompanied by constipation. He had had fairly good health until 1896 when he suffered from typhoid fever, and about eight weeks after convalescence from this his troubles began with pain in the right lumbar region and "jumping pains" which worked over the hip bone into the groin of the same side. The pain was accompanied by swelling in the right iliac region, tenderness on pressure, and constipation, the symptoms being relieved by enemata, rest in bed, and careful diet. Attacks of this kind occurred about every three months until Christmas, 1899, when the intervals became shorter and the condition was more persistent. During a particularly severe attack there had been vomiting, but never any trouble with the bladder; neither had there been any great reduction in the quantity of urine passed nor other symptom pointing to the attempts of a renal calculus to travel down the ureter. The patient was treated at home by two practitioners for appendicitis, but the medical man who advised hospital treatment considered that appendicitis would not account for all the symptoms, and in this opinion, as subsequent events showed, he was correct. After a week's rest in bed without any marked symptom the patient was seen by Dr. A. M. Edge, who suggested that the mischief was renal, the urine then containing much uric acid but no blood. A few days after this there was a fresh attack of pain with marked swelling and tenderness in the right iliac fossa, and the patient suffered from sickness and constipation; the temperature was 100·8° F. and the pulse ranged from 90 to 100. Opium was given, and the bowel being washed out with a simple enema the attack subsided. An operation was then undertaken for removal of the appendix, the difficulties of the case having been carefully explained to the patient.

On opening the abdomen no adhesions and no evidence of any attack of previous appendicitis were apparent, but the appendix was unusually long and quite free and distended. It was removed and found to contain fæcal matter which was easily squeezed out of the cut end by pressure upon the distal extremity. Believing that the source of all the mischief lay in the distended appendix the abdominal wound was closed with silkworm sutures (not in layers). The patient made a good recovery, but suffered greatly from constipation. At the end of five weeks after three days' inaction of the bowels vomiting occurred and suddenly became stercoraceous. The abdomen was opened in the middle line, and although the stump of the vermiform appendix was free, the cæcum was so closely adherent to the inner surface of the first operation wound that the adhesions required cutting with scissors before the bowel could be released When this was accomplished the ascending colon was gently dragged into view and then the symptoms originally complained of were explained The colon was contracted to a size less than the calibre of the small intestine and felt thick and leathery The cæcum was distended and the contraction of the ascending colon commenced abruptly The transverse colon appeared to be normal For days the condition was most serious but eventually the patient returned home and although not fit to resume work he has kept fairly well On May 20th of this year he called to report himself He looked well and had had no recurrence of the old trouble, but he suffered greatly from sudden attacks of diarrhœa which occurred most often when solid food was taken, with soup &c, however he managed well Examination of the abdomen revealed a tendency to ventral hernia at the site of the first operation and through the thinned cicatrix active peristaltic action of the bowel could be excited by pressure of the hand and when this was done fluid could be distinctly felt passing along

CASE 2. *Hæmorrhage from the ear due to ulceration of the internal carotid, ligature of the common carotid, recurrent hæmorrhage, death* —A girl aged two and a half years was admitted into the Salford Royal Hospital on April 13th 1900, at the suggestion of the medical attendant, Dr W A. Ferguson of Pendleton and with the exception that from the right ear there was evidence of recent hæmorrhage she appeared to be well and bright and did not show any signs of pain There was no redness tenderness or swelling over the mastoid, the temperature was 101 2° F, the pulse was 96, and the respirations were 44 Immediately before admission there had been a profuse hæmorrhage which "soaked through the pillow" and was "bright red in colour" At the angle of the jaw there were enlarged glands and the tonsil of the corresponding side was enlarged The child was well nourished and did not look ill There was a large perforation in the right membrana tympani The previous history was not very clear, but according to the mother the child received an injury to the head through a fall when 12 months old and this was followed in a few weeks by a purulent discharge from the ear which soon stopped with local treatment T[illegible] on April 11th the second on [illegible] from the 13th to the 22nd th[illegible] 22nd there was a severe attack which was undoubtedly arterial in character Plugging the auditory meatus with iodoform gauze controlled the flow which came entirely from the ear and was arterial The temperature from the 14th to the 22nd had never been above 99°, but generally subnormal the pulse averaged about 74 On the 23rd a severe attack completely blanched the patient and the following day Mr Lund ligatured the common carotid. On the 25th there was hæmorrhage again from the ear at 9 50 A M, and at 1 P M there was profuse hæmorrhage from the ear, nose and mouth and death followed at 2 P M

Necropsy —At the post mortem examination which was made 24 hours afterwards, the brain and membranes were found to be perfectly healthy, there was no evidence of necrosis in the roof of the tympanum or the petrous portion of the temporal bone. The auricle being reflected forwards the floor of the bony meatus was found to be carious and perforated, and adjacent to it was a sloughing cavity of about the size of a small walnut containing recent blood clot The ligature on the common carotid was perfectly satisfactory The internal carotid communicated with the abscess cavity and had evidently given way just before its point of entrance into the bony canal, the portion of the vessel in the canal being perfectly healthy

Remarks by Mr LUND —The symptoms which simulated appendicitis in Case 1 evidently depended upon an overdistended cæcum endeavouring to unload itself into a contracted ascending colon and these symptoms originated a few weeks after convalescence from typhoid fever The distended condition of the appendix with fæcal matter and the ease with which the contents could be squeezed out convinced me for the time that its removal was called for but in this I was wrong In former cases, 33 in number, I had always found evidence of previous attacks of inflammation and in this case the appendix was quite free only distended The strong fibrous union between the cæcum and the peritoneal surface of my incision has warned me to pay more attention to careful suturing I now place my silkworm sutures at shorter intervals The prognosis is not hopeful, the contraction of the ascending colon was extreme and not confined to one spot.

In Case 2 the mischief evidently originated in the floor of the bony meatus and spreading caused ulceration of the internal carotid The perforations in the bone were not extensive enough to permit the passage of a large flow of blood but probably the cartilaginous portion of the meatus had been stripped off the bony portion allowing a free exit. The free anastomosis existing through the circle of Willis accounted for the rapid recurrence of the hæmorrhage which led to a fatal termination

Reviews and Notices of Books.

Diseases of the Upper Respiratory Tract the Nose Pharynx, and Larynx By P WATSON WILLIAMS, M D Lond, Physician in charge of the Throat Department at the Bristol Royal Infirmary, Physician to the Bristol Institute for the Deaf and Dumb Fourth edition Illustrated Bristol J Wright and Co London Simpkin, Marshall, Hamilton Kent, and Co, Limited 1901 Pp 450 Price 17*s* 6*d*

DR. WATSON WILLIAMS'S manual has so grown that it will at first glance appear to be an entirely new work, it is, however, the original work enlarged expanded, and brought up to date The present or fourth, edition contains a novel and very practical addition for at the end of the volume are no less than 12 stereoscopic photographs of anatomical preparations with explanatory text, whilst a pouch in the cover holds a handy stereoscope which if the directions given for its use are followed, will enable the reader to refresh his memory almost as well as if he had access to the specimens from which the photographs were taken

The first chapter deals with the Anatomy and Physiology of the Nose and Larynx including a short account of their development The second chapter on Examination of the Pharynx Larynx Nose and Ear with General Semeiology, contains some additions, the short description of the examination of the ear being new and not out of place The directions for investigating the various parts and for the manipulation of instruments are clear and practical and we quite agree with Dr Williams in his qualified approval of Kirstein's autoscopy The remainder of the work, which is devoted to morbid conditions, is written, generally speaking in a very able way and shows that Dr Williams is fully determined and able to keep abreast with the times and that when he shows a predilection for one side of a disputed point it is because he considers that the arguments for that view are fairly conclusive He also brings into bearing his knowledge as a physician as is especially noticeable in the short account of spurious hæmoptysis and we cannot but think that its inclusion in a work such as this one especially meant for the student, must be productive of good in directing attention to so important a point the eight lines allotted to the treatment of hæmorrhage are however inadequate

The chapter on Diphtheria is considerably lengthened and is further enriched by a very useful plate showing the various saprogenic cocci and forms of Loffler's bacillus which are depicted under various conditions and which will be valuable for reference in a doubtful case of membranous angina, the description of the clinical aspect is very good We again quite agree with Dr Williams when in discussing the relationship between tuberculosis and lupus he favours the view that the two are distinct although he does not enter at all into the reasons on which his opinion rests The tables and text dealing with the differential diagnosis of the more serious conditions of the pharynx and nose are excellent and might have been extended to diseases of the larynx

The chapter on Diseases of the Larynx leaves nothing to be desired with the exception of the point mentioned in the preceding paragraph, and it forms quite the best part of the book. Dr. Williams, after quoting the various theories as to the etiology of atrophic rhinitis, states his belief that it is of the nature of a tropho-neurosis—a view which, we believe, will be gradually accepted as the correct one, and on the question of treatment he speaks very highly of the value of cupric electrolysis. On the vexed question of the choice of an anæsthetic in the removal of adenoids in children Dr. Williams says that he prefers nitrous oxide for short operations and not too deep chloroform anæsthesia for long ones. Not too deep anæsthesia is no doubt a great point for all but slow operators, as it must diminish the risk not to push the anæsthesia too far. The space given to sarcomata of the nose occupies barely one page and we have been unable to find any mention of bleeding polypus of the septum. We are pleased to note that Dr. Williams lends the weight of his authority against the practice of applying cocaine for the relief of hay fever.

The chapter on Accessory Sinus Disease is as complete as possible, and no better description of the modes of treatment of disease of the sphenoidal sinus can be desired. Dr. Williams here gives woodcuts of his special forceps for operations on the wall of the sinus, and which give the impression of being most valuable. A useful series of formulæ is to be found in the appendix. The illustrations, both coloured and otherwise, are of the highest order and do great credit to Dr. Williams's skill as an artist. The book itself is well and clearly written and more than maintains the high standard attained by the former editions.

A Manual of School Hygiene. By Edward W. Hope, M.D. Edin., and Edgar A. Browne, F.R.C.S. Edin. The Cambridge Series for Schools and Training Colleges. Cambridge: University Press. 1901. 200 pages. Illustrated. Price 3*s.* 6*d.*

This little manual on school hygiene is in striking contrast to a work on the same subject which has recently been written by Professor Shaw of New York. Although as regards size it is less ambitious it covers far more ground and includes certain details of minor surgery and medicine which belong more fittingly to the province of the ambulance lecturer; and further, although it cannot be denied that the care of the eye is a matter of vast importance in the education of children, in a work of such limited dimensions the space which has been devoted to the optical mechanism of eyesight and its pathological disturbances is altogether out of proportion and quite possibly above the level of understanding of those for whom it is intended. Apart from these reservations little fault can be found with Part I., which comprises chapters on School Buildings, Ventilation, Warming, Feeding, &c., or with Part II., which is concerned with the Personal Hygiene of the Child. With the Appendices 1 and 2 we are entirely out of sympathy: they contain respectively the building rules as enforced by the Board of Education and the regulations and instructions by the London School Board in relation to infectious diseases in schools. These regulations are not obligatory upon, nor even always applicable to, secondary schools, and Government teachers are either provided officially with them or can have easy access to them. The chapter on School Furniture and Writing enjoins an observance of very much the same principles as are recommended by Professor Shaw, although certain sentences are curiously expressed and often difficult to understand. For instance, in writing of the influence of an ill-adjusted desk and seat on the determination of short sight and distortion of the spine it is stated that "desks should be made to fit the children and not the children the desks." As long as they "fit" either alternative seems equally satisfactory, but in any case, "even under the most favourable circumstances, sitting at a desk means a strain upon the eyes and bones of the trunk." Surely, any detriment to the child from this proceeding affects the muscles and ligaments rather than the bones. In contradistinction to Professor Shaw, who insists on a central position, the authors recommend that in writing the copybook should be in a position to the right of the middle line and "sloped upwards about 20 degrees," whatever that may mean. But if this suggestion is carried out, we gather, "the writing slopes to the right," in fact, approximates to the Spencerian script which Professor Shaw gives good reason for condemning. The concluding chapter, which deals with "Over-pressure," contains much practical advice, both as regards its recognition and as regards its treatment. Taken as a whole this manual must be regarded as very complete and up-to-date, but there is a noticeable want of proportion in the general arrangement and the literary style is neither literary nor stylish.

LIBRARY TABLE.

Clinical Lectures on Stricture of the Urethra and Enlargement of the Prostate. By P. J. Freyer, M.A., M.D., M.Ch. R.U.I., Surgeon to St. Peter's Hospital, Lieutenant-Colonel I.M.S. (retired). London: Baillière, Tindall, and Cox. 1901. Pp. 115. Price 5*s.*—This little book is composed of six lectures which were delivered at the Medical Graduates' College and Polyclinic in November last; they have appeared in The Lancet and the *Clinical Journal.* The first three deal with urethral stricture and its treatment, and that on the operative treatment of this condition is especially good. The author prefers in Wheelhouse's operation to discard the hooked staff for holding open the wound; he employs instead a flexible bougie which is passed by the meatus and projects through the wound; it is then bent upwards and both ends are held by an assistant; a loop is thus formed which holds steady the upper end of the wound. The three lectures on Enlarged Prostate are good, but the space at Mr. Freyer's disposal was hardly sufficient for a complete discussion and description of the several operative procedures which have been recommended for the radical cure or relief of this condition; and it may truly be said that this would not have been suited to the occasion when the lecture was delivered. The book is very readable.

Transactions of the American Dermatological Association at its Twenty-fourth Annual Meeting. Chicago: Pettibone and Co. 1901. Pp. 235.—Among many subjects of interest discussed at the last annual meeting of the American Dermatological Association probably the most important was blastomycetic dermatitis. Of this disease, only recognised within the last few years, already more than a dozen cases have been described and this volume contains an exhaustive pathological examination of some recent cases. Though no definite case has yet been recorded in this country there can be little doubt that the disease occurs here but has not yet been recognised. The volume contains a useful appendix of papers written during the past year by members of the association.

Functionelle Nierendiagnostik mit besonderer Berücksichtigung der Nierenchirurgie. Klinisch-Experimentelle Untersuchungen von Dr. Leopold Casper und Dr. Paul Friedrich Richter. Mit 2 Holzschnitten. *(Functional Diagnosis of the Kidneys with special reference to Renal Surgery.)* Berlin and Vienna: Urban and Schwarzenberg. 1901. Pp. 156. Price 4 marks.—It is difficult to overestimate the importance in the surgery of the kidneys of a correct diagnosis of the renal condition, and especially of an exact knowledge of the relative efficiency of the two kidneys, for it may well be that the kidney which appears to be the more severely affected may yet be the one which is chiefly carrying on the work of excretion and removal of this kidney would be followed inevitably by a fatal result. Such an occurrence has doubtlessly many times followed a nephrectomy performed with an insufficient knowledge of the relative capabilities of the two kidneys. Ureteral catherisation has been of the greatest service in this connexion. The possibility also of the absence of one kidney must be carefully considered before a nephrectomy is undertaken. This work contains a clear account of the methods by which the functional efficiency of the kidneys can be investigated and is well worthy of study by those who are specially interested in this branch of surgery, but its subject should be well considered by all who have to operate at any time on the kidney or ureter The authors give notes of 90 cases in which they have investigated the condition of the kidneys and of the urine

A Manual of Hygiene and Sanitation By SENECA EGBERT, A.M., M.D. Second edition, enlarged, and thoroughly revised London Henry Kimpton. 1901 Pp 436 Price 10*s* 6*d*—This book deals with both practical and general considerations It contains chapters on Bacteriology and Chemistry as applied to the examination and analysis of food and water It also deals with personal as well as public health and one interesting feature is a chapter on School Hygiene There is also a good chapter on Disinfection and Quarantine in which the efficient disinfectants are described The chapter on Stimulants and Beverages is written in a very sensible strain and especially the section on Alcohol In dealing with the Impurities of the Air the author makes no reference to the excellent work of Dr J S Haldane on carbonic oxide poisoning He merely states that cases of poisoning by carbon monoxide are much more serious than by carbon dioxide and then adds that recovery from the effects of the former is slow and uncertain because this gas unites with the hæmoglobin of the red blood corpuscles, paralysing them as it were, and rendering them unable longer to act as oxygen carriers to the tissues Now it is well known that sometimes extraordinarily rapid recoveries occur in cases of acute poisoning by coal gas, owing to the fact that the blood in the veins and most of the organs becomes only very partially saturated in cases of suffocation by gas containing carbon monoxide but no oxygen As soon as the coal gas is removed from the lungs and a plentiful supply of oxygen or air is substituted for it the unsaturated venous blood still slowly entering the lungs takes up oxygen abundantly and so causes rapid recovery as soon as it reaches the tissues Dr Haldane found that from experiments on himself about six hours are required for the carbon monoxide to disappear entirely from the blood in severe cases of poisoning The work is based on American practice, but its pages may be read with distinct advantage by students of hygiene in this country It is well written clear, and covers a somewhat surprising expanse of subject considering the size of the volume

New Inventions.

THE KANNENBEER PROCESS OF PRESERVING BEER.

BEER is only a wholesome beverage when it is in good condition, assuming of course that it is made from irreproachable materials It must be admitted that our present methods of storing and preserving beer are open to considerable criticism not only from the point of view of health but from the economic point of view also. Beer in cask, for example is seldom sound to the last few pints owing to the access of air through the vent-peg orifice and to the accumulation of a sediment which is very prone to decompose. Bottled beer, again, is exposed to the disturbing influences of light, while it is not easy to detect or to remove any uncleanliness that may exist. There is, therefore, much to be said in favour of the system of keeping beer in air tight and light tight jugs as in the Kannenbeer process. Before, however, the beer can be "bottled" by this process it is necessary to devote some attention to its condition In fact it is found that to secure good results the best beer must be used and that special care must be taken to bring it to a desirable point of maturity Otherwise the beer would not keep in sound condition and would probably throw a sediment, both of which disadvantages the Kannenbeer process is expressly designed to obviate and, as a matter of fact, does obviate according to our experience We have recently witnessed the process and it is well worth describing, as being a very praiseworthy endeavour to produce a beverage that will satisfy sanitary requirements. The beer is matured at the same stores as those where the "bottling is done The maturing process is slow, [illegible] three months During this time [illegible] a fine brilliant appearance and [illegible] flavours of well brewed beer when in excellent condition. The beer is next carefully filtered—a very important step in the process All this time the beer is kept quite cold The beer is then run into the "*kanne*" or jug, which holds a quart, without coming into contact with air The jug is then closed by a lid pressing tightly by means of a spring upon a clean rubber cushion The beer is thus kept away from the air and from the light, both of which are important factors in destroying the sound condition of beer Each jug is then wrapped in paper to protect it from dust and dirt and so that it may look perfectly clean on the table The process is not limited to one kind of beer, ale, stout, and lager being treated in a similar way It is easy to reckon up the unquestionable advantages of this method. It seems to us not only to secure the beer against contamination and change, but to avoid certain unpleasant possibilities in the case of beer stored in other ways The consumer can easily see for himself that the jug is clean and he will not be slow to appreciate the advantage of *having beer on draught so to speak* (without any objectionable excess of carbonic acid gas) always in sound healthy condition Moreover the jug will be less likely than is a bottle to be used for the receptacle of poisonous metal polish carbolic acid, and other objectionable and dangerous contents The method has our approval, therefore on many grounds and particularly from the sanitary standpoint The agency is at 17, Philpot lane London E C

CHESTERFIELD MEDAL FOR DERMATOLOGY —The Chesterfield medal for dermatology, given under certain conditions as the result of a competitive examination at St. John's Hospital for Diseases of the Skin London has this year been awarded to Mr George Norman Meachen M B, B S Lond clinical assistant to the Hospital for Diseases of the Skin Blackfriars.

DENTAL HOSPITAL OF LONDON —On August 1st, in the new hospital Leicester square, which was opened in March last a conversazione was held and the prizes were distributed to the students of the hospital The visitors, who numbered about 400 were received by Mr T Arnold Rogers Mr J Smith Turner, Dr Walker, and members of the staff Mr Morton Smale in opening the proceedings stated that the King had acceded to the request to grant his patronage to the hospital Mr Smale referred to the great success that had attended the affiliation of the hospital with the London University as a teaching school and remarked that 53 students had entered during the year the largest number recorded in the history of the institution. It was announced that the Walker scholarship had been awarded to Mr L C Sprawson and that Mr G Sheppard had gained both the Founders scholarship and the Ash prize Mr Rogers stated that the new building owed its existence largely to the indefatigable energy of Mr Morton Smale who in company with Mr F Lloyd Williams had during the year visited the United States to study the developments in dental teaching in that country

THE LANCET.

LONDON: SATURDAY, AUGUST 10, 1901.

The Interim Report of the Royal Commission on Sewage Disposal.

Owing to the very great pressure upon our columns last week and the previous week we have been able to allude in only brief terms to the interim report of the Commissioners appointed in 1898 "to inquire and to report what methods of treating and disposing of sewage may properly be adopted." In our issue of July 27th we noted without comment the more important conclusions to which the Commissioners at this stage of the inquiry have come and which they have thought it desirable to make known. The difficulties of the inquiry may be judged from the fact that this interim report, which refers to three questions which appear to be of urgent importance, is the first pronouncement that has been made since the appointment of the Royal Commission three years ago. The consideration of the second item of the terms of reference has so far made it impossible for the Commission to arrive at any riper result than that which the interim report shows. This particular form of reference requires the Commissioners to inquire and to report "if more than one method may be so adopted, by what rules, in relation to the nature or volume of sewage, or the population to be served, or other varying circumstances or requirements, should the particular method of treatment and disposal to be adopted be determined." In order to supply a complete and definite answer to this somewhat comprehensive request nothing short of a technical research was involved. The Commissioners admit as much, and no one knowing anything at all of the intricacy of the problem could expect them at this stage to pretend that in the time so far allotted to them they had the smallest chance of coming to a satisfactory conclusion. They have found it necessary to institute a number of scientific investigations which have been entrusted to Professor Boyce and Dr. A. C. Houston, representing the bacteriological side, Dr. McGowan and Mr. Colin Frye, representing the chemical side, and Mr. G. B. Kershaw, representing the not least important aspect of the question, the engineering side. We think that already a distinct impression has been made upon the Commissioners in favour of the treatment of sewage by bacteriological methods. Indeed, if we are not mistaken, we read a conviction in their minds that the bacteriological method at any rate is effectual in breaking down offensive matters into innocuous products when attention is paid to the requirements of the specific micro-scavenger concerned, but that at present they have no sure and certain evidence that pathogenic bacteria do not survive the process. This is very much in a line with the valuable observations of Dr. Houston in connexion with the London County Council experiments at Barking and Crossness on coke-bed filtration. The subject requires careful extended investigation.

But this interim report is not a series of negatives by any means; it contains valuable conclusions. Thus the Commissioners doubt whether any land is useless for the purification of sewage, though in the case of stiff clay and peat lands the power to purify sewage seems to depend on the depth of the top soil. This description of land, however, is pretty certain to offer difficulties if not to render land treatment impracticable. Next the Commissioners are satisfied that it is practicable to produce by artificial processes alone, either from sewage or from certain mixtures of sewage and trade refuse (not even omitting the cases of Leeds and Manchester) effluents which will not putrefy, which would be classed as good according to ordinary chemical standards, and which might be discharged into a stream without fear of creating a nuisance. In view of this conclusion the Commissioners are led to recommend that the present rule of the Local Government Board should be relaxed under proper safeguards and that in some cases the application of treated sewage to lands might be omitted. We have expressed the opinion that such treatment is often not only superfluous but prejudicial. The Local Government Board rule was promulgated at a time when the efficiency of bacteriological treatment was not realised. The adoption of the new recommendation of the Commissioners will remove what has proved to be a source of embarrassment to processes of treating sewage by bacterial agencies which are known to be of certain efficiency. It will further augment the economy of all such processes. It may be noticed that the Commissioners employ the term "artificial processes" as applied to the purification of sewage by bacteria. We confess to being nonplussed by the employment of the word "artificial" in this connexion. Surely, nothing is more natural than that the functions of bacteria should be induced to begin, to continue, and to end the work of purification of human excreta. Is not the teaching of the great natural processes convincing that to micro-organisms is relegated the work of breaking down complex offensive matters into simple and not only harmless but positively beneficial products? Why, then, is the cultivation of bacteria for this purpose regarded as an "artificial process"? We can quite understand chemical treatment, on the other hand, being regarded as such.

A most important clause occurs in the third conclusion of the report. The Commissioners express the opinion that the general protection of our rivers is a matter of such grave concern as to demand the creation of a separate commission, or a new department of the Local Government Board, which shall be a supreme "rivers authority," dealing with matters relating to rivers and their purification, and which, when appeal is made to it, shall have power to take action in cases where the local authorities have failed to do so. We cordially agree that some such authority as is here suggested should be appointed for the express control of the purification of rivers, but, assuming that we interpret the recommendation accurately, we cannot see the necessity for the creation of a separate commission to decide this matter The present Royal Commission is so well composed that the Government would be well advised, in our opinion, to add at this stage a fresh term of reference for the consideration of this Commission, to the effect that the Commissioners should be required to make, as they are highly qualified to do, a definite and practical recommendation on the question. It is, after all, but an extension or sequel of the subject with which they have been asked immediately and in the first instance to deal

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Home Nursing in Chronic Cases.

IT is proposed that the women's memorial to QUEEN VICTORIA *should take the form of a national subscription* on behalf of Queen Victoria's Jubilee Institute for Nurses, founded by Her late Majesty in 1887 with the money of the women's offering of that year There is much to be said in favour of such a scheme The beds of many of our hospitals *are crowded with cases which could be treated* with equal benefit in their own homes and large numbers of patients, who would gain immensely in hospital, are kept waiting for admission for an indefinite time, perhaps until it is too late for relief Neither the public nor hospital officials seem quite to appreciate the fact that a general hospital is not a home of rest, but a place where active therapeutic measures can be taken with a chance of success

Cases of anæmia are found in hospital wards with unnecessary frequency Many sufferers from dermatitis are best treated at their own homes, particularly those who present varieties of disease where pus organisms, or some special forms of organisms, are adding to, or are entirely answerable for, their state Those forms of eczema which require rest in bed can be treated in any clean environment Given fair sanitary surroundings cases of carbuncle or boil can be well treated outside, and are certainly not wanted inside, a crowded building Ulcers of the leg need seldom be treated in a hospital, nor in these days of improved treatment should they be allowed to be neglected Firm believers in the oxygen treatment of ulcers of the leg would argue for their admission into a hospital ward, but it has still to be proved that this method of treatment has much quicker or more permanent results than have *many other less expensive methods In cases of* malignant disease of the womb or of the breast and indeed, also, of other organs unsuitable for operation, the patients are often left to die in a pitiable condition. Here the services of a nurse are invaluable at the patient's home, while hospital treatment is too often quite useless Patients suffering from pneumonia or bronchitis complicating measles cannot readily be allowed admission into a hospital on account of the general infectiousness of the zymotic complaint, but theirs are pre-eminently cases requiring such skilled nursing as they can get. Again, the sequelæ of scarlet fever, such as rheumatism, albuminuria, and otitis, lend themselves readily to assistance at the hands of a visiting nurse In such instances she is helping to dispel the prolonged after mischief which would render the sufferer a more or less useless member of society and a constant anxiety to his friends Paralytic cases of long standing and incurable cases of injury are very ready to fall into a slough of despondency· Many of these patients still cling to life Hospital finances will not stand the strain of maintaining them and it is often cruel to send them into the workhouse Some gentle encouragement and a little skill on the part of a nurse proffered at the patient's own home, will undoubtedly mitigate the severity of the symptoms and cheer up these miserable sufferers

Lastly, if a special nurse can be told off for the duty, cases of ordinary zymotic disease can be fairly well looked after in the homes of the poor, where the medical officer of health can be satisfied as to proper isolation. It is often impossible to get such cases admitted into special hospitals, but where a spread of infection can be avoided home treatment will generally suffice The good done by the Queen's nurses is of a kind apart from that done by the hospital. They assist hospital finance, they save much unnecessary hospital labour They do a special work for humanity in that the bulk of the suffering creatures whom they relieve are not suitable hospital inmates and are also unfit for, or are very undesirous of going into, the workhouse infirmaries It is to be hoped, therefore, that *the attempt to raise a national subscription* will be met by a hearty response from the women of Great Britain Certainly it would not be possible to think of any more suitable way of honouring the name and memory of our late great Queen than by assisting the funds of the Jubilee Institute for Nurses The ministrations of the Jubilee nurses make for the preservation of exactly that sanctity and privacy of family life which QUEEN VICTORIA was known to prize so highly

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Indian Ophthalmic Practice.

A VERY interesting number of the *Indian Medical Gazette* has recently been published under the title of "Special Ophthalmic Number giving the experience of surgeons in various parts of India in the treatment of diseases of the eye, and particularly in regard to the operations for cataract The prevalence of this affection amongst the natives of India may be in some measure estimated from the fact that in 1896 Lieutenant-Colonel F H POPE, I M S, the superintendent of the Ophthalmic Hospital, Madras, had operated on 4000 cases and that since that date he *has operated* upon upwards of 3000 more Again, Major H HERBERT, I M S the ophthalmic surgeon in charge of the Ophthalmic Hospital, Bombay, has performed during the last five years 578 extractions, Major F P MAYNARD, I M S, civil surgeon of Patna, has done 300 extractions; at the Mayo Hospital Jaipur during the years 1891-1900, Colonel T H HENDLEY, I M S, C I E, and Lieutenant-Colonel P DURRELL PANK I M S, performed no less than 5310 extractions including 304 by Assistant Surgeon DA GANG SINGH and 93 by various other operators; Captain HENRY SMITH I M S, civil surgeon of Jullunder, Punjab records *1694* cataract operations *performed in* 10 years and in the last 11 months 1050 more, Dr ERNEST NEVE has done 936 in 20 years of which 725 were performed during the last 11 years, Major C R M. GREEN, I M S, at Mozufferpur, has had a *total* of 425 operations; Major J. MORWOOD, I.M.S., has had 1523 operations for cataract; Mr. CHARLES MACNAMARA, F.R.C.S., I.M.S., had had 350 cases of linear extraction, but this was antecedent to 1867; Brigade-Surgeon E. F. DRAKE-BROCKMAN, F.R.C.S., I.M.S., shortly after that date tabulated 3393 cases; and Dr. W. J. WANLESS, in charge of the American Presbyterian Mission Hospital, Miraj, Western India, has had 495 operations.

Thus it appears that this small number of surgeons in the course of a very few years operated upon nearly 25,000 cases of cataract. European statistics of 100 and 200 cases, which leading ophthalmic surgeons regard as a large number, pale beside these immense numbers. What is still more remarkable is that the results are excellent. Lieutenant-Colonel POPE remarks apologetically that it often happens in the Madras Hospital that a run of 300 successful cases occurs, which seems extraordinary, but that immediately following this four or five cases fail either from suppuration or severe irido-cyclitis or from some unknown cause, and so the average success at once falls. There are few European surgeons who would not be well content to point to a register of 300 consecutive successful cases. The accounts of the methods adopted given by each of the operators mentioned above are full of interest. Lieutenant-Colonel POPE uses atropine before operating to determine the relations of the iris to the underlying lens. He sterilises both the conjunctival sac and the instruments. He divides the capsule with a needle and then performs an extraction without an iridectomy, the incision being a large one, considerably exceeding the three-millimetre incision of VON GRAEFE. A conjunctival flap is always made, as a result of which he finds prolapse of the iris almost a thing of the past. A pad and bandage are kept on for a day or two. Exposure of the eye to the air he thinks a distinct advance in the hygienic treatment of the wound. If conjunctival catarrh follows the operation he cleanses the eye with saturated boric acid solution and then applies a solution of nitrate of silver of the strength of three grains to the ounce of distilled water. If suppurative keratitis supervene he employs atropine in addition to the above remedies, and if irido-cyclitis remain he recommends excision, fearing sympathetic inflammation of the opposite eye.

The practice in India seems to be to extract without iridectomy. Thus Lieutenant-Colonel J. T. LEWTAS, I.M.S., Professor of Ophthalmology, Medical College, Calcutta, states that of 147 operations iridectomy was done in 33, and then only because some object was to be fulfilled by it. Lieutenant-Colonel LEWTAS uses a moist aseptic pad for three or four days. Major HERBERT recommends the cleansing of the conjunctival sac before operating with a solution (1 in 3000) of corrosive sublimate. Both he and Major MAYNARD frequently operate without iridectomy. Captain HENRY SMITH in the immense majority of his cases operates without iridectomy but extracts the lens in the capsule, and his results in a total of 1650 cases are excellent. The same practice is pursued by Dr. WANLESS who sharpens his own knives. Lieutenant-Colonel POPE, who has given up this method after trying it for some time, thinks that there must be something different in the size, formation, and firmness of structure of the eyes of the natives of the north of India as compared with those of the south, because he finds insuperable difficulty in making the lens start from its position, whilst on firm pressure being applied the vitreous humour escapes. Captain HENRY SMITH's paper deserves careful perusal.

We congratulate our contemporary upon having collected such an extremely interesting and valuable series of articles from leading Indian surgeons. They will be read with the greatest interest in this country, and although some differences probably exist between the eyes of the native of India and those of the European, yet there are many lessons to be learnt from these very able and personal memoirs in regard to the particular methods of operating that have been found most successful, as well as the preliminary and after-treatment that should be adopted. The medical profession at home is always gratified to read of, and to learn from, the experiences of colleagues abroad; and we make no doubt that as Greater Britain, under a more enlightened comprehension of the real significance of a civilised empire, becomes more closely knit together into an entity, these interchanges of scientific information will become more frequent.

Annotations.

"Ne quid nimis."

THE DEATH OF THE EMPRESS FREDERICK.

THE struggle against the inevitable so long and so bravely carried on by the eldest daughter of Queen Victoria is over and the Empress Frederick is dead. It has been an open secret for at least a twelvemonth that the Imperial patient was suffering from malignant disease, but it had always been her desire that her condition should not be discussed. She shrank from sympathy and faced her position in courageous silence. When it was seen that she was too ill at the beginning of the year to take her place with her brothers and sisters at the bedside of her dying mother it was felt by everyone that the end could not be far distant, and now it has come. By the mercy of Providence the closing scene was peaceful and the death-bed painless.

THE FEES OF MEDICAL WITNESSES.

ON Monday last, Mr. W. F. Lawrence, one of the Members for Liverpool, raised in the House of Commons, on the Home Office vote, the question of the fees paid to medical witnesses. In a well-informed and temperate speech he pointed out that the scale of fees at present received by the medical profession, as laid down by an old Act of Parliament, was in these days completely inadequate. Mr. Ritchie, following the suit of a late distinguished Home Secretary, Mr. Asquith, allowed that the fees granted to medical witnesses in England were not generous and compared unfavourably with those granted in Scotland, but, like Mr. Asquith, he could not entertain the question of revision because to do so would lead to the consideration of the whole scale of fees paid to all classes of professional witnesses. There was once a young nobleman in a popular farce who used to say on all occasions to everyone who addressed him, "What rot," and we feel strongly tempted to say so to Mr. Ritchie. Medical witnesses are much more required in courts of justice than any other professional witnesses and their duties are not similar. There need be no delay in considering their case apart if the Home Office would make up its mind to take the trouble. Of course, someone would have to do a little work and this, no doubt, is a formidable thing for a Minister to contemplate, but our point is that the work need not be magnified into an impossibility and then neglected. The fees of medical witnesses should be revised.

THE FILTERS SUPPLIED TO THE TROOPS IN SOUTH AFRICA.

CONSIDERABLE discussion is taking place in public health circles as to the merits of the filters supplied to the troops in the South African campaign. It is stated that the filters decided upon by the War Office showed a lower efficiency than the existing standard and that they were permeable to the typhoid bacillus. If this be so it is evident, considering the enteric fever from which many of our soldiers suffered, that they were given a false sense of security in regard to this matter. These allegations, it seems to us, should be thoroughly sifted, and yet another explanation of the action of the War Office is called for. The probability is that no portable filter can be regarded as secure in the excessively trying conditions under which our troops conducted the campaign. It was difficult enough to find water to drink, and how under such circumstances could the filters be periodically cleansed and sterilised? The evidence of laboratory experiments is worth very little in such a case and some method of purification of water other than filtration, such as sterilisation by the addition of sodium bisulphate, seems indicated. We trust, however, that the matter will be duly investigated.

FATAL INTESTINAL HÆMORRHAGE IN BRIGHT'S DISEASE.

AT the meeting of the Société Médicale des Hôpitaux of Paris on June 28th Dr. M. A. Souques related the following case. A man, aged 58 years, was admitted to hospital with albuminuria which he appeared to have had for five years. Some months previously his urine was examined and contained 0·3 centigramme of albumin to the litre. He looked strong, but his legs were œdematous and his abdomen was swollen and a little painful and tender. The heart was hypertrophied, the pulse was 120 and small, and the temperature was 101° F. In the chest there were sonorous and sibilant râles. There were diarrhœa and albuminuria. Bright's disease with slight uræmia was diagnosed and milk and dry cupping were prescribed. Though the patient was apparently in a good condition he died on the following morning. There had been vomiting during the night and some diarrhœa and slight delirium. The necropsy showed that death was due to intestinal hæmorrhage. The ileum was uniformly blackish for an extent of one and a half metres. In this part it was filled with black fluid and the mucous membrane was hæmorrhagic and livid. All the intestinal coats were tinged with blood, and even a small quantity of ascitic fluid which was present was reddened. The most careful examination of the mucous membrane *of the affected part* did not reveal any ulceration. The stomach and the rest of the intestines were normal. There was no venous thrombosis. The kidneys were large and each weighed 250 grammes. The section had the appearance of large white kidney. The capsules were adherent in places. The lungs were œdematous and congested. The heart had the typical aspect of *cor bovinum*; the left ventricle was greatly hypertrophied. In this case death resulted from an intestinal hæmorrhage which had not had time to show itself externally. Intestinal *hæmorrhage in Bright's disease is now well recognised*, but writers simply mention it without entering into details. Cases such as the present have been rarely recorded. Rayer[1] has described the following one. A man aged 48 years succumbed to a second attack of nephritis with melæna. The necropsy showed signs of pleurisy and hæmorrhagic peritonitis. In the peritoneum were several litres of red serous fluid. The ileum and large intestine were black; on the mucous membrane were fibrinous clots. The intestinal contents *were blackish and liquid*. Freitz, who has specially studied the gastro-intestinal troubles of nephritis, has found intestinal lesions in 209 out of 220 cases of uræmia. In 27 cases there was "dysentery," croupous or ulcerative; in four there were effusions of blood into the intestine. Aufrecht has described a case of Bright's disease with Cheyne-Stokes respiration in which repeated and abundant intestinal hæmorrhages took place for a week.[2] Intestinal hæmorrhage in Bright's disease is of two clinical types. In one, the most *frequent, there is intestinal ulceration*; in the other there is simply hæmorrhage, more or less abundant, which may show itself externally or not. Hæmorrhage without ulceration can be explained by intestinal congestion and rupture of capillaries. As to the mechanism, it has been shown that toxins, for example the diphtheritic, will cause intestinal hæmorrhage in animals. No doubt during their elimination by the intestine they produce congestion. In uræmia toxic substances are eliminated by the intestine, possibly with the same result.

THE CRIPPLES' MISSION.

THERE are several societies the objects of which are to provide the children who live in the slums and poorer neighbourhoods of London with an annual holiday, but poor crippled children of whom we believe there are about *6300* in our vast metropolis, are unable by reason of their deformities to join in the holidays and treats which are provided for them by people who possess both money and kind hearts. The Cripples' Mission, which is a development of the Ragged School Union and Shaftesbury Society, sends every week from 50 to 100 helpless boys and girls to the seaside for a stay of two or more weeks. Other parties of equal number are conveyed for the day to Epping Forest or to one of the parks. In connexion with this mission we are glad to see that a new holiday home for cripples was recently opened at Margate, Gordon House, the old home of the Young Men's Christian Association having been renovated at a cost of £400. It possesses accommodation for 30 beds. The offices of the Cripples' Mission are at 32, John street, London, W.C. The society looks after the children until they are of the age of 16 years.

THE RAPID DETECTION OF BORIC ACID IN MILK.

THE *usual methods employed for the detection of boric* acid in milk (the turmeric test and the alcohol and glycerol flame tests) in order to be delicate require a preliminary evaporation and incineration. Though this presents no difficulty in the laboratory, it renders the tests somewhat impracticable in the many cases where it may be desirable to make a test on the spot. Mr. Droop Richmond, F.I.C., points out that there is a reaction peculiar to boric acid which may be employed as a test; in aqueous solution boric acid hydrolyses almost completely into B_2O_3 and H_2O, and is therefore hardly acid to phenolphthalein, which he has proved by cryoscopic determinations of the molecular weight in aqueous solution. Re-combination is effected by the addition to the solution of polyhydric alcohols. Thus as R. T. Thompson was the first to point out, boric acid could be titrated with phenolphthalein in a 30 per cent. glycerol solution, showing that it is completely re-combined. No other acid possesses this property. Milk sugar behaves as a polyhydric alcohol and in 4 to 5 per cent. solution causes re-combination to the extent of about two-thirds. This peculiar behaviour of boric acid may be taken advantage of to test for its presence in milk. A portion of milk, say from 10 to 20 cubic centimetres, is placed in a beaker or other vessel, a drop or two of phenolphthalein solution added, and caustic soda solution (about normal strength) dropped in cautiously till a faint pink colour appears; a little of the milk is poured into two test-tubes, to one an equal bulk of a neutral 50 per cent. glycerol solution is added, and to the other an equal bulk of distilled water. If the milk be free from boric acid no difference of colour between the two tubes is noticed; in the presence of boric acid the glycerol tube will become paler, or usually white, while the water tube will become distinctly pinker. Any difference in colour between the two tubes (except the faint difference due to the greater transparency of the mixture of milk and glycerol) indicates the presence of boric acid. The neutral glycerol solution is prepared by mixing equal volumes of glycerol and water, adding a few drops of phenolphthalein and dropping in caustic soda solution till a very faint pink colour appears.

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[1] Traité des Maladies des Reins, tome ii., p. 335.

[2] Thèse de Paris, 18[illegible].

THE PROPER HOLIDAY.

At a time when the subject uppermost in the minds of men who work is their holiday we naturally pause to reflect how that interval of freedom is generally spent, and whether it is always of as great benefit as it should be. It is a very common thing for people to return from their holiday in worse health than when they left. This is deplorable and should seldom occur. The reason for such an unfortunate and entirely unintended sequel to a period of recreation is sometimes easy to find. Enchanted and blinded, perhaps, by the delights of some sequestered house, long solitary and little used, in the heart of a rural district, the weary holiday-maker from town ignores the evils of an antiquated sanitary arrangement, and while feasting his eyes on the charms of fruit trees and ivy-covered walls inhales the poison of a septic throat, or returns home to find his children fall ill with diphtheria reaped at that charming country resort. Let the man, then, who seeks the quiet of unfrequented country places as a main feature of his holiday at any rate take care that hygiene has not been sacrificed to antiquity. It is possible to find houses that are both interesting and old although the drainage is new and effective. In the matter of drainage we may well prefer a modernity which we avoid in the other features of our holiday house. It is a wise step for those who work in the bustle and clatter of a large town thus to rusticate themselves in their time of recreation One of the most essential features, in fact, of a holiday is that it should be a change. A recognition of this fact leads the medical practitioner of the country to take his holiday in a manner very different from that which appeals to his city brother. We know such a gentleman, busy day after day in his trap, his motor-car, or on his bicycle over a wide agricultural district, who finds one of the charms of his holiday in travelling about London on the underground railway. It is a form of entertainment rarely sought after from motives of pure enjoyment. Yet we are sure our country friend is quite right in his argument and the success of his method is proved by the renewed vigour and interest with which he returns home. He has had a change. Those whose lives are sedentary should exercise themselves when on their holiday, while he who is always running about when at work will do well to lie on his back on the soft meadow or, pillowed by the shelving beach, listen to the lazy lapping of the waves. We have no approval for the historic omnibus driver who when he had a "day off" spent it beside the comrade driving another 'bus. It is a trite enough observation that a holiday should be a change, yet it is one very often disregarded. Men become so moulded into the habits which they form that, though conscious of the advantage of a temporary cessation of their usual activities, they do not make the effort to secure it. The hard reader takes his books with him, the man who is always on his legs goes away and climbs, few seek as recreation the opposite of their usual occupation, and many a holiday longed for as the opportunity for renewing health and vigour turns out a disappointment because the time was not spent with that alteration of interest that should be the feature of all real leisure

UNIFORM MEDICAL LEGISLATION IN AMERICA.

Dr. Emil Amberg, of Detroit, Michigan, has sent us an article condemnatory of the system, according to which, in America, "many States absolutely refuse, within their jurisdiction, the license to practise to the same physicians whom citizens of other States legally authorise to exercise their professional duties, and to whom they intrust their own lives and those of their families." This fact, he says, can be explained in only two ways. Either the standing of those physicians is not sufficiently high for the former States, or the former States intend to protect their "home industry." He also considers that it would be a wise step to close about three-fourths of the medical schools now existing and either to place the rest under rigid State control or to make them State institutions.

THE ARMY MEDICAL SERVICE.

In April of this year a sub-committee of the Parliamentary Bills Committee of the British Medical Association issued a report on, and recommendations for, the reorganisation of the Army Medical Service. This report was adopted by the Council of the Association and a copy was forwarded to the War Office. Some addenda were appended to the report concerning the proposed amalgamation of the British with the Indian Medical Service, and in the last paragraph of these addenda it was stated that the sub-committee were "of opinion, in order that our British and Indian soldiers may in time of peace and of war be kept in the best possible physical condition—that is, in health and fitness to perform their duty—it is necessary that they should be under the care of a single medical service, with one portal of admission." Without at present entering upon the debateable question as to whether or not it is desirable that the two services should be amalgamated, we understand that, so far as is known, there is no intention on the part of either the home Government or the Government of India to amalgamate the two services; nor would any such scheme be considered.

THE ANNUAL REPORT OF THE COMMISSIONERS IN LUNACY.

The report of the Commissioners in Lunacy for the year 1900 has been issued in the form of a Blue-book. The total number of lunatics under the notice of the Commissioners on Jan. 1st, 1901, was 107,944. This was an increase of 1333 for the year 1900, as against an increase of 1525 in 1899 and of 3114 in 1898. The average annual increase for the last five years has been 2300, so the increase for 1900 is by no means large. The numbers of patients in county and borough asylums, registered hospitals, Broadmoor Criminal Lunatic Asylum, and of single patients have increased, while those in licensed houses, naval and military hospitals, metropolitan district asylums, and workhouses have decreased. The Commissioners point out that as regards asylums they have noticed extravagance in sundry details, and they further say that when plans are submitted to them in which any departure appears from the principles of due economy, proper regard being had to adequacy of buildings and a sufficiency of decoration they shall regard it as their duty to advise the Secretary of State to refuse his approval of the plans. We are glad to see that there is a decrease in the number of lunatics in workhouses. The workhouse as at present constituted is quite unfit for the reception of lunatics. The Commissioners, we are glad to see, suggest a differentiation of asylums. The inexpensive and more simply fitted are to be used only for the infirm, while the more adequately equipped hospitals are to be used for the more acute cases.

THE USE OF CATS' AND DOGS' MEAT FOR SAUSAGES.

RAILWAY arches have doubtless been put to multitudinous uses from time to time and more particularly in the neighbourhood of London where they may be seen serving the purpose of a stable or a church. The sanitary inspector of Bethnal Green has, however, been devoting his attention to the operations beneath an archway in that part of London. About a year ago certain persons were prosecuted and heavily fined for selling and using for human food material purchased from a cats' and dogs' meat dealer, the lessee of a railway arch, and somewhat similar mysteries have again been enacted in the same neighbourhood, but outside the district of Bethnal Green. It appeared for a long time that the cats' meat trade had ceased but by means of a midnight vigil the sanitary inspector ascertained that the cats' meat was removed surreptitiously to a small private house from which it was fetched by makers of sausages. After considerable trouble a butcher in Hackney was followed home with a consignment of this material which on arrival at the butcher's premises was seized and condemned. We are glad to hear that further legal proceedings are impending. *The inspector is of opinion that an enormous* amount of this objectionable substance, highly seasoned with condiments, and perhaps we would add, temptingly coloured, is dealt with and that regular markets exist for the trade. Unfortunately the trade is carried on in several districts, and hence there is need for the officers of some central authority such as the London County Council, to take the matter up. Sausage factories need much watching in this country, and sausages introduced from abroad need more analysis than, we fear, they get at present. What is required is the right of entry into all places in which food or substances used for the preparation of food are made ready for the market. Such a procedure is better than much analysis.

THE SEXUAL SENSE IN GENERAL PARALYTICS

LITTLE has been known hitherto regarding the variations of the sexual feeling in general paralysis of the insane. In the *Archives de Neurologie* for July Dr. Marandon de Montyel describes the exact clinical conditions in the three stages of general paralysis and draws certain new and interesting conclusions. The total number of patients whose cases were investigated was 1037 of whom 727 were of the "expansive" type, 162 of the "depressed" type, and 148 of the mixed type, as regards psychical symptoms. The following table *gives the conditions of the sexual sense whether normal* heightened or lowered in the three types of cases:—

Clinical type	Normal sexual sense Per cent	Heightened sexual sense Per cent	Lowered sexual sense Per cent
a Expansive	11 5	18·2	70 3
b Depressed	0 0	0 0	100 0
c Mixed	4 7	19·6	75 7

The most characteristic feature is that every one of the 162 patients of the depressed clinical type showed a lowered activity of the sexual instinct while even in the expansive type of patients 70 per cent showed the same. "It is not then true to pretend," says Dr. Marandon de Montyel, "that the self-satisfaction of general paralytics and their delusions of physical strength are engendered by a genital superactivity." Investigation was also made as regards sensibility to pain and it was found that this sense was more often altered than the tactile sensibility of the genital organs. From a detailed examination and tabulation of cases, however, no connexion could be established between alteration *of the algesic sense (cutaneous sensibility to pain) and* impotence. The general paralytic may, and often does, brag of his virile power while impotent. It was also found that as regards etiology the operation of alcohol was that which caused most of the alterations of the genital sense. These genital alterations had no prognostic value, but if they appeared early—that is in the prodromal stages of the disease—they might have a distinct diagnostic value.

THE BRITISH DENTAL ASSOCIATION

AT the annual general meeting of the British Dental Association which was opened on August 3rd some interesting points were raised. The honorary secretary, Mr. W. B. Paterson, in his annual report mentioned that the efforts of the Association in regard to the care of the teeth of sailors and soldiers had been met by the naval authorities by the purchase of "dental outfits" for naval surgeons. No doubt, continued the report, the outfits are suitable for the purpose for which they are intended but then a box of tools does not necessarily make a workman. The army authorities, however, had recognised the necessity for dental aid for troops on active service and had applied to the Association to supply four dental surgeons to go out to South Africa for the purpose of attending on the troops. Mr. S. J. Hutchinson, the President of the Association, referred in his presidential address to the good work of the School Dentists' Society and remarked that it was greatly to be regretted that the School Board for London had not availed itself of such opportunities as it might have done for the proper supervision of the teeth of children under its care. He referred with satisfaction to the fact of there being four dental surgeons at the seat of war and expressed a hope that in future a dental department would be seen working in unison with the *Royal Army Medical Corps*. The annual dinner of the Association was held in the evening and among the guests were Mr. H. G. Howse, the President of the Royal College of Surgeons of England, Dr. C. Godon, President of the École Dentaire, Paris, and Sir James Crichton Browne.

HÆMORRHAGE IN CHRONIC JAUNDICE

IN *American Medicine* of April 27th Professor Osler calls attention to the frequency and seriousness of hæmorrhage in chronic jaundice. In the past few months he had observed five cases in the Johns Hopkins Hospital. In Case 1 a woman was admitted on Jan. 9th with jaundice of four months' duration. There were recurring attacks of pain. The blood coagulation time was 10 minutes. An exploratory operation was performed on Jan. 29th and carcinoma of the gall-bladder and liver was found. Profuse hæmorrhage took place on the night following the operation and continued until death which took place on Feb. 1st. In Case 2 a woman was admitted on Jan. 30th with jaundice of four months' duration and intermittent fever. She had multiple xanthoma. The blood coagulation time was eight minutes but under calcium chloride it was reduced to three and a quarter minutes. On March 5th numerous gall-stones were removed from the gall-bladder and common bile-duct. Hæmorrhage took place on the following day and a hæmatoma formed. On March 9th there were severe bleeding and collapse. Recovery gradually took place. In Case 3 a woman was admitted on Feb. 19th with jaundice of nearly 10 years' duration. She had had attacks of hæmorrhage, chiefly from the nose and the uterus, in two of which she nearly died. An attack was in progress and she was pulseless and blanched. The hæmoglobin was 20 per cent of the normal and the red blood corpuscles were 1,600,000 per cubic millimetre. She had multiple xanthoma. The coagulation time was 14 minutes. A month later it was four and a half minutes and the red corpuscles had risen to 4,000,000 per cubic millimetre. On March 22nd there were slight epistaxis and a few petechiæ. In consequence of the tendency to hæmorrhage, even when the coagulation time was four minutes, and her extraordinary tolerance of the jaundice, operation was not advised. Case 4 was that of a stout, healthy-looking woman who was admitted on Feb. 19th with pain, nausea, vomiting, and jaundice of four weeks' duration. The coagulation time was three and one-third minutes. Operation was proposed, but she became collapsed, had hæmatemesis, and died. The necropsy showed gall-stones, cancer of the gall-bladder, extensive hæmorrhage into the lesser peritoneum, and hæmorrhage into the stomach. In Case 5 a man who had jaundice of four years' duration was operated on. On attempting to separate adhesions about the bile-ducts he bled so profusely that the operation had to be abandoned. Professor Osler points out the importance of surgeons taking into account the tendency to bleeding in chronic jaundice. Calcium chloride in 20-grain doses thrice daily, as suggested by Professor Wright of Netley, decreases the blood coagulation time, and subcutaneous injections of gelatine may be used for the same purpose. But, as shown above, bleeding may occur when the coagulation time is normal.

THE DEGRADATION OF FOOD.

THERE can be no doubt that during the past decade food has undergone a steady degradation, and this cannot be without a demoralising influence upon the human race. It will be noticed that by far the majority of cases of tampering with food relate to the substitution of a cheaper article rather than to the addition of an injurious substance. The common defence is that modern conditions of life make substitution a necessity. It is difficult to see the logic of such a defence—at least, in a number of instances. It is urged, for instance, that jam or marmalade cannot be made without the addition of glucose which prevents the preserve from crystallising. Now long before glucose was a household word jams and marmalade were made—and very good they were, too—consisting entirely of sugar and fruit In the same way we are told that beer must be brewed from sugar and that brewing exclusively from malt presents untold difficulties. Again, golden syrup, which used formerly to be the refined syrup of molasses, consists largely now of artificial sugar, which is doubtless a more marketable product but is not the same thing as cane sugar. Yet, again, we are told that the public demand a perfectly white loaf of bread, the truth in reality being that machinery has produced a roller flour which is an inferior thing to the now, we suppose, extinct stone-milled flour. Instances of this sort could be multiplied. We could wish that all those keeping house would make up their minds seriously to return to the excellent custom of preparing many articles of food for themselves at home. Who does not admit the charm of home-made bread, home-brewed beer, or home-made jam, and simply because they are known to be made from an honest formula which has stood the test of time and from good materials which yield a palatable product? Even in the country good old-fashioned wheaten bread, with that fascinating brown colour of rich wheaten flour, containing the entire nutritious portions of the berry and possessing that delightful wheaten flavour, now seldom, if ever, characteristic of bread, is difficult to obtain. The baker's loaf is, as a rule, a tasteless, insipid article which requires a considerable appetite before the idea of eating it can be entertained. No wonder that the taste for bread is steadily diminishing, and undoubtedly less bread is consumed than used to be the case. As is well known, bread contains almost every element of food necessary for existence, but we should be sorry for the person who tried to subsist entirely upon the modern uninteresting loaf made from blanched roller mill flour. It has recently been stated that the degradation of the teeth so noticeable amongst us now is due to roller milling having largely supplanted stone milling. We should not be surprised. The degradation of food is a very serious matter and is bound to lead sooner or later to the degradation of the eater. No movement could confer greater blessing upon the people than that which aimed at bringing about a return to the older and more rational methods of preparing food. Let us see more of the home-made article than we now see; let us return to more palatable food and to food that will do more good than the machine-made stuffs and the endless series of substitutes. In all the schools throughout the land we would have the children taught the advantages of home-made food, and how that bread, fruit, jam, or even beer and cider can be made at home. It would encourage a spirit of industry, it would give us palatable and nourishing articles to eat or drink, and might have a very wholesome effect upon those who seem deliberately to attenuate food as much as possible or who pay no regard to its naturally endowed palatability.

THE very sudden death is announced, on August 2nd, of Dr. Julius St. Thomas Clarke of Leicester. It will be remembered that in October of last year Dr. Clarke was seriously assaulted by a maniac named Kirby who fired four shots from a revolver at him as he was walking in the street. Dr. Clarke was wounded in the lower part of the spine and lay in a critical state for some time, but eventually recovered, and by November was well enough to give evidence against his assailant before the magistrate, as we mentioned in THE LANCET of Nov. 10th, 1900, p. 1392.

AT a meeting of the Distribution Committee of the Metropolitan Hospital Sunday Fund, held on July 31st under the presidency of the Lord Mayor, two amounts of £706 13*s.* 4*d.* and £706 6*s.* 8*d.* for last year and this year respectively were ordered to be paid over to the National Hospital for the Paralysed and Epileptic, Queen-square, Bloomsbury, W.C. These two amounts had been held over pending the settlement of the recent disputes between the board of management and the medical staff.

DURING the week ending July 28th seven cases of plague and three deaths from the disease were reported from all Egypt; of these, four cases and three deaths occurred among natives and three cases among Europeans of Greek nationality. Four cases and one death were reported from Alexandria, two cases and one death from Zagazig, and one case and one death from Port Said.

IN the *Times* of Wednesday last appeared a long and vehement letter from Mr. Burdett-Coutts, in which he appears to be exceedingly angry with Sir W. MacCormac for having, as it was reported, said that "Mr. Burdett-Coutts had no idea of perspective and exaggerated everything." We understand that Sir W. MacCormac did not mention Mr. Burdett-Coutts's name.

HIS MAJESTY the KING has been graciously pleased to grant his patronage to the Dental Hospital of London which has recently been rebuilt in Leicester-square, London.

ASYLUM REPORTS.

Salop and Montgomery Asylum (Annual Report for 1900) —The average number of patients resident during the year was 787 and comprised 344 males and 443 females During the year 213 patients were admitted and of these 49 were not first admissions The latter does not include 11 patients who were received as transfers from other asylums Dr Arthur Strange, the medical superintendent, states in his report that from the nature of the admissions and the number of old people in the asylum the recoveries during the year were lower and the deaths were higher than the average. A falling off in the number of curable cases among the admissions has been steadily going on for some years The question of increased accommodation for patients is getting urgent, and owing to delay and uncertainty in matters jointly concerning the counties of Salop and Montgomery no progress has been made The asylum has suffered severely from an epidemic of colitis to which seven inmates, all males, have succumbed. Dr Strange believes that "while being unable to trace the origin of the disease there can be no doubt that it is infectious and that isolation and cleanliness are the best and perhaps only means of arresting its spread The appearance of this disease [colitis] in two successive years, and the occurrence of so many cases of phthisis as evidenced by the number of deaths from that affection year by year point to the need of wards where these and other similar cases can be treated separately This is simply impossible in the present building, which is generally overcrowded with acute cases' Five cases of fractured bones occurred during the year, one being a case of fractured ribs attended with a fatal result An inquest was held and a verdict of "accidental death' was returned Dr Strange regrets to have to report too numerous changes amongst the staff due to various causes He believes that a *spirit of unrest pervades the class from* which attendants are taken, especially the females "Many [illegible] up after a short time without [illegible] ial I also doubt whether the [illegible] to the level of former years One evidence of this is the number of dismissals, no less than eight, males and females, left in this manner, and four others (including one female) left without giving any notice' The deaths during the year amounted to 116 the highest number ever recorded in the asylum—viz, 58 males and 58 females, or 14·7 per cent of the average number resident Of the deaths two were due to cancer, three each to influenza, bulbar paralysis, and general paralysis, six to apoplexy, seven to colitis, nine to cardiac disease, 13 to epilepsy, 15 to phthisis, 19 to senile decay, and the rest to other causes 48 patients were discharged as recovered during the year, or 6 1 per cent of the average number resident. An outbreak of swine fever occurred which is the second since the new farm buildings were erected in 1884 It rapidly spread during February, March, and April, at the end of which time all the pigs with the exception of 51 had either died or had been slaughtered in the hope of stopping its spread The total loss of pigs was 162. The outbreak could not be traced to any infection and not even a guess could be made at its origin The Commissioners in Lunacy state in their report that special stress had been laid by them a year previously upon the need of additional asylum accommodation to meet the increasing requirements of the two counties and express their regret to be unable to report *that any definite action* has been taken, although there has been an increase in the number of patients. They report favourably on the condition of the day rooms, dormitories and bedding The notes in some of the case books are in arrear, and they think that the particulars relating to injuries sustained by patients should be given in more detail They find no provision of a room or appliances for pathological research In the absence of suitable separate accommodation cases of phthisis have to be treated in open wards The Asylum Committee state in their report that owing to the increase in the cost of maintenance the weekly charge per patient will be raised from 7*s* 9*d* to 8*s* 6*d* as from July 1st, 1901. The sum of £285 had been expended in alterations and repairs, and works for connecting the asylum sewer with the sewerage system of the borough of Shrewsbury have been sanctioned at an expenditure of £300

Western Counties Idiot Asylum, Starcross, Exeter (Annual Report for 1900) —The average number of patients resident during the year was 256 During the year 44 patients (33 boys and 11 girls) have been admitted The tendency of many boards of guardians is to send to the institution only helpless and unimprovable children (idiots or imbeciles) As the institution is an educational rather than a custodial asylum for idiots imbeciles, and the feeble minded the term "idiot asylum is rather inadequate to convey its meaning and purpose Physical training reading writing and arithmetic, and industrial occupations such as tailoring bootmaking basket making mat making and wood carving are taught in classes, while domestic work needlework knitting, and the manufacture of straw hats are specially taught to the girls Mr E R S Lipscomb, the medical officer states in his report that the institution has been exceptionally free from infectious and other diseases during the year, with the exception of influenza which attacked some of the male patients, one of whom died from it During the year there were only three other deaths all of them from pulmonary tuberculosis An epidemic of ophthalmia which had long troubled the patients has at length become extinct The Commissioners in Lunacy state that at their visit the wards and rooms were in good order and that with the exception of five patients who were ill or in bed all the rest were up and busily employed in various ways The floors of the rooms are either dry rubbed and stained, or treated with oil The principal improvements which have taken place have been the building of two new workshops with dormitories overhead and a covered corridor to connect the workshop block with the main building Steam cooking has been introduced into the kitchen The late secretary of the institution died after 25 years of service and was succeeded by his son The adjoining house Elm Court, with a large garden and two acres of land has been taken on lease The accounts for the year closed with a balance in the treasurer's hands of £305 13*s*

ROYAL COLLEGE OF SURGEONS OF ENGLAND

AN ordinary meeting of the Council was held on August 1st, the President, Mr H G HOWSE, being in the chair

A report from the Committee of Management was approved It recommended the addition of the University of Birmingham to the list of recognised universities whose examinations are accepted in lieu of the first and second examinations of the Conjoint Board The following recommendation was also adopted —

[illegible]

next

The report of the Finance Committee was received and approved The gross income of the College for the past year was £26 104 being £893 greater than in the previous year This increase was chiefly due to a continued advance in the amount of the fees paid by candidates for the diploma in dental surgery As regards the fees for the examinations of the Conjoint Examining Board there was a decrease of £133 The expenditure of the College for the past year amounted to £23.989 being £424 more than in the previous year There was a decrease of £250 in the fees paid to the examiners of the Conjoint Examining Board The expenses of the Fellowship examinations were £323 [illegible] and were £29 in excess of the fees paid by the candidates, but the revised regulations will come into force in October, 1902, and this loss will not then occur

The balance of income over expenditure amounted to £2155 but from this must be deducted a sum of £490 for one half-year's rates which had not yet been demanded.

THE
BRITISH MEDICAL ASSOCIATION
MEETING AT CHELTENHAM.

THE summer general meeting of the members of the Irish Medical Schools and Graduates' Association was held at the Ladies' College, Cheltenham, on July 31st. The attendance of members was unusually large and included Professor Alexander Macalister, F.R.S., and Dr. E. D. Mapother, vice-presidents; Sir John William Moore, Dublin; Sir William R. Kynsey, K.C.M.G., Surgeon-General C. M. Cuffe, C.B., Surgeon-General C. Sibthorpe, C.B., Professor R. J. Anderson of Galway, Professor W. H. Thompson of Belfast, Colonel J. P. H. Boileau, A.M.S., Fleet-Surgeon Gilbert Kirker, R.N., and the honorary secretaries, Mr. J. Stewart and Dr. J. H. Swanton. In the absence of the President, Dr. W. Alexander of Liverpool, the chair was occupied by Dr. Mapother. The council reported that since the last annual meeting the restrictive rule with regard to qualifications for the staff had been repealed in the case of two provincial hospitals. Sir J. W. Moore stated that the subject of the exclusion of those holding the higher diplomas of his college from candidature for honorary appointments in the English hospitals had for several years engaged the attention of the Royal College of Physicians of Ireland. After some remarks on the same subject from Professor Thompson the meeting adjourned.

The annual dinner of the British Medical Association in connexion with the meeting at Cheltenham was held on August 1st at the Cheltenham College in the big hall. The company numbered close upon 400 and the chair was taken by Dr. G. B. Ferguson, the President of the Association. The toast list was a long one and whether it was that the hall was a very difficult one for the speakers to make themselves heard in, or whether the company had so much to say to one another that they could not listen to the speakers, the fact remains that most of the speeches were delivered in dumb show. This did not interfere with the length of an inaudible oration delivered by a gallant General who took no notice of cheers, talking, or shouting, and turned a deaf ear to a bugler who was summoned especially to sound the "Cease Fire" in the hopes that that martial order would attract the speaker's attention. It was noticed that the noisy, not to say tumultuous, assembly was during the delivery of Sir W. Mac Cormac's remarks perfectly quiet. Among the names of speakers on the programme were those of Mr. G. S. Bazley, Surgeon-General J. B. Hamilton, Colonel Rogers, Inspector-General A. Turnbull, Mr. W. F. Hicks-Beach, the Rev. Canon Roxby (Rector of Cheltenham), the Mayor of Cheltenham, Sir William Broadbent, Mr. J. T. Agg-Gardner, M.P., Mr. Brandt for the Deputy Mayor, Dr. Roberts Thomson, Sir William Church, Dr. R. W. Batten (Gloucester), Dr. Sabouraud (Paris), Professor Onodi (Budapest), and Professor George Dock (Michigan). The guests did not separate till a late hour which somewhat delayed the reception given by the ladies in an adjoining hall of the College. If judged by the noise occasioned the dinner would certainly appear to have been one of the most successful ever held; the guests undoubtedly thoroughly enjoyed meeting their friends, with whom they cheerfully conversed in anything but whispers.

A meeting was held on August 2nd at the Ladies' College to discuss the question of the forthcoming election of Direct Representatives to the General Medical Council. A full report of the proceedings will be found at p. 408.

As a result of the offertory at St. Matthew's Church, Cheltenham, on the occasion of the annual sermon preached by the Dean of Gloucester before the British Medical Association a sum of £40 was collected. This offertory has been divided between the Royal Medical Benevolent College, Epsom, and the British Medical Benevolent Fund.

THE GENERAL MEETINGS.

THE THIRD GENERAL MEETING.

The third general meeting was held in the Princess Hall of the Ladies' College at Cheltenham on August 1st. The chair was taken by the President of the Association, Dr. G. B. FERGUSON. The proceedings commenced with an Address in Surgery by Sir WILLIAM THOMSON, C.B., honorary surgeon to the King in Ireland, which was published in full in THE LANCET of August 3rd, p. 264. The next item on the programme was the presentation of the Stewart Prize to Dr. Patrick Manson.

Report of Constitution Committee.

The consideration of the recommendations contained in the report was resumed.

Want of space compels us to omit the discussion on the remaining clauses of the report, but we hope to publish it in a future issue. In the meantime we may say that the report was received.

THE FOURTH GENERAL MEETING.

The fourth and concluding general meeting of the members of the British Medical Association was held on August 2nd in the Princess Hall of the Ladies' College, Cheltenham, under the chairmanship of the President, Dr. G B. FERGUSON.

The following motions received from the Section of State Medicine were duly proposed, seconded, and carried:—

1. Having regard to the paramount importance to the interests of the public health of security of tenure of office of sanitary officers, the State Medicine Section beg to express their approval of the action of the Council in promoting a Bill in Parliament to that end and their thanks for the same.

2. That, as it appears desirable in the interests of the public health to minimise opportunities for the introduction of disease by ship-borne rats, it is of im [illegible] for this purpose should be so framed a [illegible] and commerce of the country. This [illegible] the captains of vessels loading at plague-infected ports should be ordered to destroy rats on board ship before loading cargo, and to take precautions for preventing rats getting on board during the time the cargo is being loaded, and that British Consular certificates should be issued to captains obeying such orders.

The following motion from the Ophthalmological Section was duly proposed, seconded, and carried:—

That it is of opinion that the just and friendly settlement of claims for injury to the eyes under the Workmen's Compensation Act, 1897, would be greatly facilitated by a knowledge of the condition of the eyesight of the injured person before the accident, and recommends that employers should adopt some simple plan whereby a record of the sight of each eye should be appended to the name of each workman in the wage-books.

After the usual votes of thanks had been accorded Sir WALTER FOSTER, in an eloquent speech, moved a cordial vote of thanks to the President, Dr. Ferguson, for his conduct of the meetings. This was seconded by the honorary treasurer of the Association, Mr. ANDREW CLARK, and carried by acclamation.

THE SECTIONS.

MEDICINE.

THURSDAY, AUGUST 1ST.

Dr. E. S. REYNOLDS (Manchester) opened a discussion on

Peripheral Neuritis in Beer-drinkers: Its Precise Causation and Diagnosis.

He commenced by describing the now well-known outbreak of peripheral neuritis which occurred in Manchester and district in the latter part of last year. Attention was first directed to the very considerable increase in the number of cases of peripheral neuritis that were being admitted into the hospitals and Poor-law infirmaries of that locality. When these cases were studied it was found that in addition to the well-recognised symptoms which had for a long time been known as those of alcoholic neuritis others, such as pigmentation of the skin, cardiac muscle failure, and loss of memory of time and place, were also present. When this disease was first described it was supposed to occur almost exclusively among spirit-drinkers, but in this outbreak, as well as in isolated cases occurring from the year 1884 onwards, drinkers of beer were more affected A large majority of the cases seen in the autumn of 1900 had the skin pigmentation very marked, the condition of the extremities resembling that described as erythromelalgia, suffusion of the conjunctiva and nasal mucous membrane, diarrhœa, herpes, pain, and sweating in the feet and hands All these patients were beer drinkers In November arsenic was discovered to be present in several samples of beer and this, again, was traced to certain sugars used in the brewing process, which all came from the same manufactory The presence of arsenic in these was afterwards found to be due to the use of impure samples of sulphuric acid in their preparation The quantity of arsenic found in these beers varied from one-thirtieth to one and a half grains of arsenious oxide to the gallon , in the impure ingredients the same substance was present, in the case of invert sugar the amount of one grain per pound, in the glucose four grains, and in the sulphuric acid the amount of 100 grains per pound were found. The connexion between the ingestion of large quantities of arsenic and the disease in question being thus established they had to consider the following points Two views on the subject might be held first, that the symptoms were caused by the two substances acting together—e g , that the arsenic caused the effect upon the skin and that the alcohol caused the neuritis , the second theory was that all previous cases were really due to arsenic and not to alcohol In support of the latter theory peripheral neuritis had now almost entirely disappeared from Manchester, its former home There had, however, been one or two cases quite lately, but in both arsenic was found in the hair of the affected patients, and on analysing the beer they had been in the habit of drinking it was found that it contained more than a trace of arsenic Peripheral neuritis had undoubtedly occurred in persons who only drank spirits and wines, but wines were adulterated with various substances which undoubtedly contained arsenic Whisky might become contaminated with arsenic from the use of impure sulphuric acid used in cleaning the still, and an instance was related in which crystals of arsenious oxide were actually found in a still head Malt had been found adulterated with arsenic as a result of using coke in the drying processes Though no such symptoms in relation to the skin had been described by observers in the earlier cases of peripheral neuritis it was possible that these might have been overlooked There was a third possibility—i.e , that alcohol and arsenic were both able to produce all the symptoms of the disease, but that their action was intensified when they were both acting at the same time If alcohol by itself could cause peripheral neuritis it was evident from the large amount consumed that alcoholic neuritis must be the rarest disease He considered that a large number of the cases credited to alcohol were really arsenical in origin Beri-beri was a form of peripheral neuritis not confined to the tropics, but which had also occurred in certain asylums, notably in Dublin In one place where it was supposed to be endemic it affected workers in tin mines and there he considered that the cause was arsenic ; and he thought that the same cause had operated in other outbreaks of beri beri, but he would not say that that disease was invariably due to arsenic. In conclusion he showed tubes having arsenical mirrors which had been prepared from the hairs of the patients who had been seized during the last few weeks He showed a large number of lantern slides illustrating the scaling of the skin pigmentation, bullæ, purpuric spots, wasting of the interossei, wrist-drop, paralysis of the arm and leg muscles, and of the diaphragm

Professor DIXON MANN (Manchester) exhibited specimens of Arsenic Crystals from Hyperkeratosis, from the Hair and from the Nail Clippings in arsenicated beer cases He discussed the pathology of arsenical neuritis , the cases in Manchester were very severe and perhaps their most prominent symptoms were the extreme tenderness of the muscles and the disturbance of the cardiac innervation He thought that both alcohol and arsenic combined in their causation but that alcohol acted by interfering with the molecular changes in the nerve cells and so rendering them liable to be affected by the arsenic The effects seemed to some observers to be in excess of the amount of arsenic taken He saw no evidence of this He thought that very large amounts of arsenic must have been taken in some of the cases. Some of the samples of beer examined contained one and a half grains and even up to two grains per gallon, and a gallon per day was not an uncommon amount to be drunk. With regard to the action of arsenic on the nervous tissues he remarked on the affinity of the keratin tissues for arsenic ; it was found in the nails, the hair, the epithelial cells, and not only in such of those tissues as were removed from the influence of the active circulation of the blood. There was a substance called "neuro-keratin" which had a similar composition It was found in the axis cylinders and the sheath of Schwann and fibrils of the same substance traversed the nerves in every direction. There was also much neuro-keratin in the brain It was, however, very much more abundant (10 times) in the white substance than in the grey In view of this fact he obtained some brains from patients who had died from arsenical neuritis and roughly divided the white from the grey matter He then examined the two portions for arsenic, and as a result he found that in 240 grammes of white matter there were 0 8 milligrammes of arsenic, while in the same amount of grey matter there was merely a trace This was the result of one analysis The others were similar, and in all cases the white matter contained more arsenic than the grey In answer to the question as to how did the arsenic produce the neuritis he thought that the central cells were affected as well as the peripheral nerves If the taking of arsenic in beer was discontinued, for the first few days the symptoms of neuritis increased both in intensity and the area of the affected parts. He would compare its action to that of phosphorus as described by Mott, who considered that that poison acted on the nerve cells by preventing them storing up oxygen in their protoplasm

Dr A P LUFF (London) approved of Professor Mann's theory as to the action of arsenic on the nerve-cell With regard to Dr Reynolds's questions he thought there was alcoholic neuritis pure and simple but he agreed that the intense nerve pain, pigmentation, and skin eruptions were points of difference between the two forms He did not think that if these pains and eruptions had been present in the earlier described cases of alcoholic neuritis that they could have been overlooked. He also thought that if these earlier cases had been due to arsenic that substance would have been detected in the body either in the course of toxicological or other observations Nearly all the cases in Manchester appeared to have been affected by arsenic derived from the same source

Dr T N KELYNACK (Manchester) showed further slides and discussed the cases seen in Manchester The more important conclusions are shown in the following table —

Table indicating the Relative Frequency of Peripheral Neuritis in Different Parts of the Country

Hospital	Years	Total number of cases	Number of cases of peripheral neuritis	Percentage.
Royal Infirmary (Dundee)	1899-1900	9 000	9	0·1
Addenbrooke's (Cambridge)	1878-1901	9 006	25	0·23
Royal Victoria (Belfast)	1892-1899	7,823	23	0·29
London Hospital (Whitechapel)	1890-1899	47 183	202	0·42
St Thomas's Hospital (London)	1893-1898	7 656	37	0·43
St Bartholomew's Hospital (London)	1895-1896	10 009	62	0·61
Royal Infirmary (Manchester)	1892 1893	9 300	109	1 17
Royal Infirmary (Manchester)	1899	1,300	21	1·61
Royal Infirmary (Manchester) ...	1900	1 343	62	4·61
Royal Infirmary (Manchester) ...	November 1900-January 1901	336	43	12 7

Such returns clearly indicated that much of the so-called alcoholic paralysis met with in Manchester and district during recent years had really arisen from the use of arsenicated beer He thought that the effects of arsenic had been modified by the method of its administration in beer and thought that they had been accentuated by the action of the alcohol.

Professor W. OSLER (Baltimore) said that though very little wine and spirits were now taken by the upper classes in America, among the lower classes both whisky and beer were extensively consumed. Alcoholic neuritis was rare in that country, but it did occur, and the symptoms observed were identical with those which had been described in arsenical cases, with the exception of those relating to the skin and the vaso-motor functions. Keratosis, bullæ and the like were absent. For these reasons he considered that alcohol was the cause of the disease in the cases he had seen. With regard to the excessive pain, in other forms of neuritis, such as that occurring after typhoid fever the pains might be very severe.

Dr. NATHAN RAW (Liverpool) saw 212 cases during the Manchester epidemic; of these only 22 were acute. He thought the difference in severity was due to dosage, though there were more cases in women than in men, yet all the cases among the former were chronic in character, the reason being that the women usually drank a certain amount of beer regularly every day, whereas the men more often drank a very large quantity on particular occasions. He thought that all the cases in that epidemic were caused by arsenic and that alcohol intensified its action. The effects of arsenical neuritis were recovered from more rapidly and completely than those of the alcoholic form.

Dr. F. M. POPE (Leicester) had seen a good many cases in Leicester similar to those in Manchester. In all of these in which the source of the beer drunk by the patients could be ascertained it was found to have been contaminated by arsenic contained in products from the same manufactory as those which caused the Manchester cases. When such a great number of persons could take such very large quantities of alcohol without the production of a single symptom of peripheral neuritis he hesitated to accept the theory that alcohol alone could produce the disease.

Mr. F. ORMROD (Workington) related his experience of many cases which had occurred there.

Dr. R. CATON (Liverpool) had traced a few cases to lead and thought that the substance should be looked for.

Sir WILLIAM GAIRDNER (Edinburgh) said that he was unfamiliar with alcoholic paralysis previously to 1884 when he saw cases in Manchester with Dr. Ross. He considered that no case of this nature could have escaped his attention, but he thought that he had not seen more than eight or 10 cases in Glasgow since that time. In view of the large amount of alcohol consumed in that city he thought that alcohol was not the cause.

Dr. REYNOLDS replied and the PRESIDENT (Dr. E. T. WILSON) summed up.

Dr. R CATON (Liverpool) read a paper on

The Means of Arresting Acute Endocarditis.

He thought that progress had been made in understanding the endocarditis of acute rheumatism and that it would not be long before the microbial origin of the disease would be absolutely recognised; not so much progress had, however, been made in the treatment of the complaint. He described the results of his treatment in 92 cases of endocarditis arising in the course of acute rheumatism while the patient was actually in the hospital He insisted on three points. First, absolute rest in bed for at least six weeks on low diet; second, that salicylates did not do so much good to the heart as to the joints, and that such drugs as digitalis, strophanthus, &c, were on the whole injurious. Small blisters applied in succession over the præcordial area were very valuable and he discussed the action, or possible action, of these in exciting resistance to bacterial growth in the tissues of the cardiac valve. Thirdly, he gave sodium iodide with a view to promote absorption of the effused fibrinous material on the valves. He considered that in many of his cases he had quite prevented the extension of the disease and many were now still in good health after considerable periods.

Professor OSLER thought that they owed a distinct debt to Dr. Caton for his attempts to combat what was undoubtedly the most serious part of acute rheumatism. He had followed out the treatment and was sure that it was the correct one, but he regretted to say that he was afraid it could only be of advantage in a few cases. It was very desirable to obtain a subsequent history of the patients at a later stage, as frequently the ultimate damage caused to the valves only became apparent after a considerable interval.

Professor CLIFFORD ALLBUTT (Cambridge) thought it singular that they knew so little of the history of patients in after years. It would give them much assistance if they could see patients in 10 years after such attacks as had been described. He thought that while some murmurs reappeared after a patient's discharge from the hospital there were others that cleared up. He thought that Dr. Caton's treatment should certainly be carried out and suggested in addition that means should be taken to decrease the total mass of the blood.

Sir WILLIAM BROADBENT (London) thought it was a pity to stereotype forms of treatment and that that described by the reader of the paper was not so new as to merit a specific name. Treatment on the lines advocated by Dr. Caton had been well known since the days of Sibson. He agreed with Professor Allbutt that they often saw cases where murmurs which had formerly been loud had quite disappeared. It was not necessary to consider that a murmur always meant functional impairment of the heart, and if a murmur were present he would prefer a loud to a more faint one. If salicylates were to be of any use in the prevention of acute endocarditis or its arrest in the earlier stages they should not be given in the usual routine manner; 15 grains per hour should be given for six hours on two succeeding days. He thought that given in this way it was often efficacious. After a murmur had appeared the salicylates should be stopped as they could only do harm.

Sir WILLIAM GAIRDNER said that Sibson had taught years ago that patients should not get up for some considerable time after the temperature had become normal in rheumatic fever, and that on the occurrence of the slightest departure from a normal state they should be sent back to bed again.

Dr. W. EWART (London) agreed with Dr. Caton as to treatment, but thought that the cases with hardly appreciable murmurs were the most insidious and the worst. He thought that in future they would be able to treat endocarditis by anti-microbic remedies; even the malignant forms were not quite so hopeless as was formerly thought. He had had evidence in one case that although it proved fatal the heart had been undergoing a process of recovery.

Dr. SAMUEL WEST (London), who was now in the chair, said he rather deprecated attacking a question such as this by means of statistics. He preferred the personal opinion of a good clinical observer. In many cases the murmur might disappear, but that did not always mean that the disease had disappeared also. In some such cases if the patient's cardiac dulness was marked out before and several hours after he got out of bed marked evidence of dilatation of the heart could be found at the latter time, and in any such case prolonged rest in bed was absolutely necessary.

SURGERY.

THURSDAY, AUGUST 1ST.

Mr. GILBERT BARLING (Birmingham) opened the discussion on

Gastro-jejunostomy in Ulcer of the Stomach and Duodenum and Pyloric Stenosis.

He considered it was of importance to come to some conclusion as to the relative mortality of gastric ulcer; the statistics appeared to vary very widely—French surgeons placed them as high as from 50 to 20 per cent. This he thought much too high; he should feel inclined to place it at 10 per cent, or even lower. Death in these cases was commonly due to perforation, hæmorrhage, or inanition, and but rarely to consecutive cancer. He thought that the belief of French surgeons in the frequency with which cancer followed on such ulcers was exaggerated. As regards the indications for operative treatment, he first considered the symptom of hæmorrhage; acute bleeding, such as might bring the patient to the verge of death, he did not think a good case for operation, for it had been shown frequently that in such cases the source of even a violent hæmorrhage might be impossible of detection during life owing to the minuteness of the lesion. Cases of recurrent and slight hæmorrhages, he thought, specially invited successful treatment, and in this connexion he called attention to the comparative frequency with which considerable ulceration existed without bleeding being detected, but these, and those cases of slight and recurrent hæmorrhages, were marked by a chronic invalidism, a condition which demanded operative treatment if such could be safely afforded, irrespectively of the liability to mortality arising from the untended ulcer Such operative treatment could be safely rendered, and of the possible operations he considered gastro-jejunostomy preferable, it was attended with slight risk, it set the parts at rest, and was allowable even under extreme conditions He commented here on the difficulty of differentiation between the symptoms arising from a chronic gastric ulcer and a dyspepsia of the neurotic type. In the consideration of cases of stenosis of the pylorus with dilated and hypertrophied stomach (he excluded from this connexion the atonic dilatation of the organ in asthenia), he considered the use of Loreta's method of dilatation inadvisable—there was no inconsiderable risk of rupture of the gastric coats and even death therefrom, as he had himself seen , further, there was a liability to a recontraction of the pylorus The operation of election in selected cases was pyloroplasty , where there was simple stenosis it was an admirable operation, but with adhesions or such thickening as simulated malignant growth it was quite inadmissible The separation of adhesions—gastrolysis—he thought of doubtful use, they usually re formed , gastro-jejunostomy he thought promised better results As regards the latter operation he believed it to be the most frequently adopted and one most variable in its mode of performance Should suture or mechanical union simple or complex anastomosis, or should the anterior or posterior sites of implantation be adopted? As regards the first of these matters he noted that the use of mechanical means of union was first in the field and by their simplicity greatly popularised the operation Now sutures were pre eminent. Personally, he now used double rows of continuous sutures, but he thought the decision lay in individual skill in manipulation and in the state of the patient at the time of the operation As regards the mortality arising out of the operation, he thought that 20 per cent would well cover it, but that with some surgeons it was as low as from 10 to 5 per cent With recovery the results were as a rule excellent, but he should like some consideration as to the possibility of reducing the anxiety too often exhibited by the patient during the first few days after operation—a condition due doubtless to regurgitation of intestinal contents into the stomach

Mr GEORGE HEATON (Birmingham) stated his belief that the mortality from gastric ulcer was even less than 10 per cent , 6, 5, or even 4 per cent might be more correct. He was not sanguine of the use of operation in cases of hæmorrhage In distension of the stomach following stenosis its triumph was marked. He would add one other case as indicative of operation to Mr Barling's list, that of hour glass constriction of the stomach due to the healing of old ulcers He agreed to the inadvisability of Loreta's method and favoured gastro jejunostomy in general and pyloroplasty for special cases In gastro-jejunostomy the posterior union was theoretically the more correct, as the union would be in the most dependent spot when at rest in bed but the anterior position was the easier and surer to work at and so gave less liability to mortality He favoured the use of the button, it was quick in application and there was lessened shock. There was less liability to contraction of the new orifice with the use of the button than with suture. He strongly deprecated the use of the cheap and nasty foreign made buttons now on the market. In some
cases he had
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jejunostomy in cases of pyloric cancer

Mr L. A. BIDWELL (London) thought there was truth in the idea of French surgeons that increased secretion of hydrochloric acid produced spasm of the pylorus and that there was such increase of hydrochloric acid in gastric ulcer , in such cases, and especially in the poor who could not afford to rest or follow dietetic measures, operation was indicated. He was sorry to hear the strictures passed on Loreta's method , his experience was not extensive, but he had one case in which there had been no recurrence after eight years The modified method—that of dilating through the invaginated stomach—was useful in slight contractions probably from spasm In pyloroplasty he had good results ; in one case there was recurrence of gastric dilatation after one year owing to the forming of adhesions at the scar , these he removed and covered the area with a flap of parietal peritoneum In gastro jejunostomy he now used the anterior method, it was easier, there was better chance of making a water-tight connexion, and so it was safer He did not like the button—he could not conceive anything worse for an ulcerated stomach than the presence of a mobile button within its cavity

Dr SINCLAIR WHITE (Sheffield) agreed that in a very limited sense pyloroplasty was the operation of election, but no adhesions must be present Gastro jejunostomy always met one's requirements, for two healthy sites for union could be selected He pointed out that Loreta was not the first to act directly on the pylorus , Rydygier had a year previously performed pylorectomy In gastro jejunostomy he preferred the anterior implantation. but thought the point strained , all that was required was a water-tight joint , this could be best effected anteriorly He preferred the suture, but confessed that in his hands the button saved 25 minutes in the operation.

Mr C A MORTON (Bristol) narrated a case in which by the operation of gastro-jejunostomy he had been able to secure comfort and well-being for a man, aged 42 years, who for seven years had been in a state of miserable invalidism

Mr J RUTHERFORD MORISON (Newcastle on-Tyne) said one cause of mortality in these cases had been overlooked, one that was dramatic in its suddenness—syncope, the patient just dropped out He did 22 consecutive operations of pyloroplasty without death, yet he acknowledged this was a matter of luck, for two cases as good in appearance as any of the others died from this cause the night preceding the day fixed for operation , and of two cases of successful gastro jejunostomy one, when apparently well, dropped dead He regarded operations in hæmorrhage as unsatisfactory, for he had seen apparently hopeless cases of hæmorrhage recover without operation , and in a case where he opened the stomach of a young woman for such symptoms nothing could be found either by touch or sight The patient died There were found two small ulcers on the anterior wall of the cardiac orifice in a position which could not be reached , one of these had perforated. He, like Mr Barling, had operated with the expectation of finding gall stones and found an ulcer in the region of the pylorus He thought that such ulcers were not sufficient to cause constriction of the pylorus and dilatation of the stomach but that owing to the difficulty of driving the food over the ulcer surface the muscle coats became hypertrophied and irregular in their action He thought adhesions of no moment, save as indications of disease within the viscus , he had always found the two concurrent He animadverted on dilatation through the invaginated gastric wall , if dilatation was indicated it should be done properly through an opened stomach , the risk of the opening was very slight His experience of gastro-jejunostomy was not good , he had tried the simple method of anastomosis and one in which he made a new S shaped duodenum out of the jejunum, to which was attached the old duodenum as a sort of bile duct , this method, indeed avoided regurgitation, but the mortality was still 50 per cent.

Mr J PAUL BUSH (Bristol) had tried posterior gastro-jejunostomy with success but agreed that it was a longer and more difficult procedure than by the anterior anastomosis

Mr R H PARRY (Glasgow) said was it not bad to cut bands of adhesion and at the same time leave masses of thickened tissue in the walls of an organ? He felt that there should be some operation intermediary between pyloroplasty and gastro jejunostomy, yet not pylorectomy He had in one case extirpated the gall bladder and excised thickened areas from the pylorus with the best results

Dr G B FERGUSON (Cheltenham) President of the Association read a paper on

An Operation for Perforated Gastric Ulcer and Three Similar Cases occurring in Gloucestershire.

His case was a classical one with the special point that the condition was at once recognised and was operated on within three hours The perforation was on the posterior surface and was closed with two rows of Lembert sutures No general washing out was practised, the abdominal cavity being merely sponged The patient a woman aged 25 years was nourished entirely by enemata for 14 days and made an uneventful recovery Dr Ferguson then detailed three similar cases operated on in his shire—one successful and two unsuccessful He gave a very complete *resumé* of the statistics and history of such operations, and found that from 110 published cases noted by him there was yielded the excellent result of 41 recoveries He strongly insisted upon the necessity of an early recognition of the condition and immediate operation and remarked that the life of the sufferer depended more upon the one into whose hands the case first came than upon the operator.

Dr. J. MURPHY (Sunderland) further emphasised the urgency of such cases and showed by the citation of some cases how the promptness of an ordinary 'busman in bringing in a patient, was more to the point than the dallying of a practitioner of medicine.

Mr. D'ARCY POWER (London) remarked on the frequency with which he had seen such cases of late and asked if there was any general feeling that there was an increase of the disease.

Mr. BARLING replied to a few points of the discussion and stated that he thought Mr. D'Arcy Power's experience was one of those curious irregularities in the law of averages such as they must have each one experienced at some time or other.

Mr. J. RUTHERFORD MORISON (Newcastle-on-Tyne) read a paper on

The After-history of a Series of Cases of Pyloroplasty for Gastric Ulcer and Pyloric Stenosis.

He said that in his experience pyloroplasty had been the most satisfactory operation in abdominal surgery. Taking into consideration the feeble condition of the patients, the mortality of the operation had been less than that of any other, and the results, immediate and remote, were equally successful. By pyloroplasty he did not mean any text-book operation, but any plastic interference with the pylorus. He had made careful inquiry as to the present condition of his first 20 cases operated upon. The first was done six years and eight months ago and the last two years ago. These inquiries showed that 14 of the patients were now in good health and took ordinary food; one could not be found but was well when last heard of; two were dead; and three, though much improved, still had occasional stomach trouble. Of the deaths one occurred about 18 months after operation from cancer of the stomach commencing at the site of operation—a malignant had been mistaken for a fibrous stricture of the pylorus. The second died from phthisis pulmonalis 27 months after pyloroplasty for cicatricial stricture of the pylorus; until the commencement of his last illness he had been well and free from stomach troubles. None had had a return of the symptoms and signs due to pyloric stricture. These results, he said, seemed to justify his belief that pyloroplasty was the operation of selection for simple pyloric stricture and that gastro-jejunostomy should be reserved for cases in which the pylorus was so bound down or involved in adhesions as to be inaccessible. A detailed table of the cases was shown.

Mr. BARLING remarked on the great usefulness of such a paper, since it was of the utmost importance to trace the after-histories of such cases.

Dr. G. T. BEATSON (Edinburgh) read a paper on

The Treatment of Cancer of the Breast by Oöphorectomy and Thyroid Extract.

He said he brought this matter forward to open discussion on the experience gained during the five years since the procedure was described in THE LANCET.[1] He gave an account of a case which he thought exemplified the beneficial effects of the treatment in a remarkable manner, for within a period of six months a large cancerous mamma had entirely atrophied and the extensive glandular enlargement present before the operation had disappeared. He made mention of what Mr. Watson Cheyne had called this "striking" control of the course of carcinoma of the female breast by oöphorectomy and thyroid feeding, as furnished by other surgeons. He raised the question of the possible explanation of such results, especially in the light of those cases of apparently spontaneous disappearance or quiescence of mammary carcinoma. Cases where improvement resulted from oöphorectomy he thought might bear on the etiology of the disease, since he regarded the apparent controlling influence of the ovaries as inimical to the parasitic theory of the disease. There arose further the big question, Did these results justify the adoption of such treatment as a primary method in the early stages of the disease? In concluding, he affirmed his confidence in the utility of the combined oöphorectomy and thyroid feeding in cases where direct operation on the disease was impossible.

Mr. BARLING said he had not done the operation and he was of opinion that the time had not come for the substitution of such a method for the recognised measures; he thought the special influence of ovarian removal on the disease not proven.

Mr. MCADAM ECCLES (London) had so treated certa cases last year with a measure of success. He asked if there was any use in the operation in cases of mediastinal growth. He believed the conjoined direct and indirect measures had a future, but was of opinion that removal of the ovaries after the menopause was useless, but as late as 39 years he had seen good effects.

Mr. H. J. STILES (Edinburgh) thought the operation was likely to be adopted even for early stages of the disease, but at present not as a routine except in far gone cases.

Mr. RUTHERFORD MORISON stated that he had had some success with the method but he must quote two cases in which the results were antagonistic. The first case was that of a woman operated upon 25 years before death; the notes of the operation by the operating surgeon had been lost, but the woman stated that both her ovaries were removed; whereas before the operation she menstruated and bore children, since, she had neither menstruated nor conceived. She died from carcinoma of the breast. The second case was one of double ovarian cysts; the glands were removed and the patient died five years later from cancer of the breast.

PSYCHOLOGICAL MEDICINE.

WEDNESDAY, JULY 31ST.

The Rôle of Toxic Action in the Pathogenesis of Insanity.

The discussion on this subject, which was opened by Dr. W. FORD ROBERTSON in a speech which we reported last week (p. 337), was continued by Dr. ROBERT JONES (Claybury Asylum) who said that he regarded the views enunciated by Dr. Robertson as too exclusively materialistic. He was himself inclined to look upon mental processes as not entirely of material nature and essence, but he regarded the relation of mind and body as a parallelism. He was inclined to look upon many of the changes in the alimentary canal as secondary to, and consequent upon, pre-existing general paralysis rather than as a cause of the disease.

Dr. EDWIN GOODALL (Joint County Asylum, Carmarthen) cited instances of puerperal insanity of toxic origin and arising from the presence of streptococcal infection and pointed out that such cases had been successfully treated by the injection of anti-streptococcic serum. The action of such a disease as erysipelas in arresting, as it sometimes did, acute insanity was inexplicable, though the fact was undoubted. He looked upon general paralysis as complicated with two sorts of toxic agencies—viz., exogenous toxic action arising from alcohol, syphilis, and the like, and endogenous intoxications following upon lesions in the inner coat of the alimentary canal.

Dr. EDWIN S. PASMORE (Banstead Asylum) referred to phthisis as a cause of insanity. The toxins of phthisis produced various forms of mental disturbance. He pointed out that experiments made in Professor Pasteur's laboratory in Paris had shown that loose ligature of the base of the appendix vermiformis was followed by a profuse multiplication of the bacillus coli communis within its cavity and a secondary local peritonitis arose therefrom. It was quite possible that the small intestine in general paralysis might be the seat of unknown (? vascular) disturbances which might be followed by an abnormal multiplication of the intestinal bacteria producing in its turn a degree of toxæmia which would act prejudicially on the brain. Such an event would serve to aggravate an already established general paralysis, but he did not believe that general paralysis was the secondary result of auto-toxæmia from the alimentary canal.

The PRESIDENT (Dr. J. B. SPENCE) thought that the swing of the pendulum was again on the turn and that the treatment adopted by their forefathers of giving blue pill and black draught might once more become popular in the treatment of insanity, as it had in other diseases.

Dr. ROBERTSON, in replying to the questions raised during the discussion, reiterated his conviction of the importance of toxic changes in the alimentary canal as productive factors of insanity.

Dr. A. T. SCHOFIELD (London) read a paper on

Some Conditions of Success in the Treatment of Neurasthenia.

He used the word "neurasthenia" in the broadest sense and included hysteria in it. He regarded the personality of the physician as an important factor in successful treatment, the qualities needed being sympathy, patience and perseverance, firmness, tact, and honesty towards his patient. The physician should realise in regard to hysterical patients the significance of the dictum that "diseases of the imagination are not imaginary diseases." Hysteria and neuromimesis both arose from a disorder of the "sub conscious mind." In neurasthenia the exciting cause arose *ab extra*. The patient might already have been treated by various local practitioners before he consulted the alienist or nerve specialist and the latter should not "pooh pooh" the symptoms as trivial or imaginary, because that would provoke distrust in the patient's belief of the physician's power of cure and thus retard recovery. Sexual excesses, both natural and unnatural, should be carefully inquired into and treated in neurasthenic cases. The treatment should be varied to suit the patient and not *vice versa*. The attitude of the physician should, on the whole, be dogmatic and weighty, the nurse placed in charge of the patient should be docile and unaggressive, one of a type intermediate between the hospital and asylum nurse. The patient should be treated in a "home" or special institution where the dietary could be varied exactly in conformity with medical orders. Grounds for open-air exercise must be open to the patients. Neurasthenics required rest, with a little massage and some degree of over-feeding. Hypnotism was of doubtful value. Electricity was better by reason of its direct action on the tissues and indirectly by the "mental suggestion" which was aroused in the patient. Rest in bed might be bad *in certain mental cases with a tendency to fixed delusions*. Introspection should be discouraged in such patients and diversions were necessary to do so. Any degree of restlessness, insomnia, dyspepsia, or constipation which might be present should be suitably treated. After convalescence the patient should not return to his old life and surroundings, but a different kind of life and occupation should be chosen. Cycling and golfing were powerful therapeutic aids to treatment.

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[1] THE LANCET, July 11th, 1896, p. 104.

In the discussion following the above paper,

The PRESIDENT emphasised the proposition that the physician in charge of neurasthenic and hysterical cases should be kind, sympathetic, tactful, and firm towards his patient and said that Dr. Schofield's paper was of especial interest to those who in our asylums had to treat acute mental disorders allied to neurasthenia and hysteria.

Dr. FLETCHER BEACH (London) said that sympathy on the part of the physician was a *sine quâ non* in successful treatment, the patient being more in need of sympathy than of medicine. The patient's symptoms were not to be scoffed at, because that made him lose heart and confidence in the physician. Perseverance and tact were also of importance. Attention to detail was a point of practical importance—e.g., to plan out for each day the details regarding diet, sleep, and occupation for the patient. This removed the patient's mind from morbid introspection. A nursing home and the Weir Mitchell treatment were costly, but open-air treatment (exercise and sitting out of doors) was cheap and included the advantages of sunlight. Hypnotism was not so successful as treatment of the gastro-intestinal tract in order to correct auto-intoxication.

Dr. F. W. EDRIDGE GREEN (Hendon) thought that hysteria and neurasthenia blended and that sometimes they merged into delusional insanity with "fixed ideas." Thus, one patient mentioned by him had the idea that constipation was beneficial, and she thus did all in her power to avoid action of the bowels.

Dr. JONES inquired whether post-influenzal mental cases were more frequently of the exalted or of the depressed type and questioned the value of stimulants because in some cases he had known patients to lapse into habits of intemperance.

Dr. SCHOFIELD, in replying, stated that the long neglect by physicians of the psychology of the sub-conscious mind was one cause of backwardness in therapeutic knowledge. Hysterical and neurasthenic patients were not malingerers as a rule. Post-influenzal psychoses were sometimes of a melancholic and sometimes of a delusional type, and markedly obstinate to treatment. Stimulants should be given only after ascertaining the previous habits of the patient.

Dr. GOODALL read a paper on

The Anthropometrical Examination of Asylum Patients

with a scheme for the same. He pointed out that the United States and Italy were far ahead of us in this respect. He suggested a scheme for anthropological measurements of the head, face, body, and limbs, and exhibited callipers and goniometers for measuring lengths and angles. The variations in 28 normal subjects as regards measurements on the two sides of the body showed that little asymmetry existed, but marked asymmetry existed in the insane.

The PRESIDENT and Dr. JONES made a few appreciative remarks and suggested that Dr. Goodall should draw up a scheme for asylums so that others could coöperate in making anthropometrical observations on the insane.

ANATOMY AND PHYSIOLOGY

WEDNESDAY, JULY 31ST.

After Professor MACALISTER'S opening address a discussion took place on

The Topographical Anatomy of the Thoracic and Abdominal Viscera from a Systematic and Clinical Standpoint.

Professor CHRISTOPHER ADDISON (Sheffield) was followed by Dr. E. C. CARTER (Cheltenham) and other speakers.

Mr. T. S. ELLIS (Gloucester) then read a paper on the Physiology of the Lower Limb and the Military March, and this was followed by a paper read by Mr. E. H. VAN SOMEREN (Venice) entitled

Was Luigi Cornaro Right?

He said: Being a young and obscure general practitioner, it is with some trepidation and an apology that I present myself before this section. The reasons for my doing so are: First, that I believe that a hitherto unsuspected reflex in deglutition has come to light, which has an important bearing on health, the prevention of disease, and metabolism. Secondly, that any theory whatever based on a possible *physiological function claiming to diminish*, as this does, the amount of sickness and suffering now existent, should have serious investigation. Thirdly, that I desire to enlist your skilled help in the consideration of the theories I have doubtless crudely erected on my premiss. According to the "Encyclopædia Britannica," "Luigi Cornaro (1467–1566) was a Venetian nobleman famous for his treatises on a temperate life. From some dishonesty on the part of his relatives he was deprived of his rank and induced to retire to Padua where he acquired the experience in regard to food and regimen which he has detailed in his work. In his youth he lived freely, but after a severe illness at the age of 40 he began under medical advice gradually to reduce his diet. For some time he restricted himself to a daily allowance of 12 ounces of solid food and 14 ounces of wine. Later in life he still further reduced his bill of fare and he found that he could support his life and strength with no more solid meat than an egg a day. So much habituated did he become to this simple diet that when he was above 70 years of age the addition by way of experiment of two ounces a day had nearly proved fatal. At the age of 83 he wrote his treatise on the 'Sure and Certain Method of Attaining a *Long and Healthful Life*.' And this work was followed by three others on the same subject composed at the ages of 86, 91, and 95 respectively. 'They are written,' says Addison,[1] 'with such a spirit of cheerfulness, religion, and good sense as are the natural concomitants of temperance and sobriety.' He died at the age of 98." Some say at the age of 103. Now, was Luigi Cornaro right? Did he make use of a physiological process unknown to us of the value of which he was not cognisant? To live to an advanced age must we be as temperate as he, reducing the quantity of our food to a minimum required by nature? That we all eat more than we can assimilate is unquestionable. How can we determine the right quantity? Instinct *should* guide us, but an abnormal appetite often leads us astray. Nature's plans are perfect if her laws are obeyed. Disease follows disobedience. Wherein do we disobey? We live not upon what we eat but upon what we digest. Then why should undigested food, recognisable as such, be deemed a normal constituent of our solid egesta? Something like the following must be a common experience to general practitioners, especially to those practising on the continent. The patient comes to see us and volunteers the information that he or she has "the gout," "rheumatic gout," or "dyspepsia." Symptoms are asked for. The case is gone into carefully for causation. An appropriate diet and an appropriate bottle of medicine are prescribed. As the patient leaves the room we may or may not call attention to the fact that both teeth and saliva are meant to be used. The patient returns better, *in statu quo*, or worse.

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[1] Spectator, No. 195.

If better he remains so while under treatment and relapses when he returns to ordinary habits. If unaffected or worse we try again and again until we despair, then take him, or send him, to a consultant. Temporary benefit, possibly owing to renewed hope, results, but finally the unfortunate patient gets used to his suffering, and, if he can afford it, is sent to join the innumerable hosts that wander from one *Bad* to another, all Europe over, trying, praising, and damning each in turn. Their manner of living is, of course, at fault. Nature never intended that man should be perpetually on a special diet and hugging a bottle of medicine, nor did she ordain that he should go wandering over Europe drinking purgative and other waters.

Though early yet to speak with certain voice, it would seem that we are provided with a guard, reliance on which protects us from the results of malnutrition. There seems to be placed in the fauces and the back of the mouth a monitor to warn us what we ought to swallow and when we ought to swallow it. The good offices of this monitor we have suppressed by habits of too rapid eating, acquired in infancy or youth. Last November my attention was called by Mr. Horace Fletcher, an American author living in Venice, to the discovery in himself of a curious inability to swallow, and a closing of the throat against food unless it had been completed masticated. My informant stated that he noticed this peculiarity after he had begun excessively to insalivate his food, both liquid and solid, until all its original taste had been removed from it. Any tasteless residue in the mouth, being refused by the fauces, required a *forced* muscular effort to swallow. He further told me that since adopting this method of eating he had been cured of two maladies, adjudged chronic, the suffering from which rendered him ineligible for life insurance. His weight now became reduced from 205 pounds to 165 pounds. He had practised no abstemiousness, had indulged his appetite, both as to selection and to quantity, without restraint, and for the last three years had enjoyed perfect health. After his cure he was accepted without difficulty for insurance, the last examination finding him an unusually healthy subject for his age. Having leisure he had spent three years in investigating the cause of his cure, had pursued experiments upon others and had extended his inquiries both in America and Europe, until our meeting in Venice. He had also published a statement and inquiry in book form entitled "Glutton or Epicure," which has been reviewed by THE LANCET.[2]

For nearly a year I also had been experimenting on myself and others with various diets and was ready to believe that in the manner of taking food and not altogether in its varying matter lay perhaps its protean effects on our systems. I at once adopted the same method of eating. At the end of six weeks I noticed that not only did the fauces refuse to allow of the passage of imperfectly prepared food, but that such food was returned from the back to the front of the mouth by an involuntary, though eventually controllable, muscular effort taking place in the reverse direction to that occurring at the inception of deglutition. What actually happens is this: Food as it is masticated slowly passes to the back of the mouth and collects in the glosso-epiglottidean folds, where it remains in contact with the mucous membrane containing the sensory end-organs of taste. If it be properly reduced by the saliva it is allowed to pass the fauces, a truly involuntary act of deglutition occurring. Let the food, however, be too rapidly passed back to these folds—i.e., before complete reduction takes place—and the reflex muscular movement above referred to occurs. The process of this reflex is as follows. The tip of the tongue is involuntarily fixed at the backs and bases of the lower central incisor teeth by the anterior fibres of the genio-hyoglossi muscles. With this fixed point as fulcrum, the lower and middle fibres of these muscles, aided by those of the stylohyoid and styloglossi muscles, raise the hyoid bone, straighten out the glosso-epiglottidean folds, passing their contents forwards by the fauces, the opening of which is closed by approximation of its pillars and contraction of the superior constrictor. The tongue, arched postero-anteriorly by the genio-hyoglossi, palato- and styloglossi muscles, laterally, by its own intrinsic muscles, is approximated to the fauces, soft and hard palates in turn, and thus the late contents of the glosso-epiglottidean folds are returned to the front of the mouth for further reduction by the saliva preparatory to deglutition. The word "reduction" is used for the reason that all foods tested are found, without exception, to give an acid reaction to litmus when served at table. The reflex muscular movement occurs in the writer's case from five to 10 times during the mastication of each mouthful of food according to its quantity and its degree of sapidity. As often as it recurs the returned food continues to give an acid reaction, while food allowed to pass the fauces is alkaline. Saliva flowing in response to the stimulation of taste seems more alkaline than that secreted in answer to mechanical tasteless stimulation. It is found that the removal of original taste from any given bolus of food coincides with cessation of salivary flow and complete alkaline reduction The fibre of meat, gristle, connective tissue, the husk of coarse bread, and cellulose of vegetables are carefully separated by the tongue and buccal muscles and rejected by the fauces. To swallow any of these necessitates a forced muscular effort which is abnormal. Adult man was not originally intended to take his nourishment in a liquid form, consequently all liquids having taste, such as soup, milk, tea, coffee, cocoa, and the various forms of alcohol, must be treated as sapid solids and insalivated by holding them in the mouth, moving the tongue gently with straight up-and-down masticatory movement until their taste be removed. Water, not having taste, needs no insalivation and is readily accepted by the fauces.

In explanation of the phenomenon described, the following theory is advanced. That the fauces, back of the tongue, epiglottis, in short, those mucous surfaces in which are placed the sensory end-organs of taste and "taste-buds" (the distribution of which, by the way, has yet to be explained), are the surfaces which, readily becoming accustomed to an alkaline contact by excessive insalivation and consequent complete alkaline reduction of the food, afterwards resent an acid contact and express their resentment by throwing off the cause of offence by the muscles underlying them. This phenomenon must not be confused with the cases of rumination and regurgitation which from time to time are recorded. The food in this case is not swallowed, nor does it pass any point from which it can be regurgitated. Eighty-one individuals of different nationalities and from several classes of society whom I have studied are now in conscious possession of their reflexes. These seem readily educated back to normal functions by those who seriously and patiently adopt the habit of what seems only at first to be excessive insalivation. The dictum "bite your food well" that we so often use has no meaning to those suffering from the results of mal-assimilation and mal-nutrition, especially should they have few or no teeth of their own. I make so bold as to state that dyspepsia *et morbi hujus generis omnis* will cease to exist if patients be persuaded to bite their food until its original taste disappears, and it is carried away by involuntary deglutition. The important point of the whole question seems to be this alkaline reduction of acid food before it passes on to meet subsequent digestive processes elsewhere which then become alternately acid and alkaline. In the first few months of infant life, when saliva is not secreted, Nature ordains that mammary secretion should be alkaline. With the eruption of teeth come an abundant flow of saliva and a synchronous infantile capacity for managing other foods. This flow of saliva depends on a thorough demand and use, to maintain its generous supply. It is just at this time that children learn to bolt their food, the demand fails, with a consequent detriment to the salivary glands, digestive processes, and the system generally.

A, B, C, and D were placed on an absolute milk diet: A drank his milk in the ordinary way and at the end of three days begged to discontinue the experiment owing to disgust at the monotony of the diet. B, C, and D continued the experiment for 17 days, insalivating the milk, but to a varying degree, B the least and D the most. Though D took most milk he excreted least solid egesta, C excreting less than B. Can one infer that increased insalivation of a non-starchy food ensures its better digestion and assimilation? Each subject took as much milk only as his appetite demanded, D taking the most, which never exceeded two litres daily. The weights of the subjects after the usual sudden drop of the first three days, remained remarkably even until the end of the experiment. B, C, and D all relished the diet and it satisfied the requirements of their appetites, but they experienced an increasing monotony.

As long ago as the seventeenth century, before the transformation of matter into energy by the animal organism known as metabolism was understood, the fact was recognised that by the lungs, kidneys, skin, and intestines, substances no longer useful to the organism were eliminated, the retention of which would prove harmful The nature of these substances was unknown, but it was noted that however much the food was increased the weight of the body remained the same In other words a state of complete nutritive equilibrium was maintained The following table contains the *résumé* of two experiments in which a state of complete nutritive equilibrium was maintained by individuals of about the same weight, on widely different quantities of food similar in quality The subjects of the experiments were a laboratory assistant of Dr Snyder of the United States Department of Agriculture and the writer The experiment of the former was made primarily to show the relative digestibility of the several articles of diet—potatoes eggs milk, and cream —

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[2] THE LANCET, Oct. 13th, 1900, p. 1079.

—	Dr Snyder's experiment Published in Bulletin 43	Writer's experiment
Age of subject	22 years	30 years
Duration of experiment ..	4½ days	5 days
Number of meals	13	10
Weight at beginning	62 5 kilos	57 3 kilos
end	62·6 ,,	57 5
Potatoes (daily average)	1587 6 grammes	159 4 grammes
Eggs	411 08	124 7
Milk	710 c c	710 c c
Cream	237	237
Daily urine	1108 grammes	1098 grammes
Daily fæces	204	18·9

The daily diet of Dr Snyder's subject consisted of three and a half pounds of potatoes eight eggs one and a half pints of milk and half a pint of cream, the writer's diet of 12 ounces of solid food (like Luigi Cornaro's) consisting of three eggs and the remainder of the 12 ounces in potatoes and an equal quantity of similar liquid food to that taken by Dr Snyder's subject. The exercise of the laboratory assistant comprised his daily routine of laboratory work while that of the writer consisted of six sets of tennis or one and a half hours on horseback, with from an hour to an hour and a half's walk or climb daily, in addition to much reading and writing In each case complete nutritive equilibrium was maintained although the writer subsisted on three seventeenths of the solid food taken by the other subject.

Again cannot one infer that better assimilation and less waste resulted from the better preparation of the smaller quantity of food by insalivation? Surely, too there must be less daily strain on the intestinal canal and body generally in getting rid of 18·9 grammes of inoffensive dry waste than in getting rid of 204 grammes of humid, decomposing and offensive matter

'Considerable importance has been attached to the normal action of the bacteria in the intestines, and it has even been supposed that the presence of bacteria is essential to life. Such a view has recently been shown to be erroneous by an elaborate and painstaking research carried out by Nuttall and Thierfelder who obtained ripe fœtal guinea pigs by means of Cæsarean section carried out under strict antiseptic precautions. They introduced the animals immediately into an aseptic chamber through which a current of filtered air was aspirated and fed them hourly on sterilised milk day and night for over eight days The animals lived and throve and increased as much in weight as healthy normal animals subjected to a similar diet for the purpose of controlling the results Microscopical examination at the end of the experiment showed that the alimentary canal contained no bacteria of any kind nor could cultures of any kind be obtained from it.' "The same authors in a subsequent paper described the extension of their research to vegetable food this also was digested in the absence of bacteria. Under such conditions cellulose was not attacked Hence they consider that the chief function of this material is to give bulk and proper consistency to the food so as to suit the conditions of herbivorous digestion '[3]

Now, inasmuch as bacterial digestion has no place in the animal economy, surely it can only occur at the expense of the organism? Can micro-organic action take place in the intestines without the production of toxins and the consequent absorption of these toxins into the blood? We know that the metabolism of a cell is determined by the general physical environment of the whole organism by supplies of oxygen and water on nervous impulses and, what chiefly concerns this argument on the nature and amount of the pabulum supplied to it This pabulum is derived from the alimentary canal Are not even those of us who may be enjoying seemingly the best of health supplying to our tissues pabulum containing mild toxins, thus causing an increased katabolic action to occur in each individual cell of our bodies? Are not the blood elements floating in a plasma containing such toxins rendered less resistant weaker, less capable of fulfilling their functions as carriers and combatants of disease? Are not their and our lives in consequence more painful and shorter than they need be? Would not the elimination of these toxins render us less liable to disease? And is not their presence an important element in predisposition to disease? When this reflex is restored micro organisms get no further than the stomach They are destroyed there by the acid gastric juices then only stimulated to their full and normal secretion by the presence of a sufficiency of alkaline substance Undigested matter having been eliminated micro-organisms still existing in the intestines deprived of their means of subsistence decrease and in time may cease to exist The body no longer absorbs the toxins these produced To this fact may be ascribed the increase of mental energy, the general physical betterment the cessation of morbid cravings for food and drink, and of those of a sexual nature which are noticed and experienced

What has just been stated is based not entirely on experimental evidence but somewhat upon inference The inference seems justified because the excreta more especially of the intestines, but also of the kidneys and skin become almost odourless and entirely inoffensive The solid egesta are voided thickly covered with mucus leaving the end of the bowel dry and clean The sense of cleanliness can only then be appreciated to the full for it is internal as well as external. Flatus is no longer produced The urine is inoffensive and seems to be materially changed in quality as shown by chemical analysis Uric acid the chlorides and more markedly aromatic sulphates are reduced in quantity Owing to the deliberation in eating necessitated by this new habit satiety occurs on the ingestion of considerably less food By carefully studying one's self I believe it possible to cultivate an instinct which will regulate not only the quantity but the quality of food that the body may need and that in the normal health of a full grown body no more food either in quantity or quality should be supplied than suffices to supply diurnal waste Any excess must result in pathological processes Although there results enhanced pleasure in the taking of all foods rich and simple and especially in the appreciation of good wine the quantities of these foods and beverages that suffice fully to satisfy the appetite is much smaller than before while there is a marked preference for the simpler kinds of foods The writer now can imagine no more pleasurable meal than one consisting of good brown bread, eggs butter cheese and cream These with fresh vegetables and a very little fruit form his staple diet This tendency and preference for simple foods is the general experience among those who have recovered the reflexes of deglutition. Following on the ingestion of a lessened quantity of food and on its better assimilation there is less waste—the egesta are voided less frequently sometimes only once in from five to eight days The lower bowel is not the reservoir it formerly was So hæmorrhoids cease from troubling and constipation cannot exist For this same reason the body at the beginning of the practice commences to approximate to its normal weight increasing or decreasing as the individual's environment demands.

A few more words only need be said It has been easy to state the results of experiments and observations, but the acquiring of this new reflex while pursuing daily occupations, is not easy and needs more than a little patience and more serious thought The habits of a life time cannot be changed in a few days or weeks. The shortest time in which the reflex has been re-established is four weeks and this only by avoiding conversation at meal time and concentrating the attention on keeping the food in the mouth until complete alkaline reduction has taken place and sapidity has disappeared

In closing I wish to maintain as a fact, gentlemen of the truth of which you will only be convinced by actual experience, that by the restoration of this reflex and in complete dependence on its use, there lies true health, the establishment of a condition of staple nutrition and the possible abrogation of two great predisposing factors of disease—mal-assimilation and mal-nutrition. Unless there be among you, as in the cities of the plain, a parlous minority who possess this reflex and take their food as they ought, none of you are in the enjoyment of such health as you might have. A like punishment will be meted out to you as was visited on those cities, for you will all be consumed long before your day by the unnecessary combustion in your bodies caused by the circulation in them of toxins, the product of undigested or decomposing food. The writer, bearing in mind the warning suggested by the Frenchman, whose donkey died as soon as he had reduced his food to a single wisp of straw, finds that he is taking less and less food. While his mind is open as to his arriving at the final diet of Luigi Cornaro, yet it is easily conceivable that living a similar life of retirement in a placid environment it would be quite possible to do as he did. Hence the title of this paper and the queries at the commencement.

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[3] Schäfer's Text-book of Physiology, vol. i., p 465.

This paper proved of such interest that the discussion was continued beyond the usual time.

THURSDAY, AUGUST 1ST.

The proceedings in the section opened with the reading of a paper by Dr. R. J. ANDERSON, Professor of Natural History, Mineralogy, and Geology, Queen's College, Galway, on

Rotation of the Forearm.

Professor Anderson pointed out how exceedingly complicated the motions at the elbow-joint were and how, contrary to the sometime universally received opinion, the ulna did exhibit a certain amount of movement in rotation.

The PRESIDENT and Mr. T. S. ELLIS (Gloucester) made a few remarks, after which

The PRESIDENT called upon Dr. F. W. PAVY, F.R.S. (London), to read his paper on

Experimental Glycosuria.

The main points of Dr. Pavy's paper were as follows. Glycosuria might be taken as meaning the presence of sugar in the urine in quantity sufficient to be recognisable by the ordinarily employed rough methods of testing. Strictly speaking, however, normal urine contained a certain amount of sugar which escaped being revealed by rough testing but which was susceptible of recognition by more delicate methods of procedure. This was not taken into account in connexion with the consideration of glycosuria. Under normal circumstances, although carbohydrate matter might enter largely into the food ingested, no glycosuria was observed. It therefore followed that the system had the power of dealing with it in a manner to obviate its escape in an unutilised state, as sugar, with the urine, and he thought it might be said that physiologists now for the most part concurred with the view that it was placed in a position for utilisation and its escape as sugar thereby was prevented by the assimilative action of protoplasmic matter. Living protoplasm was endowed with the power as a property throughout nature of taking appropriate matter and incorporating it into itself. In this way absorbed alimentary carbohydrate became drawn into the proteid molecules of which protoplasm consisted—for the essential constituent of protoplasm was proteid—and subsequently subjected to the influence of conditions resulting in one way or other in utilisation. Assimilation thus stood as a preparatory step to utilisation, and when the absorbed carbohydrate of food was fully assimilated and afterwards properly turned to account no glycosuria occurred. Experimentally induced glycosuria carried them over a vast extent of ground. The conditions giving rise to it were multitudinous and diverse. Here Dr. Pavy gave a list of conditions leading artificially to the production of glycosuria. With such a chaotic list before them it was difficult to see upon what ground they stood with respect to the manner in which the several conditions acted in producing glycosuria. The best way of meeting the difficulty would be, it appeared to him, to look to the sources from which in connexion with the operations of life the eliminated sugar could be derived. Thus viewed the origin of the sugar of glycosuria could be shaped for consideration under four heads: (1) it might be derived from unassimilated carbohydrate; (2) it might be derived from stored glycogen abnormally passing into sugar which thereafter found its way into the urine; (3) a third source for the sugar of glycosuria was proteid matter (by an abnormal breaking-down process sugar became cleaved off and subsequently eliminated in the urine); and (4) the question of a fourth source from fat would be discussed. They knew that as a normal occurrence in the vegetable kingdom fat was extensively converted into carbohydrate. It was a matter for consideration if under abnormal conditions fat in the animal kingdom could constitute a source of sugar in connexion with glycosuria.

Glycosuria from unassimilated carbohydrate.—Under ordinary circumstances carbohydrate was ingested and nothing was seen of it afterwards. After absorption it was assimilated or put into a condition for passing to utilisation, and the latent energy which it contained was given out in one form or other of force. Failing to follow this course, it remained in the form of sugar and was eliminated as such with the urine instead of being consumed and yielding energy to the system. Taken to an ordinary extent under healthy conditions, observation showed that the urine remained uninfluenced,[1] and the same might practically be said to apply to the systematic blood, so that the blood and urine stood in this respect in parallel positions. By excessive ingestion of carbohydrates, however, a glycosuric state might be induced. Dr. Pavy had recognised this fact at the outset of his experimental research work. Others had obtained confirmatory testimony, and it might be looked upon as an established fact that glycosuria was producible in the healthy state by an excessive ingestion of carbohydrate matter which might be taken as meaning that the assimilative power was not unlimited and that it could be over-stepped. Seeing that glycosuria was susceptible of being produced by sugar introduced into the alimentary canal it might naturally be expected to follow intravenous and subcutaneous injections; and upon this point, without entering into particulars regarding the specific differences for the various sugars, he needed only to say that when administered in this way small quantities sufficed to throw sugar into the urine. It could definitely be said that one important direction in which alimentary carbohydrate passed was into fat. In the fattening of animals, which constituted an extensive industry, they had an illustration of this application. As he had elsewhere pointed out, he believed that this conversion occurred in the villi, which were in continuity with the lacteal system, and in the liver. Both stood in a position to block the passage of sugar into the general circulation. Another important application of carbohydrate was into the construction of proteid. Failing to be transformed into fat or synthesised into proteid the carbohydrate would reach the portal system as sugar and thence would be conveyed to the liver. Here transformation into glycogen occurred. By the cells of the liver the sugar was picked out and its molecules were dehydrated and, as it was termed, condensed or converted from the monosaccharid to the polysaccharid state. This must be regarded as the result ot protoplasmic action, presumably comparable to that which led to the deposition of starch, cellulose, &c., in the vegetable organism, and, like starch, glycogen occupied the position of a convenient storage or reserve material. They learnt then as regards the point under consideration that carbohydrate became disposed of within the system by the assimilative influence of protoplasm, and that whatever was not so disposed of was met with in the general circulation as sugar and thence constituted a source of glycosuria proportionate in degree to the glycæmia existing.

Glycosuria from the abnormal transformation of stored glycogen into sugar.—Dr. Pavy had hitherto been giving attention to glycosuria due to sugar that had not been dealt with by the system. He now passed to glycosuria due to sugar drawn from assimilated carbohydrate. Glycogen was one issue of assimilative action. It consisted of the small molecules of which sugar was composed, condensed, or built together into a large-sized molecule—a kind of synthesis in reality, with an accompanying setting free of a definite amount of water—and was a product derived from the operations of living protoplasm. By enzymic and other means it was readily broken down and hydrolysed into sugar molecules from which it was constructed, and, with the occurrence of this phenomenon the sugar of glycosuria might be produced. The liver and the muscles were the chief seats of glycogen accumulation. Much of a definite nature could not be said about the precise condition in which glycogen existed further than that it was so circumstanced as to form a store, which might be held and utilised as occasion might require He had suggested that the glycogen existed "in feeble combination with nitrogenous matter" The proposition advanced by Nerking was that only the glycogen that was susceptible of extraction with water was in the free state and that the rest was in combination, apparently in a glucoside like body, with proteid In illustration of what was here spoken of—and it supplied them with a representation of the modern views of the chemistry of life—he might refer to what was found to occur in the case of the oxidation of tyrosine in the living body to benzoic acid and the subsequent union of this with glycene to form hippuric acid Tyrosine consisted of a benzene ring with a fatty side chain linked to it By oxidation the elements of the side chain became removed leaving the benzoic acid with the benzene ring intact This afterwards uniting with glycene met with in the body forms hippuric acid and water which became eliminated with the urine Extending this line of action to carbohydrate it was believed that carbohydrate groups existed linked on as side chains to the nitrogenous nucleus and that these side chains might be oxidised off or otherwise detached without [illegible] lycogen, as was well known [illegible] into sugar in the presence of a diastatic enzyme and what took place in the liver immediately after death showed that there was no lack of enzyme existing or producible After death, for instance, sugar was produced in the liver in a manner that, it might be taken, could not possibly be occurring during life and if somatic death was occasioned in such a way as to permit of the circulation being maintained by artificial respiration a glycosuric state followed

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[1] Breul: Archiv für Experimentelle Pathologie, 40, 1898.

Glycosuria arising from the disruption of proteid with a liberation of sugar—In this form of glycosuria originating from assimilated carbohydrate it might be considered that the carbohydrate was not to a similar extent free to pass into sugar, as in the form that had been dealt with. When the carbohydrate was bound up in, and thus constituted an integral part of, the proteid molecule the molecule must as a preliminary step be broken down and the carbohydrate liberated before it could present itself to their cognisance as sugar As long as it was contained within the molecule it was virtually lost to view and could only become manifest to them again on being set free Thus it happened that a sugar and nitrogen elimination occurred as a result of proteid disintegration and when there was no other source than proteid disintegration for the sugar eliminated the two were found to hold a definite relation the one to the other Pancreatic and phloridzin diabetes were forms of diabetes which were accompanied with proteid disintegration as a source of the eliminated sugar They at the same time also cleared away as urinary sugar the stored glycogen and the carbohydrate linked as side chains to the proteid molecule When all this had been effected in the starved animal the nucleus of the molecule next went and then it was that the definite relation between the eliminated dextrose and nitrogen was observed The first effect then in connexion with pancreatic and phloridzin diabetes was that looking at the dextrose and nitrogen elimination the former stood in high relation to the latter This lasted as long as there was a source for dextrose other than the carbohydrate intimately locked up in the proteid molecule Subsequently in the starved animal the proportion of dextrose fell and ultimately it held a pretty constant relation of a little under 3 to 1 of nitrogen The source of dextrose was now breaking down proteid matter which resulted in the elimination of both the [illegible] parts The ratio of [illegible] hus give an insight [illegible] he original proteid, and as proteid contained about 16 per cent of nitrogen calculation based upon a 3 to 1 ratio of elimination gave about 50 per cent. as the amount of carbohydrate contained in the proteid molecule Some had worked out the amount as standing a little higher, but whatever the precise amount it was seen that proteid constituted an important source of sugar in connexion with glycosuria. The glycosuria and concomitant conditions attending removal of the pancreas stood in accord in all particulars with diabetes as it occurred in the human subject. Glycæmia was an antecedent of the glycosuria, and if the escape of sugar was prevented—as by extirpation of the kidneys or by ligaturing the ureters—the sugar might rise to a very large amount in the blood. Phloridzin glycosuria stood in a strikingly different position Phloridzin similarly led to the elimination of sugar by attacking glycogen and proteid but the results of experimental observation were not reconcilable with the glycosuria being preceded by glycæmia. The kidney seemed to be in some way or other concerned in the production of the sugar, and although the close attention of numerous investigators had been given to the subject it could not yet be said that the bottom of it had been reached

The question of glycosuria through the medium of fat—They knew that fat was producible by both the vegetable and animal organisms from carbohydrate and that the production took place upon a large scale in both kingdoms of nature. They knew also that, as was shown in the growth of the oily seeds fat constituted a source of carbohydrate in the vegetable kingdom Analogy was therefore suggestive that in the animal organism the possibility existed that sugar might be producible from fat The point had been mooted and discussed but it must be said that nothing in the shape of tangible evidence had been yet adduced to connect glycosuria with fat as a source Certainly in the diabetic subject, instead of fat consumed as food producing an increase of sugar elimination it seemed to act beneficially by supplying oxidisable material that might save body stuff from destruction At the beginning he had given a lengthy list of conditions productive of glycosuria. Looked at individually nothing in common was discernible to account for their action Indeed they constituted a most incongruous group and left them in a mystified state with regard to them Viewed, however, by the light of the line of consideration that had been adopted there was nothing inconsistent with very varied conditions giving rise to a similar result The position of matters might be expressed in a few words Wrong metabolism was regarded as the source of glycosuria. Under the right course of events the carbohydrate matter of food was assimilated by protoplasmic action and thus placed in the required position for contributing to utilisation That which was not assimilated and remained in the free state passed as sugar through the system and escaped as waste material with the urine. That which had been been assimilated might as the result of wrong metabolism again pass into sugar and constitute a source of glycosuria They had wrong chemistry to deal with and very diverse conditions might give rise to the wrong result that occurred

Professor W H THOMSON (Belfast) said that most forms of glycosuria might be referred to one of four causes 1 Primary excess of sugar in the blood, of which form that resulting from enemata of glucose was especially remarkable, the path of absorption being through the hæmorrhoidal veins and so escaping the liver 2. Diminished metabolism in tissues 3 *Damaged glycogenic function of the liver, of* which form that resulting from the removal of the pancreas was most important This might be explained as follows (*a*) some substance was removed with the pancreas which was necessary to the glycogenic function of this organ—this was not contained in the pancreatic juice, or (*b*) the result of the loss of the pancreatic juice was that a poisonous substance was produced in the alimentary tract which on reaching the liver produced disturbance of its *function* but which *normally* would be neutralised by some constituent of the internal secretion of the pancreas He had proved that feeding with sufficient quantities of argonin a basic product forming part of the anti peptone part of the end product of pancreatic proteolysis would produce glycosuria. 4 Renal glycosuria such as that produced by phloridzin and phloretin in which there was no hyperglycæmia not even when the kidneys were extirpated or the ureters tied showed probably an action on both the liver and the kidney

Professor VAUGHAN HARLEY'S (London) contribution to the discussion was read by the secretary of the section. Glycosuria was, he said, due to one of three causes. 1 Over production of sugar in the organism such as the hyperglycæmia produced by puncture of the medulla oblongata and the various forms of alimentary hyperglycæmia of which latter an illustrative case was given showing that the correct treatment of this form consisted in proper diet containing a suitable quantity of carbohydrate material 2. Mal-assimilation of sugar by the tissues—e g the hyperglycæmia produced by removal of the pancreas in dogs 3. Anomalous forms—e g, that produced by the administration of phloridzin which was due to increased permeability of the kidney

Sir W H BROADBENT (London) said that the mere presence of sugar in the urine was of secondary importance in glycosuria, the mal-assimilation by the tissues was a much larger point. If the liver were the chief organ at fault, why was there not glycosuria in every case of advanced cirrhosis of that organ?

Professor R. J. ANDERSON made some remarks.

Dr. PAVY then replied, agreeing with Sir W. H. Broadbent that the liver had little to do with many cases of glycosuria; thus it might be entirely cut off from the circulation, after which the administration of phloridzin still produced glycosuria. The early stages of many cases of diabetes were no doubt due to mal-assimilation of carbohydrate material; in these the later stages always went beyond this and were essentially due to a breaking-down process of the tissues themselves.

Mr. N. BISHOP HARMAN (London) read a paper on

Socia Thymi Cervicalis and Thymus Accessorius.

The former condition, he said, was found in a full-timed fœtus; a left lateral prolongation of the thymus extended into the neck to the angle of the jaw. It was fleshy and showed the histology usual to the thymus. It had a special blood-supply. The occurrence was identical with the normal symmetrical prolongation in birds and lambs and probably showed the retention of an original connexion of the gland mass with its site of origin. The vagus encircled part of the socia which might represent the relation of the lateral branches of the vagus to the thymic dorsal extension of the gill-pouch. The latter condition was of a case similar to that described by Henle. Its significance was discussed. Embryologists placed the origin of the human thymus from gill-pouch III De Meuron showed that in the passage from lower to higher animals the extent of the origin was diminished—e g, rays used five pouches, sharks four, and sheep two, three, and four, and in the sheep the derivative of the fourth was a small portion similar to this accessory thymus. This condition in man might indicate a possible origin from the third and fourth pouches.

Mr. HARMAN also showed a young Hottentot skull obtained from Bulawayo. The facial and orbital regions showed conditions which appeared to be either a very rare condition of the processus nasalus, owing to a marked sutura notha or else the presence of enormous facial lacrymal bones. Besides there were an absence of orbital lacrymals and the presence of prefrontal ossicles. The internasal suture was closed and the capacity and other features of the skull were of a low type. Age under 21 years.

The PRESIDENT said that the condition was of great interest; he thought that it was due to an accentuation of the sutura notha.

PATHOLOGY AND BACTERIOLOGY.

WEDNESDAY, JULY 31ST.

Presidential Address.

Dr. J. W. WASHBOURN (London) delivered his presidential address on

Some of the Principal Diseases Met with among the Troops in South Africa during the Present War.

The Imperial Yeomanry Hospital at Pretoria, of which Dr. Washbourn was in medical charge, was opened in August, 1900, and between then and the end of April, 1901, 3702 cases in all were treated in it. Of these 2853 were medical and 849 were surgical. The medical cases included 546 cases of enteric fever, 379 of dysentery, 340 of debility, 296 of rheumatism, 258 of malaria, 187 of simple continued fever, 152 of diarrhœa, 93 of jaundice, 71 of influenza, 70 of tonsillitis, 43 of bronchitis, two of acute rheumatic fever, whilst the remaining 405 cases included various diseases, none of which were numerically important. If the cases of jaundice, enteric fever, dysentery, and diarrhœa were added together it would be seen that they included 1170 cases out of the total of 2853 treated. Dr. Washbourn's surgical colleagues in the hospital had told him that amongst their cases diseases of the rectum, especially hæmorrhoids, occupied a very prominent position. On the other hand, diseases of the lungs were exceptionally rare, only 43 cases of bronchitis and an occasional case of pneumonia were admitted. From these facts it might be concluded that in South Africa the food was bad and the air was good. The diseases of the rectum were, he thought, no doubt due to improper food—the absence of vegetables, for example—whilst the other intestinal diseases were due to contamination of food with specific germs. Under proper sanitary conditions enteric fever, dysentery, and probably diarrhœa, would diminish enormously; and had there been a proper sanitary corps, under the supervision of a good sanitary medical officer, to look after the standing camps, he believed that a large proportion of the cases of these diseases would have been avoided. Great difficulties in the way of sanitary measures certainly existed when the troops were on trek, but they did not exist when troops were in a standing camp; everyone with experience in campaigning knew that sickness did not develop among troops on the march but arose soon after they were stationed in a standing camp. And it was under the latter condition that sanitary measures could be, and ought to be, enforced. Next in numerical importance to intestinal diseases came cases of debility; these did not require any special treatment, they were simply cases of men requiring a few days' rest which they could not obtain whilst with their regiment. Next in numerical importance came cases of chronic muscular rheumatism, of which 296 were treated. Only two cases of definite rheumatic fever were admitted, and both patients had had the disease before in England. Altogether Dr. Washbourn had only seen a few cases of rheumatic fever in South Africa, and in every single case the patient had suffered from the disease before he landed. The rarity of acute rheumatic fever and the frequent occurrence of chronic rheumatism showed that the two diseases had no etiological connexion. He could not help thinking that this muscular rheumatism was more nearly related to gout than to rheumatic fever, and he was inclined to attribute it to the nature of the men's food and especially to the absence of fresh vegetables. Then there were a large number of cases of malaria, some, perhaps, incorrectly diagnosed, for many of them went into hospital after the fever had subsided and without characteristic symptoms to guide. In a number of cases the malarial parasite was found; but in other cases of undoubted malaria repeated examination failed to discover it. In all these latter cases quinine had already been administered and this was no doubt the cause of the failure. Malaria was by no means common all over South Africa, but was limited to well-defined areas. It was common in the district north of Pretoria, beginning in the Megaliesberg valley and extending all through the bush veldt. It was also common in the low country east of Waterval Boven; it did not occur in the Karroo or in the Orange River Colony. There were in all 93 cases of jaundice, 71 out of these cases being admitted in January, February, and March. The disease ran a definite course. There was nausea, which might be accompanied by vomiting, or pain to the right side of the epigastrium; the bowels might be regular, loose, or constipated; the temperature might remain normal or there might be moderate pyrexia. In three or four days the jaundice would appear and the stools became clay-coloured. As the jaundice, which was usually intense, appeared the other symptoms usually subsided. After the jaundice had lasted a few days it disappeared and the patient recovered. The symptoms suggested an inflammation of the duodenum, leading to blocking of the bile duct. The jaundice was, therefore, a more or less accidental sequela and not the cause of the symptoms. Dr. Washbourn had, in fact, seen a number of cases with all the initial symptoms but without the subsequent jaundice. The occurrence of the disease in epidemic form pointed to some infective agency, but none had yet been actually discovered. In spite of the intense heat in South Africa Dr. Washbourn had never seen a well-marked case of heat-stroke, and various inquiries amongst the medical officers, who had been on trek with the columns failed to elicit the record of a single case. This showed that something more than the actual heat of the sun was required for the production of heat-stroke, and supported the view that the disease was due to some infection. There were 152 cases of diarrhœa admitted, but the figures gave a very feeble idea of the prevalence of the disease, as they included only such cases as were severe enough to necessitate admission into hospital. Almost everybody after arriving in South Africa was attacked with gastro-enteritis of a more or less severe type. The temperature might be raised for a short period, but usually there was no fever. The motions were liquid and very occasionally contained a small quantity of blood and slime. The symptoms passed off in a day or two as a rule, but the diarrhœa might persist for some weeks without otherwise affecting the health of the patient. The disease appeared to be allied to the summer diarrhœa which occurred in England, and from the incidence of the disease when dysentery was absent Dr Washbourn felt sure that the two diseases had no etiological relationship Of true dysentery 379 cases were admitted and there were nine deaths a mortality of 1 86 per cent The cases might be divided into two types In the first type there were the passage of blood and slime and a fever lasting about six days On the subsidence of the fever the motions gradually assumed their natural character and the patient recovered This was the usual course of the disease, death might however, ensue during the febrile stage or a few days after the fever had subsided In the second type the temperature did not fall at the end of six days but it continued for two or three weeks longer During the latter period blood and slime disappeared from the motions which became liquid, and the symptoms were much more like those of enteric fever than those of dysentery The post-mortem features of South African dysentery were then described. Dr Washbourn had little doubt but that the South African dysentery was the same disease as the asylum dysentery described by Dr F W Mott and Dr Durham in this country He felt sure that it was not due to amœbæ, for he had invariably failed to find them in the motions Abscess of the liver was a rare complication of South African dysentery In one case which occurred both streptococci and a bacillus belonging to the coli group were found, there were no amœbæ in the pus There were 546 cases of enteric fever with 50 deaths a mortality of 9 1 per cent The main features of the type of the disease which he met with were that constipation was much more common than diarrhœa and that phlebitis was exceptionally common In cases which Dr Washbourn had observed during the incubation period he had frequently noticed a preliminary febrile attack which subsided a day or two before the onset of the enteric fever and he thought that this was some indication of the changes which they knew must be taking place during incubation He did not think that inoculation in any way modified the course of an attack and he doubted whether it had any important practical influence upon the incidence of the disease The cases of simple continued fever a limited were simply cases in which there was some malaise with a moderate pyrexia possibly some of them were abortive attacks of some specific disease and some of them might be slight attacks of influenza of which latter 71 definite cases were diagnosed Finally Dr Washbourn emphasised the influence of 'a chill as determining the occurrence of an attack of diarrhœa It was an undoubted predisposing cause A chill which in England would probably give rise to an attack of nasal catarrh in South Africa would cause an intestinal catarrh, the difference was probably due to the prevalence of the bacteria causing the respective conditions

Professor T CLIFFORD ALLBUTT (Cambridge) said that he responded with great pleasure to the opportunity given him of appreciating the introductory address of their President He particularly wished to refer to what Dr Washbourn had said as to the preliminary rise of temperature before the onset of enteric fever He himself had many times noticed the occurrence but he had never published his observations as he had kept no definite record of cases As however Dr Washbourn had called their attention to the point he himself was encouraged to give his own experience which was quite in accord with what Dr Washbourn had told them on the point

Lymphadenoma

Professor J MICHELL CLARKE (Bristol) then opened a discussion on Lymphadenoma The term was defined as including those diseases which were characterised by over growth of lymphoid tissue or which gave rise to growths closely resembling in structure the lymphatic glands The points of resemblance between lymphadenoma and an infective process were insisted on and its possible relationship to tuberculosis to the sarcomata, and to lymphatic leukæmia was discussed. Professor Michell Clarke concluded with a reference to the condition described as status lymphaticus, or lymphatism in which there was a partial or general hyperplasia of lymphatic glands, especially the pharyngeal thoracic and abdominal enlargement of the spleen and tonsils also occurred. There was frequently a remarkable hyperplasia of the intestinal lymphatics, 'individual glands standing out like peas to borrow Osler's description. The cause of death in such cases was now attributed by Paltauf and others to deficient powers of resistance and not, as formerly, to coincident enlargement of the thymus.

In the discussion which followed Mr H J STILES (Edinburgh) Dr J H BRYANT (London) the PRESIDENT, and others took part and a communication on the subject rom Dr LOVELL GULLAND (Edinburgh) was read by Dr W S LAZARUS BARLOW (London) The speakers were generally in accord with the views which Professor Michell Clarke had laid down and the possible relationship between tuberculosis and some cases of lymphadenoma was emphasised by several

Dr J W H EYRE (London) read a communication on a Form of Centrifuge which he had devised for dealing with large quantities of milk for bacteriological examination, using hand power a speed of 2500 revolutions per minute was readily attained and with electric power a greater speed could be reached.—The paper was discussed by the PRESIDENT Dr LAZARUS-BARLOW Dr J O SYMES (Bristol) and Mr A G R FOULERTON (London)

The next paper read was by Dr SYMES on the Bacteriological Examination of the Blood Dr Symes pointed out the advantages of the method now in general use of drawing the blood for examination directly from a vein A considerable percentage of Dr Symes's examinations in infective diseases had given positive results cultures of streptococci staphylococcus albus and other organisms having been obtained from cases of puerperal septicæmia ulcerative endocarditis and in other conditions—This paper was followed by a very thorough discussion in which the PRESIDENT, Dr A C F RABAGLIATI (Bradford) Dr F G TREVITHICK (Cheltenham) Dr DALAND (Philadelphia) Dr EYRE and Dr O I GRUNBAUM (London) considered the technique employed and contributed altogether a considerable number of cases in which positive cultures had been obtained from the blood during life

Dr J J DOUGLAS (London) read a paper on the Arrangement of Nissl's Bodies in Nerve Cells It was pointed out that the arrangement of the chromatophile granules as shown by Nissl's method varied in cells from different parts of the central nervous system In the cells of the anterior cornua the chromatophile granules were aggregated in very definite masses which were distributed in a more or less uniform manner throughout the cell protoplasm In the cells of Clarke's column on the other hand the Nissl bodies had a more or less distinctly peripheral distribution large aggregations of the bodies being found at the periphery whilst the perinuclear area was comparatively free from them Some excellent microphotographs in support of this were shown which clearly demonstrated the points raised in the paper

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OPHTHALMOLOGY

WEDNESDAY, JULY 31ST

Presidential Address

Mr W H JESSOP (London) opened the first meeting of the section with an address in which he alluded to his boyhood in Cheltenham and the establishment of the local eye hospital by his father who was a school-fellow of Mr Henry Power He then proceeded to speak of the pathology of glioma basing his remarks on six cases which had come under his notice in the past two years Five specimens were exhibited in different stages and in two cases both eyes were involved. Mr Jessop gave a minute description of the cases and specimens the growth being regarded by German pathologists as neuro-epithelioma (Wintersteiner) They assumed at different periods three distinct stages (1) early, exhibiting microscopically the rosette appearance characteristic of the growth and only slight degeneration, (2) middle glaucomatous—vascular development with columnar cells some 30 deep along the vessels and degeneration beyond and (3) late—shrinkage of vessels almost complete degeneration of the new growth and rapid extension along the optic nerve After this the growth became extra ocular assumed the character of a round-celled sarcoma with marked malignancy showing itself by recurrence and metastasis In the intra-ocular condition the malignancy was limited The two cases in which the eye was removed in the early stage remained well after two years and the patient would be practically safe after one year

Mr PRIESTLEY SMITH (Birmingham) opened the discussion on

Myoma

which might be either stationary or progressive with damage to the tissues of the eye and diminution of vision The important question was How were they to distinguish a simple from a pernicious myopia? The speaker exhibited a reduced chart representing the degree and progress of 100 cases, which showed that there was no actual dividing line between the two varieties, but that the chief progress took place during adolescence. The chief data in regard to prognosis were:—1. Age.—The younger the patient the more likely the disease was to be progressive. The tendency was most marked during the period of growth 15 to 25 years, after which it ceased. 2. Degree.—The higher the myopia the more likely it was to increase, especially in young subjects. In adults no forecast could be made. 3. Condition of choroid and retina—These changes were more marked in the pernicious cases They included myopic crescent, thinning of the choroid, pigmentation of the retina, and displacement of the disc. Diffuse changes from stretching and vascular disturbance occurred later. Syphilis caused sclero-choroiditis. Congestion and inflammation were important factors. 4. Constitution.—Malnutrition and lactation tended to make the disease progressive, as also did chronic constitutional disease and high arterial tension. 5. Heredity.—Inherited myopia was often simple, but there was no immunity from progressive myopia. 6. Occupation.—Any form of close work was harmful. As to treatment, all cases of myopia should be suspected, especially in the young, of being progressive till time proved the contrary and should be treated accordingly. There should be re-examination in six months and one year. Prevention of progressive myopia was more helpful than attempts at curing.

Mr. A. S. **PERCIVAL** (Newcastle-on-Tyne) thought the contractions of extra-ocular muscles important factors in squeezing the eye and causing elongation. He recommended reading in such a position as obviated inclination of the eyes, especially downwards, and thought he could trace arrest of progressive myopia to this means in four cases.

Mr. **HENRY POWER** (London) recommended work or reading only in a good light—not at all at night. The head should be in the upright position. There should be no stooping. Good diet should be given in childhood, especially when at school. No work should be done before food.

Dr. **DARIER** mentioned traumatic astigmatism or myopia of from four to eight dioptrics from a blow on the cornea causing overstretching of the suspensory ligament of the lens. Contrarily, pressure on the eye appears to help vision in hypermetropia and presbyopia. Massage of the globe improved the circulation and tension of the eye and so increased vision. Gentle pressure on the cornea through the lids should be applied daily for from two to three weeks.

Dr. A. H. **THOMPSON** (London) thought that a well-defined crescent, single, double, or treble, with choroiditis at the edge and aching in the eye were unfavourable signs.

Mr. H. **EALES** (Birmingham) said that power of accommodation varied much with glasses in myopia; some high grades had wide range, while others of low degree had a very narrow one. He recommended full correction and avoidance of close work. Painful convergence for near objects could be remedied by prisms and more particularly by proper centreing of glasses. Spectacle frames were usually made two and a half inches wide, whereas some patients had as much as three inches between the centres of their pupils.

Dr. J. **BOWER** (Cheltenham) said that bad light and too close position of a book or work most needed correction. He deprecated gymnastics which involved hanging the head, as trapeze exercise. Patients with low myopia (three dioptrics) could dispense with glasses for distance, but those with higher grades should wear them continuously.

Dr. E. E. **MADDOX** (Bournemouth) considered that it was more necessary to avoid fatigue of the eyes than accommodation or convergence. The higher the myopia the greater the strain on the tunics owing to the larger surface exposed to expansive pressure. Any tendency to look through the edge of the glasses called for full correction. He recommended gentle massage of the sclero-corneal junction as having a good effect on tension by aiding the transfusion of fluid. Convergence rarely occurred without looking down, due to the action of the inferior rectus, which should be avoided.

Dr. A. **BRONNER** (Bradford) asked whether myopia when progressive could be arrested by glasses. Hæmorrhages in women usually resulted from vascular change during menstruation. In men syphilis was the cause.

Dr. R. D. **BATTEN** (London) thought that all cases were more or less progressive; he attached much importance to tilting of the disc and distortion of the vessels, with thinning of the anterior part of the sclerotic and occurrence of astigmatism.

Mr. **TATHAM THOMPSON** (Cardiff) said that myopia was not often recognised in infancy. The habit of holding a book close should be broken, whether before or after correction by glasses.

Mr. **PRIESTLEY SMITH**, in reply, said no distinct line existed between innocent and pernicious myopia. He had given his views on treatment fully in the *Ophthalmic Review* for 1890. Muscæ volitantes were only of importance when apparent to the observer. Most people could see them themselves. He thought that the observation made by Dr. Darier was very interesting and important, but pressure could not be applied safely in all cases.

Major H. **HERBERT**, I.M.S. communicated a paper on

Superficial Punctate Keratitis,

describing a vesicular corneal eruption on the cornea, occurring during the rainy season in Bombay, associated with micro-organisms and lasting from two to three weeks in young adults.—Mr. **DEVEREUX MARSHALL** (London), Major **DRAKE BROCKMAN**, Mr. C. **BLAIR** (London), and the **PRESIDENT** spoke.—It was recommended that the term "keratitis punctata" at present used for the effects of cyclitis on Descemet's membrane should be abolished.

Mr. **TATHAM THOMPSON** described as unique a case of Symmetrical Bullous Eruption around the Cornea in Both Eyes with Acute Photophobia and Congestion lasting three weeks and cured by formol, 1 in 5000, after application of atropine and cocaine.—The **PRESIDENT** mentioned other cases of greater severity and duration.

Mr. C. **BLAIR** described an Unusual Form of Keratitis associated with Papular and Pustular Skin Eruption. The attacks lasted a few days twice a year.—Mr. D. **MARSHALL** suggested tuberculosis.

Mr. **PERCIVAL** described the Application of Periscopic Glasses to Give Lateral Vision without Rotating the Head.—The **PRESIDENT**, Dr. **MADDOX**, and Mr. **TATHAM THOMPSON** expressed their appreciation of the method. The expense of the glasses was increased from 50 to 100 per cent.

DISEASES OF CHILDREN.

WEDNESDAY, JULY 31ST.

The **PRESIDENT**, Mr. **FREDERIC EVE** (London), after a few introductory remarks, called upon

Mr. **BERNARD PITTS** (London) to open a discussion upon the subject of

The Treatment of Intussusception.

In the course of his paper Mr. Pitts laid before the section a complete list of all the cases of intussusception in St. Thomas's Hospital (on the surgical side) from 1875 to 1900 inclusive. He pointed out that distension of the bowel might be tried, if the case was very recent, under an anæsthetic and holding oneself in readiness to do an abdominal section, if necessary, at once. A severe case should at once be explored, without any previous inflation, as this only added to the shock. The intussusception should be brought outside the wound, as then the condition could be examined. If reduction were impossible resection of the bowel should be done. If gangrene were present the case was almost hopeless, as prolonged operations were not well borne by children. The sooner the child was placed in the hospital after the symptoms appeared the better. At the first onset it seemed reasonable to inflate the large bowel, but it was never certain that inflation completely reduced the swelling, and the uncertainty as to the exact condition of the bowel made it better for the surgeon to see and to handle it. The swelling of the mesenteric glands which occurred in children in intussusception, hindered reduction. Inflation might be used as a preliminary to operation. The risk of shock must be minimised by all possible means in a young child. It was better not to let the small bowel escape out of the incision, so if there were very much distension he would make a small opening into it and let out the contents—i.e., gas—and then sew it up. A great danger of reduction was the chance of splitting the coat of the bowel. If reduction were very difficult he would open the sheath and reduce by a finger inside the bowel. If this were impossible he would resect the bowel *in situ*. He then referred to a diagram of a case of ileo-colic intussusception where the portion inside the colon was removed, and to another where there was invagination of the appendix. In a third case the small bowel was implanted into the large one above the old ileo cæcal valve In a gangrenous case 24 inches of [illegible] service [illegible] thorough [illegible] as to have no prolapse of the intestines According to the list of cases chronic intussusception was quite rare in children In fatal cases the temperature frequently ran up at once after operation to a great height from no very certain cause In cases brought to hospital it was better to operate at once and to try inflation also so as to get the bowel back to near where the incision should be made In gangrenous cases the ends of the bowel should be brought outside the body and continuity should be established later If very extensive resection and restored continuity with Paul s buttons should be done at once

The **PRESIDENT** then pointed out the various subjects for discussion.

Mr **D ARCY POWER** (London) presented a table of cases occurring at St Bartholomew s Hospital and the Victoria Hospital for Children Chelsea during the years 1891–1900 Of 65 cases the total recoveries were 23 and the total deaths were 42 Thirty cases presented points of especial interest as follows two patients recovered spontaneously one acute and one chronic case, one recovered from a triple intussusception, one died from ileus after reduction, one had intestinal obstruction due to adhesions after the abdominal section, two were too ill to operate upon; one had such extensive adhesions that nothing could be done, three cases recurred repeatedly after apparent reduction by irrigation, in three cases the intussusception was overlooked at the operation and was found post mortem, in one case there was no intussusception, 15 cases needed excision of the bowel, in seven cases an artificial anus was made—all fatal, in five cases Murphy's button was used—four patients died and one recovered, in two cases Maunsell s operation was performed—both patients died, and in one case a circular enterorrhaphy was done—the patient died Mr Power was a whole hearted advocate of the earliest possible abdominal section and he gave details of cases which had brought him to this opinion Irrigation or inflation might be tried before the operating surgeon could arrive and was also useful to reduce the size of the tumour before operating

Mr **MCADAM ECCLES** (London) advocated early diagnosis and immediate laparotomy if circumstances permitted it, the earlier the operation the less danger of septic absorption—this might explain the high temperature in fatal cases There were three kinds of temperature after these operations (1) normal which went on all right, (2) low, where shock was the cause, and (3) high, where there was probably absorption of toxic products from the surface of the intussuscepted bowel, so he always washed the bowel carefully with biniodide of mercury Irrigation or inflation should always be under an anæsthetic It was very hard to say whether reduction was successful Everything should be ready for an operation so as to lose no time The sutures should be close and numerous through the whole thickness of the abdominal wall and be left in for a fortnight The occurrence of intussusception was probably due to bad feeding so the suturing was most important In one case irrigation done after the tumour was outside the body was a great help in reduction The child should not take the breast for 24 hours after operation, but the mother s milk should be drawn off and given in a spoon To avoid shock an injection of two ounces of milk at 105° F into the rectum after operation should be made Small doses of opium were most useful to ensure quietude after operation The recurrence years afterwards might be due to a thickening of the bowel wall.

Mr **A H TUBBY** (London) strongly supported an abdominal operation forthwith as did

Mr **F C ABBOTT** (London) who suggested that the septic absorption took place from the inner surface of the affected bowel He quoted a case of tuberculous peritonitis closely simulating intussusception He used two layers of sutures and injected a saline solution at the end of operations to prevent shock

Mr **J P BUSH** (Clifton) also advocated early operation, as the intestine of children would only stand a very little water pressure The less washing out the better, and he preferred the operation as suggested in two stages

Dr **SINCLAIR WHITE** (Sheffield) described three cases which exhibited hyperpyrexia and dealt with the question of inflation *versus* operation for practitioners not used to such operations He preferred to protect the small bowel if it protruded rather than to open it

Dr **LEWIS MARSHALL** (Nottingham) pressed for early operation for close and thorough suturing, and for the use of strychnine to prevent shock.

Mr **C F CUTHBERT** (Gloucester) was glad that there was no uncertainty as to the need for early operation in these cases

Dr **MANSEL SYMPSON** (Lincoln) urged the advisability of early operation and gave details of a case where distension of the bowel was successful after replacing the portion extruded at the anus He also dealt with the question of hyperpyrexia and the difficulty of closing an artificial anus

Dr **A G FORSTER** (Cheltenham) advised opening the gut to relieve distension

Professor **MCPHEDRAN** (Toronto) advocated early operation

Dr **BLACKADER** (Montreal) advocated the same

Dr **F E BATTEN** (London) commented on the increase of cases of this complaint one reason given being that they were diagnosed earlier Another factor was the bad feeding of the children of the lower classes and the frequent dosing with powerful purgatives It was said to be a rare disease in France

The **PRESIDENT** considered that inflation or distension of the bowel was inefficacious in the great majority of cases and the return of symptoms was due to illusory reduction Inflation and distension formed a haphazard proceeding because the intussusception so often commenced in the small intestine and in children so frequently the ileo-cæcal valve was competent He called attention to a form of this disease where the intussusception began in the caput cæci and where after reduction a part was left projecting convexly into the colon This had had to be sutured so as to make it concave internally He mentioned a case of Meckel s diverticulum and a tuberculous ulcer causing the intussusception He had come across appendicitis simulating this complaint.

Mr **PITTS** briefly replied

LARYNGOLOGY AND OTOLOGY

WEDNESDAY, JULY 31ST

This section met under the presidency of Mr **T MARK HOVELL** (London) The President did not give an address but proceeded immediately with the work of the section which included two discussions and a plethora of papers

Mr **F MARSH** (Birmingham) Dr **A. BROWN KELLY** (Glasgow) and Mr **C A. PARKER** (London), opened a discussion on

The Treatment of Nasal Obstruction from Intra nasal Causes other than Mucous Polypus

Mr **MARSH** defined nasal obstruction as inability to breathe freely and equably at the same time through both nostrils He proceeded to describe some of the more common forms of intra nasal obstruction and the methods usually adopted for dealing with them

Dr **KELLY** continued the discussion with a paper in which he dealt more particularly with the method of treating enlargement of the turbinated bodies. The introduction of the finger into the naso-pharynx to adjust the snare for the removal of the enlarged posterior end of the inferior turbinated body he considered was unnecessary and he advocated the performance of this operation under the guidance of anterior or posterior rhinoscopy Excessive hæmorrhage resulting from the operation he considered need not be feared it had not occurred in his experience In dealing with these posterior hypertrophies it was well to keep the following facts in view (1) that no amount of treatment applied to the anterior two-thirds of the turbinate would appreciably lessen the size of the posterior third, (2) that removal of a hypertrophied posterior end was not infrequently followed by subsidence of the swelling of the rest of the turbinate—the snaring of the posterior end should therefore be undertaken at an early stage in the treatment of these cases (3) that after removal of what at the operation appeared to be the entire posterior end considerable enlargement might still be present when healing had taken place—this was probably due to swelling of the parts immediately anterior to the line of section, and (4) that after removing the posterior end on one side that on the other, which previously appeared normal might become enlarged

Mr **PARKER** dealt chiefly with the indications for operation and based his remarks on the results of [illegible] investigations carried out for determining the direction of the air-currents in the nose which proved that the air traversed the middle and superior passages in inspiration and the lower meatus in expiration. The method employed for determining the inspiratory air-way was puffing lycopodium into the air the patient was breathing and afterwards noting its distribution within the nose. It was thought that the same method might be used with advantage for determining what structures were causing obstruction and how much of such structures required removal in order to restore free nasal breathing. It was important thus to limit operations, for probably the mucous membrane lining the middle and superior passages assisted in warming and moistening the inspired air. As inspired and expired air followed different courses in passing through the nose it was advisable to differentiate between inspiratory and expiratory difficulties; the questions of the drainage of the cavities and the possibilities of abnormalities causing chronic rhinitis should also be considered when dealing with nasal obstruction. As regards inspiration it seemed that alterations in the inferior meatus (with the exception of dislocations of the anterior end of the septal cartilage) caused no trouble because the air passed above them into the middle meatus; even slight alterations in the middle meatus, on the other hand, caused obstruction and required treatment. Enlargements of the middle turbinate also assumed considerable importance as they prevented the passage of air from the middle to the superior meatus. Such enlargements were found in connexion with rhinitis sicca, muco-purulent rhinitis, and commencing or established polypi, under all of which circumstances removal of the anterior end of the middle turbinate was indicated. The method employed for determining the course of the expiratory air-stream was the exhalation of tobacco-smoke. From the results obtained thereby and from the patient's subjective sensations it was evident that it required far greater abnormalities to render expiration difficult than it did to impede inspiration. Though normally the expired air passed through the inferior meatus it seemed easily diverted in cases of obstruction into the middle passage without causing difficulty, whereas even slight obstruction to the inspiratory air stream caused considerable difficulty. Operations on abnormalities of the inferior meatus were, therefore, seldom indicated for the relief of expiratory obstruction unless the middle meatus was at the same time more or less obstructed. The condition which most often caused stenosis of the inferior, and partial obstruction of the middle meatus was enlargement of the posterior end of the inferior turbinate. In such cases expiration was often more difficult than inspiration and operation was indicated. Efficiency of the drainage of the nose was thought to be important to the health of the cavities. The secretions gravitated to the inferior meatus, from which they were easily expelled on blowing the nose. If obstruction existed in the lower passage the expiratory air-stream was, as had already been said, diverted into the middle meatus, naturally losing much of its force, and hence the secretions tended to collect and to cause irritation. If the obstruction in the lower meatus was very great some of the secretions might remain in the middle meatus and set up inflammation there. Consequently operation was indicated in those cases in which secretions were found collecting within the nasal cavities or where great difficulty was experienced in expelling them. As regards the possibility of spurs and deviations, causing chronic rhinitis and its sequelæ by their mere presence, this was thought to be very rarely, if ever, the case. Unless such deformities caused either respiratory difficulties or inefficiency of drainage they might be looked upon as quite innocent of all harm. There was, however, one exception to this statement—namely, in cases of hay fever and asthma, where a spur, for example, might add to the temporary obstruction and increase the irritation. Under these circumstances it was sometimes advisable to remove spurs, and very occasionally even complete turbinectomy might be indicated.

Mr. Mayo Collier (London) pointed out the importance of adding the words "at all times" to the definition that had been given of nasal obstruction; he referred to cases in which the obstruction was experienced only at night upon lying down and spoke of them as cases of "latent obstruction."

Dr. Herbert Tilley (London) recommended subcutaneous section of the anterior end of the inferior turbinate body in cases of extensive hypertrophy of the mucous membrane, a method introduced by Delavan. Puncture and insertion of the galvano-cautery point secured the same end—i.e., the production of an internal cicatrising process which braced up the mucous membrane without destroying its physiological function. The posterior end was best removed by the cold wire snare, the index finger being passed into the naso-pharynx to guide the loop over the swelling. There was little pain in this if the naso-pharynx was slightly cocained and still less if the patient was assured that the discomfort would be only momentary. He disliked the use of the galvano-cautery snare in such close proximity to the Eustachian orifice; he concurred in the view generally expressed that complete turbinectomy must be very rarely required.

Dr. J. Donelan (London) had found considerable advantage from the use of a five-grain tabloid of suprarenal substance at bedtime in the cases which had been described as of temporary nocturnal occurrence, and in which an operation could hardly be recommended. The patients experienced great comfort and in some cases complete relief for about 12 hours after the administration.

Dr. L. H. Pegler (London), Dr. W. Milligan (Manchester), Dr. StClair Thomson (London), and Dr. Scanes Spicer, amongst others, took part in the discussion.

The President congratulated the section upon the decided advance that had been made in the views entertained about the treatment of some of the forms of nasal obstruction which they had had under discussion. He was very pleased to hear such decided expressions of opinion against the reckless removal of the inferior turbinate body. For the removal of the posterior end of this body, when hypertrophied, he preferred the cold wire as being safer in such close proximity to the Eustachian tube. He entertained no fear of hæmorrhage in such cases; he referred to the cases in which, after the removal of adenoids, the obstruction of the nose remained which was due to the enlargement of the posterior ends of the inferior turbinate bodies, and advised the removal of the posterior end more frequently than was usually done in such cases. Septal spurs, in his experience, could be conveniently removed with the scalpel.

Mr. J. Mackie (Nottingham) read a paper upon Practical Points in the Treatment of Nasal Suppuration, especially of the Accessory Sinuses. The paper was illustrated by a long series of cases which had been carefully tabulated and included several of sphenoidal sinus suppuration.

TROPICAL DISEASES.

Wednesday, July 31st.

Stone in the Tropics.

After the address of the President (Major Ronald Ross, I.M.S.), which was published in The Lancet of August 3rd (p. 339), a discussion on the above subject was opened by Mr. P. J. Freyer (London). He introduced the subject by a consideration of the distribution of urinary calculi in India, hoping in this way to help in elucidating the cause of the complaint. The question of phosphatic calculi would not enter into the discussion because the cause of these was well known to be due to the effect of changes in the bladder and urinary tract generally; consequently only the oxalate of lime and uric acid calculi were open to discussion from the distribution point of view. The stone-producing districts were practically confined to the north-west districts of India—namely, along the valley of the Indus and the upper reaches of the Ganges. Although these districts were wide alluvial plains, for the most part, the rivers rose amongst mountains of cretaceous formation and the impregnated waters of the rivers were carried down to the stone-producing regions. Climatic and meteorological considerations generally played, perhaps, an important part in the etiology of stone. In the regions described as affected extremes of heat and cold prevailed, and the non-flushing of the kidneys, during the hot weather, allowed of the deposits of crystals in the urine and developed in time into calculi. The relation of food and diet to the presence of calculi had been dealt with almost exhaustively by Sir William Roberts. He attributed the prevalence of stone in India to the fact that rice was largely consumed there; but in the districts where stone chiefly was met with wheat and barley were largely consumed. It did not seem, again, that eating flesh had anything to do with the formation of urinary calculi. The Mahomedans consumed flesh, but in Upper Bengal these people suffered from stone, while Mahomedans resident in Lower Bengal were almost entirely free from the complaint. Litholapaxy was the form of treatment which Mr Freyer recommended for stone Lateral perineal litho[illegible] practised in India Next [illegible] lithotrity (crushing the sto[illegible] been popular in India It [illegible] general that the excellent results in the treatment of stone were obtained and the mortality was reduced to a minimum To Lieutenant Colonel Keegan they owed the establishment of the practice of litholapaxy in the case of children—a practice which was now well nigh universally employed The question of the power of the native to recover from *operations had been advanced to explain away the excellent* results obtained by practitioners in India from litholapaxy and other operations Mr Freyer did not believe this statement and held that the European at home or in the tropics recovered as well as, if not better than, the native after major operations In India prostatic diseases were not met with to the same extent as in England the explanation of this being that the natives did not come to Europeans to be treated for p[illegible] 'catheter life' was almost [illegible] nts suffering from prostatic [illegible] in India and died more quickly from the complications induced

Surgeon General R HARVEY, C B, Director General of *the Indian Medical Service upheld Mr Freyer in his* opinions in favour of employing litholapaxy in India He had crushed calculi in India by the old lithotrity method at several sittings but on one or two occasions the patient ran away whilst but imperfectly cured The native could not understand many operations where one even lithotomy, got rid of the ailment at once By Mr Freyer's and Lieutenant Colonel Keegan's work not only India but surgery in every country had been advanced by the adoption of litholapaxy

Dr P MANSON F R S, did not consider that the presence of lime in the drinking water was sufficient to account for the prevalence of stone. The irregularity and capricious geographical distribution of urinary calculi seemed to be due to some other cause, and Dr Manson, arguing from the fact that the presence of a foreign body in the urine, be it mucus or the ova of bilharzia was known to occur as the nuclei of calculi considered that urinary calculi might have generally a parasitic genesis In many parts of the world stone in the bladder occurred in regions where lime was not present in the soil, as in South China and in Aberdeenshire

Lieutenant-Colonel G M J GILES I M S, considered that Mr Freyer had scarcely proved his point as to the source of stone in the north west part of India. Colonel Giles did not quite agree that the district in question was of the intensely calcareous nature stated by Mr Freyer The water in the wells of the district was by no means strongly impregnated with lime salts He was inclined to agree with the opinion of Dr Manson that a parasitic origin of stone would very likely be found to be usual were the matter fully investigated

Dr M F SIMON C M G (Singapore) said that except *amongst immigrants stone was practically unknown in the* Malay Peninsula. Rice fish and occasionally goat's flesh constituted the staple diet of the Malay, but he had never seen a Malay suffering from calculus during a 25 years experience.

Captain CHARLES MILNE I M S, stated that stone did not always prevail most in districts in which limestone was met with geographically

Dr L G HILL (Pakhoi China) remarked that at Pakhoi calculus was almost unknown whereas at Canton only 200 miles away and in the same province of China stone prevailed very extensively

Dr R U MOFFAT (Uganda) said that during 10 years residence in Uganda and East Africa he had found only one case of stone in the bladder There was no limestone in the Uganda district a fact which might favour Mr Freyer's theory The case he met with had a foreign body as a nucleus but he could not accept unconditionally Dr Manson's theory that all calculi had a parasitic origin.

Dr F M SANDWITH (Egypt) stated that in both Upper and Lower Egypt *the ova of Bilharzia very commonly formed* the nuclei of calculi The Nile water which constituted the drinking water of the Egyptians from its source to the sea passed through calcareous strata

Mr JAMES CANTLIE (London) gave personal experiences in regard to the practice of lithotomy and litholapaxy in Hong Kong He had difficulty during the performance of suprapubic lithotomy owing to the rupture of the indiarubber bag used to dilate the rectum just as the bladder was being opened Out of 54 cases of lithotomy two patients died and one of the deaths was from suprapubic lithotomy He had given up suprapubic lithotomy and believed that in a few years it would fall into disrepute as it had done during a previous cycle Litholapaxy presented difficulties in the more isolated parts of the world owing to the possibility of the lithotrite failing at the crucial moment. The indiarubber in the exhaust bottle also was apt to crack and leak and although litholapaxy was the preferable operation its practice in out-of the way parts of the world was at times attended by difficulties

Dust as a Vehicle for the Germ of Cerebro-spinal Fever

Major W J BUCHANAN, I M S, said that in a former paper on this subject he had related some 47 cases of cerebro-spinal fever and he now brought forward 13 additional cases, making 60 in all He observed that out of 60 persons in the central prison at Bhagalpur attacked by cerebro-spinal fever 57 were amongst prisoners engaged in dusty occupations The dusty occupations were brickfield work, road sweeping, &c and also wheat grinding rice-husking, &c The greatest number of cases occurred during the dry hot and dry cold months When respirators were given to the prisoners engaged in husking rice not a single case of cerebro spinal fever occurred amongst them, whereas in the previous season eight cases were due to working in dust of this kind Dust, therefore, would appear to be a frequent vehicle for the germ of cerebro-spinal fever

Lieutenant-Colonel GILES *stated that during an outbreak* of cerebro spinal fever in an Indian jail the symptoms in the first instance pointed to plague Colonel Giles agreed with Major Buchanan that cerebro spinal fever was more prevalent during the dusty season but he was inclined to believe that the disease had something to do with infection of the habitation

Four Cases of Abscess of Liver treated by Tapping with a Trocar and Cannula and Drained (Manson's Method)

Mr CANTLIE (London) gave details of four cases of abscess of liver treated by him during the past 12 months He had employed Manson's method in 28 cases in all up to date and 24 of the patients had recovered. The four recent cases were all intra hepatic cases preceded by dysentery Three of the cases recovered, the fatal case was that of a native of Zanzibar who was collapsed when admitted into the hospital and the operation was undertaken for the relief of symptoms merely Mr Cantlie advocated tapping by a trocar and cannula and the insertion of a large tube stretched on a metal rod through the cannula to the bottom of the cavity in all cases of deep seated abscesses Thereafter syphon drainage should in each case be applied and the cavity left to drain without either washing out or flushing The chief danger was the displacement of the tube as happened in one of the four cases owing to the patient becoming delirious Operation by the free method *—that was by laparotomy or by way of the thorax and pleura* with removal of a piece of rib—was in Mr Cantlie's opinion, unnecessary, over heroic and impossible when the surgeon was single-handed as he often was in the more isolated parts of the world Many patients objected altogether to "cutting" operations but readily submitted to tapping when the operation was explained to them In this way time was gained and both the practitioner and the patient would have less hesitation in the operation being performed on account of its simplicity When pus was close to the abdominal wall or bulging and œdema had occurred in the chest wall indicating that the abscess was quite superficial opening by the knife was almost free from danger but with deep seated abscesses the case was different and there was no shadow of doubt that Manson's method was by far the safest most easily performed and attended by the best results

Mr FREYER said that he adhered to the method of operation by incision and a free exposure of the cavity of the abscess He had given up the practice of using the trocar and cannula some time ago and he had no reason to *regret it*

Dr G P JORDAN (Hong Kong) stated that his colleagues and himself in Hong Kong had given up the operation by tapping and employed exclusively the free method He employed a silver drainage tube in preference to indiarubber and the results were very satisfactory

Dr W CHISHOLM (Sydney) said that in Sydney pus in the liver was almost invariably secondary to hydatids, and that the operation by incision was invariably followed. At the same time he regarded the operation practised by Mr. Cantlie with favour, as he was opposed to the rather heroic tendency to treat even minor ailments by major operations when a less severe method might suffice.

Captain W. R. BATTYE, I.M.S., reported several severe hæmorrhages in cases operated upon by Colonel W. K. Hatch, I.M.S., in Bombay, the result of deep punctures with a hollow needle. He thought such cases justified operation by the free method, one reason being that the hæmorrhage could be more readily dealt with when the bleeding surface was exposed to view.

Dr. MANSON said that he had seen operations by both methods and that in trans-thoracic operation many accidents were probable which could not exist when the operation was performed by the trocar and cannula. For deep-seated abscess he believed that the safest method was that by tapping and insertion of a large drainage-tube.

Mr. CANTLIE, in summing up, said that all of the speakers had recorded cases of superficial abscesses. He did not claim any advantage for tapping in cases of that kind—they mostly resolved themselves into merely letting out pus that was pointing; but that for abscess seated four or five inches from the surface operation by incision was difficult, likely to lead to hesitation to operate, and created unnecessary danger to life. Severe hæmorrhage during hepatic aspiration was due to puncture of the inferior vena cava. Were, however, penetration in proportion to the measurement of the patient's chest such danger need not arise. He had proved that in a chest of 32 inches circumferential measurement at the seat of operation penetration in a direction vertical to the surface should not be carried further than four inches.

NAVY, ARMY, AND AMBULANCE.

WEDNESDAY, JULY 31ST.

The Disposal of the Wounded in Naval Actions.

Fleet Surgeon G. KIRKER, R.N., opened this subject with a practical paper divided under three heads: (1) the surgeon's station, or the place where the wounded are treated; (2) the time of treatment; and (3) the conveyance of the wounded; and said that it had always been the custom to select some well-protected and easily accessible part of the ship for the reception and treatment of the wounded and to convert it before action into a special surgical station. In the old wooden battleship the "cockpit" or after-part of the orlop deck—a place below the water-line and approached by a wide hatchway—was universally selected as the surgeon's station, and many of the scenes which had occurred there had found their way into history and art. When the iron battleship displaced the wooden one the "orlop deck and cockpit" disappeared and naval surgeons lost their prescriptive station in action. Then the captain and medical officer selected the place they thought most suitable. In this way the location of the surgeon's station was settled and owing to variations of ship-construction it would be so settled until a proper modern operation-room or modern "cockpit" was fitted up. This operation-room should be included in the internal arrangements of every modern battleship and cruiser. It need not be large and it should meet the requirements of aseptic surgery. It need not be particularly easy of access for with a properly devised ambulance sleigh the wounded man could be easily and safely taken down and along all hatchways and passages. During peace important surgical operations could be done in the operation-room and valuable surgical instruments and necessaries could be kept there. In time of war the surgical accessories would be protected during action, and after action operations would be done with more chance of success than occurred in bath-rooms or greasy mess-places. The preservation of the lives of the surgeons and the safety of appliances during action would prevent such disasters as occurred on board the Japanese ship *Hiyei* at the battle of the Yalu. In this ship a shell entered the wardroom, in which the cockpit was located, killing surgeons, nurses, and wounded, and destroying all surgical appliances. With regard to the time of treatment, it was the rule in time of war to remove the wounded at once to the dressing station. In modern warships it would not be practicable to remove the wounded during action; they would be left to wait for a lull in the fighting. The Japanese found that the surgeons could do no really good work till after the action. M. Fontain, Médecin-en-Chef de la Marine de France, in a paper at the International Medical Congress, Paris, 1900, stated that in the French navy no treatment of wounded would be attempted. The men would be attended to as well as possible and restorative drinks would be administered, and after the action they would then be removed for treatment. In the matter of the conveyance of the wounded on board ship many contrivances had been used or proposed, but except the ambulance hammock and the ordinary canvas stretcher—which was mainly for use on shore—none had received official recognition. As far as he was aware this was also the state of matters in all foreign navies except those of France and Chile in which Auffert's gouttière métallique had been adopted. Among the contrivances in existence might be mentioned modifications of the service hammock (MacDonald), cot (Lloyd and Gonges), and stretcher (Dick), also Mowle's chair and Kirker's ambulance sleigh. An ambulance sleigh to be suitable for use on board ship should satisfy several important conditions. It should be able to retain its occupant securely in all positions from horizontal to perpendicular and it should be able to descend through a hatchway by sliding down the ladder if there was one, or by being lowered at any angle if there was no ladder. It should be short in order to get easily round corners, and in confined spaces where there was not room for two men to carry it it should be transportable by one. The speaker here showed some graphic photographs of the "sleigh" being used on ships of the Channel squadron.

The PRESIDENT (Deputy-Surgeon-General W. G. DON) commented in eulogistic terms on Fleet Surgeon Kirker's paper and invited discussion.

Fleet Surgeon C. L. VASEY desired to know whether any arrangements had been made on Fleet Surgeon Kirker's sleigh for special injuries such as fracture of the thigh, ankle, &c.

Inspector-General A. TURNBULL, R.N., said that the question of the transport of the wounded on board ship in time of war and in action had been the subject of consideration for years past. The sleigh was the most practical thing he had seen yet, and the only other thing was the St. John Ambulance Lowmore jacket which was good in its way. The surgical equipment during and after action was very different from that which was required in peace conditions. The appliances used in times of peace were quite unfitted for work during and after action and it was very difficult to go about properly equipped for an engagement which might occur at any moment most unexpectedly.

Surgeon-General T. F. O'DWYER, A.M.S., Principal Medical Officer, Aldershot, made some remarks on the value of antiseptic surgery and the benefits of settling on the space to be allotted on board ship to the care and treatment of the wounded.

Dr. LEIGH CANNEY (London) remarked that it was surprising to hear that on a complicated modern battleship no adequate and satisfactory means of transporting the wounded existed and he thought that the best possible scheme, such as this one suggested by Fleet Surgeon Kirker, should be adopted and put into use with the least possible delay.

Fleet Surgeon KIRKER, in reply, thought that the most important points to be borne in mind were those three points which he laid stress upon in the beginning of his paper—namely, the surgeon's station or place of treatment of the wounded; the time of treatment; and the conveyance of the wounded.

Surgeon F. H. A. CLAYTON, R.N., contributed a paper on the same subject which, in his absence, was read by the secretary. He advocated fore and aft operation-rooms, and dealt in detail with the arrangements necessary and the surgical appliances needful and imperative, and advocated the strictest possible antiseptic and aseptic precautions, even to dressing the crew before action in sterile garments. He commended hospital ships and careful training of ambulance parties.

The PRESIDENT made appropriate remarks on the careful attention to important detail.

Inspector-General BELGRAVE NINNIS, R.N., also contributed a paper on the same subject. He strongly advocated the use of special hospital ships to take off the sick and wounded. He also dealt with the internal arrangements of such ships and laid down special guiding rules as to their mission and construction. They should be floating hospitals, and the treatment of the sick and wounded should be their sole and only use They should embody all the essentials of a small and perfectly equipped land hospital, infectious fever cases excepted The propelling power should be arranged to leave ample space for wards, yet be strong enough to keep the ship within signalling distance of the fleet Her tonnage should allow of a lower deck partially below the water with port holes a middle deck, a main deck and an upper deck. She should be of steel or iron and wood cased on the outside for coolness Large doors should be in the ship's side for transport and a platform outside to act as a stage which could be hauled up against her side when not required Each deck should be cut off from the decks above and below Ventilation could be procured by shafts Each deck should be approached from the upper deck by a separate companion Lavatories and water closets should be provided for each deck and in the "companion space Wards should extend across the ship for purposes of through light and draught Beds and cots should be swung by short slings but they should be capable of fixation by iron stays Operation wards should be on the upper deck and near a lift well opening into the surgical ward The lift should be able to take a mattress of the same size as those used in the wards A special research room should be provided in the immediate vicinity of the operation ward separated from it by a space

The PRESIDENT made a few remarks, commending the suggestions of Inspector General Ninnis and invited discussion

Inspector General TURNBULL deprecated the complication of surgical arrangements and appliances, also a too great elaboration of detail in the arrangements of hospital ships, he advocated the provision of good ventilation and the facility of segregating infectious and other special cases He thought that the desired results could be arrived at in some such simple manner as that suggested by Lord Lister

Staff Surgeon W E HOME R.N, contributed a paper composed chiefly of statistical matter on

The Healthfulness of Modern Warships,

and emphasised the following points —The only source of information was the annual report of the health of the navy, early iron ships were by the experience of the training service shown to be healthier than wooden ships, the early central battery ships were healthier than the early iron ships, the turret ships were healthier than the central battery ships, shown by experience with Malta fever, the new first-class battleships now in the channel were healthier than were the old channel ships, and the best way to secure a healthy ship was to keep her well ventilated and dry

In the discussion which followed Inspector General TURNBULL said that the crews on wooden ships were subject to sloughing ulcer and infectious diseases usually spread like wildfire when once they obtained a footing on a wooden ship Cerebro spinal fever was not unknown in connexion with wooden ships

Fleet Surgeon KIRKER did not think that the sanitary conditions on board ship were all that could be desired chiefly because the necessary cubic space was not obtainable The greater the reduction of the ship's complement of men the better the health records became

THURSDAY AUGUST 1ST

The proceedings of this section were opened with a paper contributed by SIR WILLIAM MAC CORMAC, Bart., K C B, K.C V O to a crowded meeting entitled,

Some Remarks by Way of Contrast on War Surgery Old and New

He dealt with the position attained and yet to be attained in general estimation of the sterling merit of the medical officer of the army and quoted from McWhinnie's introductory address at St Bartholomew's Hospital in 1856 Colonel Ambert's touching eulogy of the military surgeon during and after battle He agreed with McWhinnie that the blame attached to the medical department of the army at the beginning of the Crimean campaign was due to non adoption by the authorities of their recommendations and when these injunctions were tardily attended to matters improved markedly The results of surgery in the Crimea far surpassed (according to Dr Balfour then of the Royal Military Asylum Chelsea) the anticipations of even the best friends of the department He compared the Peninsular, Crimean American and Franco-German wars with the South African war as to length of struggle, number of wounded and strain upon the Army Medical Department He said that in considering matters there must be taken into account the organisation of the medical corps the improvement in means of transport of sick and wounded the formation of hospitals and commissariat supply He mentioned the introduction of chloroform into field work and stated that Baudens mentioned it as being administered 25 000 times without a single fatal result It was more precious in the field than in civil practice Antiseptics were not employed in the Austro-German war and only to a slight extent in the Franco German war He next touched upon the mortality after operations and gave a list of the serious septic surgical accidents then prevalent after operation and mentioned the heavy mortality in fractures of bones and the great number of deaths from hæmorrhage He explained the bearing that the large bullet had on the increased mortality, and he mentioned Bergman's and Reyher's success in treating bullet wounds of the knee joint in the Russo-Turkish war In Egypt in 1882 antiseptic surgery prevented the occurrence of one single case of post operation sepsis as gangrene erysipelas, pyæmia In South Africa chloroform and morphia were universally used and gave blessed relief from much pain and suffering The modern bullet caused less shock and less injury to tissues Bone was damaged in a limited degree and recovery was generally rapid and without complication The bullet was aseptic did not as a rule carry clothing into the wounds and acted mainly as the producer of subcutaneous wounds therefore frequency of recovery was great Bullet wounds of the abdomen thorax head joints, spleen liver and kidneys were commonly less fatal than ever before known Large arteries were cut without any appreciable hæmorrhage In the Crimean and the Franco German wars deaths from hæmorrhage in the field were about 20 per cent, in the South African and the Cuban wars deaths from this cause were comparatively rare He did not advise interference with resulting arterio venous aneurysms unless complicated Non interference was what was found in South Africa to suit the majority of every class of injury, especially in abdominal cases He then compared the mortality from injuries occurring to various parts of the body in the various campaigns as the thigh the chest the head, the abdomen &c Amputations would be found to have been amazingly rare He next compared the relative numbers of killed and wounded in the South African war and those casualties occurring in previous wars. In the American war one man was killed for every four and a half men who were wounded in South Africa only one man was killed to every seven men who were wounded. From 6 to 8 per cent now died from wounds, in America 14½ per cent. died Sir W MacCormac next touched upon the causes of the small mortality in South Africa and he cited the lists of killed and wounded at Gravelotte St. Privat, Koniggratz Waterloo and Mars la Tour when the killed often exceeded 10 000 in a single fight and the wounded ran into tens of thousands On the other hand in South Africa, whereas at Colenso the Boers had five only killed and 25 only wounded we suffered a loss of 1100 casualties owing to the Boers not being seen and our men fighting in the open The casualties were surprisingly small in number He next dealt with the field dressings and commended the same in a qualified manner The Roentgen rays came in for well deserved prais

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for removing and attending to the wounded and the enormous distance in aggregate travelled by the hospital trains the great value of the hospital ship and he laid the greatest possible stress on the remarkable rapidity with which the wounded had been transported from the field of battle to places where every care and luxury had been provided He concluded a paper of world wide interest by a reference to the bad old days when the wounded were allowed to lie out on the field of battle to be robbed and murdered by thieves and cut throats among camp followers

The PRESIDENT characterised Sir William MacCormac's paper as being above comment or criticism and he said that the paper was a most remarkable vindication of the Royal Army Medical Corps in South Africa.

Dr ROBERT FARQUHARSON M P, also characterised the paper as being far beyond criticism The country ought to be grateful to Sir William MacCormac for his noble work his experiences and the recounting of them He agreed with the President that the paper thoroughly vindicated the Royal Army Medical Corps It was most ungenerous of the general public to have so treated men working hard on behalf of the suffering. He had asked on the floor of the House of Commons that the Government would speak some cordial words of thanks to the Royal Army Medical Corps as they fully deserved it. They had sent out a commission to inquire about the Royal Army Medical Corps but no commission had been sent out to inquire about the failures of generals and military departments; it seemed that the Jonah of the services was the medical department. That commission reported favourably, for it could not have done otherwise, and it was no packed or whitewashing commission, and to speak of it as such was an outrage and a scandal. The surgical skill displayed in South Africa was highly creditable to those employed. The favourable results of this campaign as regards medical skill in the treatment of wounds would impart confidence to the soldier and as a consequence, he knowing himself to be surgically safe if wounded, would, if it were possible, fight with greater pluck. He cordially hoped that Sir William Mac Cormac's paper would be widely circulated throughout the world.

Fleet-Surgeon G. KIRKER, R.N., said that in the Russo-Turkish war, in which he happened to have been employed through the kind influence of Sir William Mac Cormac, he came to the conclusion then that conical bullets would inflict less severe wounds than spherical bullets. He had put this on record and his prediction had now come true. In Turkey compound bullet-fractures of the thigh healed rapidly. Lung wounds were singularly rapid in recovery. He had seen knee-joints heal after injury without suppuration. Mr. Clinton Dent had brought forward the fact that the nature of the projectile was the real cause of the trivial character of the resulting course of the cure and not so much the use of antiseptic surgery as was commonly supposed, though the latter in great part contributed to a favourable result.

Surgeon-General T. F. O'DWYER, A.M.S., Principal Medical Officer, Aldershot, said that deductions by a master mind were what were wanted and Sir William MacCormac had given them, and that made his work so much the more valuable. At Waterloo 50,000 infantry had a front of three miles but in the advance from Bloemfontein rather less than that number had a front of 20 miles. This contrast involved a marked increase of medical transport. The antiseptic field dressing was a most important part of the equipment and every man was well instructed in its use. The medical department had found so much equipment that very little was left to supplement their efforts, as available material was exhausted. so that showed that they had done much good work.

Surgeon-General J. B. HAMILTON, A.M.S. (retired), gave a short account of the progress of the development and adoption of the conical ball. The Snider-bullet had not been used in fighting with the army. This was fortunate as the Snider-bullet would have been a most deadly bullet. Most fortunately for humanity it went out. He thought that the Dum-Dum bullet was a deplorable mistake of the Government for which we had been suffering a just retribution in South Africa. He gave the results of experiments on soft-nosed bullets recorded last year at the meeting of the section by himself. The Dum-Dum bullet caused injuries out of all proportion to what was necessary. The form of projectile was vital to humanity. The medical profession should press the Government to abandon the soft-nosed bullet. The Geneva Convention had condemned it and all found using it should be court-martialled and promptly shot.

Surgeon-Major G. K. POOLE, M.D., referred to the men who had come home from South Africa and noted that some had suffered terribly, whilst others made quite light of their injuries.

Surgeon-General R. HARVEY, C.B., D.S.O., Director-General, Indian Medical Service, said that during the last five years the first field dressing had been issued to the whole of the Indian army and had proved exceedingly valuable. The loss from wounds was very small indeed. He agreed that the Dum-Dum bullet should not be used against civilised troops, but when one came to deal with those of lower nervous organisation, such as savages, Soudanese, Ghazis in India, the Dum-Dum bullet was the only possible means of stopping a rush. It caused serious panic among civilised troops to see a man hit five or six times mortally through the body and after all come on and kill his man before he fell. In his opinion in war the main object was to "stop your man"; if one could not do so by injuring him then the next best means, even to killing him, must be adopted. Humanity, he thought, "began at home," and from his point of view it was far more humane to kill the "other fellow" before he succeeded in doing the like service for you, and that there was a limit to certain things no less in killing than in others, especially where certainty of means of doing so were involved.

Dr. J. W. SMITH (Manchester) said that from his experience in South Africa he agreed with Sir William Mac Cormac that the first field dressing was not as antiseptic or as efficacious as was supposed. It was the nature of the small bullet-wounds, the hot sun, and the clear dry air that caused the good results. Adhesive plaster should be used in the field dressing. He would like to bear testimony that the Royal Army Medical Corps, to whom he was temporarily attached, did their work splendidly in South Africa. He gave evidence before the Commission and he could truthfully state upon his honour that there was nothing upon which the Commission was not most fully informed from all quarters and under all circumstances. Especially at Bloemfontein was this the case, the fullest investigation being made.

Dr. F. C. H. PIGGOTT (Teignmouth) pointed out that the so-called explosive bullet was in reality an expanding bullet.

Surgeon-General R. HARVEY said that an explosive bullet was not used by us at any time, and they were only used by some sportive Boer who, having used them for game shooting, decided to use them on our men.

Lieutenant-Colonel G. M. J. GILES, I.M.S., said that Surgeon-General Hamilton's humanity might suit the native's point of view, but was not humanity for poor Tommy Atkins.

Surgeon-General C. SIBTHORPE, C.B., disagreed with Surgeon-General Hamilton on the matter of the Dum-Dum bullets against savages.

Sir WILLIAM MAC CORMAC, in reply, spoke eulogistically of the work of the Royal Army Medical Corps. He said that bullets not pills, according to Lord Kitchener, with whom he agreed, were what were wanted at Bloemfontein shortly after its primary occupation. This was not surprising, as the main consideration was war, and they must bear in mind that once upon a time the wounded were killed by their own people; nowadays they strained their resources to the utmost on their behalf.

Dr. LEIGH CANNEY (London) read a paper on

Air-borne Typhoid Fever in Armies.

He dealt with the water-supplies of various Indian cities and various outbreaks of enteric fever, and contended in a long paper containing much original work that water, and not air, was the main channel for conveyance of typhoid infection, and that air, dust, and flies were a comparatively weak medium. He reviewed sanitary matters in India and then dealt with the same in the campaign in South Africa. This was followed by an exposition on sanitation in Egypt, especially at the barrage works on the Nile, and on tourists' risks. He strongly advocated a special water corps attached to the Royal Army Medical Corps to care for the water-supplies of the army when in the field.

In the discussion which followed the PRESIDENT commented in favourable terms on Dr. Canney's paper and stated that for the most part he believed that typhoid fever was water-borne.

Surgeon-General C. M. CUFFE, C.B., said that he had had some returned enteric fever invalids from South Africa, and among them were men of the Northamptonshire Regiment who contracted enteric fever due, he thought, to sewer gas entering the barrack room from sewer pipes found to be defective. The urine of other patients who had recovered from enteric fever had been examined and the result was negative as far as the typhoid bacillus was concerned. The outbreak was, in his opinion, due to direct infection from the source mentioned, and he advised the authorities accordingly. He thought that flies were a great source of infection. The unsatisfactory army kitchen arrangements and defective cleanliness of the cooks were in great part responsible. Soldiers, on the other hand, would persist in drinking water labeled "not for drinking."

Dr. J. W. WASHBOURN (London) believed that there was some foundation for the air-borne theory. The Maidstone outbreak showed water-borne typhoid fever. There would also be in every epidemic direct infection of certain cases. such as occurred in Maidstone. He thought that dust did occasionally convey typhoid fever in South Africa, though it was not the main cause, for in summer in South Africa there was little dust and much typhoid fever. He therefore thought that typhoid fever was chiefly water-borne. He agreed with Dr. Canney as to proper protection of water by such a corps, as it would prevent epidemics.

Lieutenant-Colonel GILES, I M S, thought that flies and dust were some of the ways of carrying typhoid fever as well as water which everyone was agreed on was the main source of infecti a deadly and horrible source of fly due to the intermediary 'atrines and the food Removal two years kept down typhoid fever for that period. He thought that the Agra water supply was as good as was that even of London

Dr G E G SIMONS (Merthyr Tydfil) said that his experience as a medical officer of health entitled him to speak on the matter and that in his opinion, judging from results, typhoid fever was more due to flies than to water and to direct contamination. In a large epidemic he found that houses in one terrace the water supplied to which was *good and free from infection were always being attacked and* had been so for years past There were accumulations of manure and filth close by and the flies lived and bred there He cleared away the filth and the typhoid fever ceased He found here also that in summer and early autumn adults and children were affected, but that in winter children alone *were infected. When summer returned the typhoid fever in* adults did so also He found the soil near a surface drainage channel infected with typhoid bacilli which were cultivated from the channel and were afterwards used in Widal's reaction The children infected were those of a school age who played about the drain He thought that *the infection* reached the children direct and was transported to food by flies and thus affected the adults in summer In a case of two regiments near, and civilians, taking the same water supply the soldiers of one regiment which was without fly-proof cages for the food were the only persons attacked by typhoid fever, and the soldiers of the other regiment which had them, and the civilians, were not troubled with a single case.

Dr LEIGH CANNEY, in reply, said that the Royal Army Medical Corps ought to have a water corps He agreed with Dr Washbourn that the majority of cases were due to water

A discussion then followed on

The Organisation of the Military Services

The PRESIDENT deprecated the discussion at the present time as the matter was *sub judice* elsewhere

Surgeon General R. HARVEY agreed with the President but wished to state that the report of the Parliamentary Bills Committee had aroused unanimous disapproval and opposition in the Indian Medical Service throughout all India Though he sympathised with the Royal Army Medical Corps he did not approve of its rehabilitation being effected at the expense of the Indian Medical Service if the proposals of the committee's report were carried out He thought that the reform could be carried out in the Royal Army Medical Corps without interfering with the Indian Medical Service. The Indian Medical Service were quite contented with their lot and any grievances they had were minor and local and not of main service interest. The service should offer good prizes to good men—at present good and bad ranked together—attach a good allowance to station hospitals, and give them to good men The men should have plenty of practical experience in times of peace and leave for study and instruction He tried a scheme in India to put all men in Punjaub through a four months' course of practical surgical training in the hospitals He thought the military discipline should be removed from professional duties and that professional etiquette should take its place, men should not be ordered to change their diagnoses and thus stultify themselves, nor ought they to be compelled to ask leave to do a circumcision, or to give chloroform, or to avulse a toe nail Each man should be solely responsible for his case as in civil life He was emphatically of the opinion that the Indian Medical Service would be ruined by the interference suggested in the committee's report

Surgeon Major G K POOLE M D, also spoke

Inspector General A. TURNBULL moved that the further discussion of this matter be now forthwith closed This was seconded by the PRESIDENT and approved by the meeting

DERMATOLOGY

WEDNESDAY, JULY 31ST

The proceedings of the section commenced with an exhibition of cases, after which

The PRESIDENT (Dr J J PRINGLE, London) made a few introductory remarks

Dr RAYMOND J SABOURAUD (Paris), who spoke in French, read a paper

On the Role of Cocci in the Pathology of the Skin,

and said that there were three microbes of the genus "coccus" which played an important role in the pathology of the skin. The first was the streptococcus of Fehleisen the special cutaneous lesions produced by which was the impetigo contagiosa of Tilbury Fox. The second was the *staphylococcus aureus* of Rosenbach, the special cutaneous lesions produced by which was the follicular orificial pustule of the impetigo of Bockhart The third was a grey cultured staphylococcus (morococcus of Unna), the special lesion produced by which was pityriasis simplex wherever situated Apart from their specific lesions each of these microbes *might be accidentally found in other lesions* as a "secondary infection," by the evolution of which each might be modified in its own special pathogenic manner He was of opinion that the varieties of cocci invading the skin were much less numerous than was generally believed by Unna and others, and he thought it possible that the three kinds *of cocci* he was about to describe were quite likely to be polymorphic varieties of one and the same microbe

1 *The streptococcus*—The streptococcus which might cause a great number of general lesions might produce very diverse cutaneous lesions In the course of streptococcic septicæmia the bullæ of infectious pemphigus might arise In them cultures proved the existence of the streptococcus as in the different metastatic lesions of the visceral organs which it also caused. In the course of these infective states lumps might develop in the skin similar to those of erythema nodosum which were the result of streptococcic thrombi in the blood-vessels of the derma Direct inoculation of streptococci into the derma might produce erysipelas, characterised by the multiplication of the microbe in all the epidermic and dermic layers of the affected region. But the specific lesion which the inoculation of the streptococcus provoked in the epidermis was the impetigo contagiosa of Tilbury Fox It began by a flaccid bulla of very ephemeral existence, which yielded an enormous quantity of serous liquid This exudation dried up to form a yellow, scabby, adherent crust Under the crust was found a little fibrinous exudation characteristic of the multiplication of streptococci on the ulcerated epidermis The lesion disappeared without leaving any cicatrix. Streptococci very often occurred as complications of a great many diffused lesions of the epidermic surface (eczema) Their secondary multiplication reproduced the two capital symptoms—that is the diffuse exudation of limpid serum and the slight fibrinous greyish-blue exudation on the surface of the epidermis deprived of its horny layer The streptococcus might cause dermic ulcerations deeper than mere epidermic erosions—the rupia of Bateman These were conical ulcers with thin scabs containing a sanious liquid This lesion was now erroneously known in France under the name of "ulcerated ecthyma. The proper treatment of the streptococcic lesions of the epidermis was the local application of solutions of the sulphates—for example sulphate of zinc one gramme, aqua destillata from 100 to 200 grammes

2. *The staphylococcus aureus*—The specific lesions of the staphylococcus aureus was the pustule This intra-epidemic pustule was generally perifollicular Often it was deeper than the epidermis and produced a small cicatrix in the derma The perifollicular pustule contained groups of staphylococci under its corneal covering The cavity of the pustule was full of leucocytes and at its base was a point of dermic necrosis This pustule might extend in depth and thus cause a boil, a furunculous abscess, or a sycosis as the result of a deep multiplication of the microbes consecutive upon a superficial orificial perifollicular invasion These pustules might appear spontaneously (impetigo of Bockhart) or as the result of tiny traumatisms (dermatitis of hands of washerwomen) or after some medicinal applications (acne picea, pustular mercurial eruptions, &c.) In hairy regions pustular eruptions became very chronic, for example sycosis These pustules might be secondary to a pre-existing local necrobiosis. Thus both acne cheloid and acne varioliformis necrotica were pustules caused by the staphylococcus aureus originating round comedones The staphylococcus aureus might secondarily infect all lesions where the derma was exposed, either spontaneously (for example eczema) or accidentally (for example, vesicant applications) It might grow and multiply on lesions which it had not caused and might spread to evoke near them or even on them, its own special lesion, the follicular orificial

pustule with all the complications—boils, &c. These pustules, so abundant on the surface of chronic eczema, had been erroneously classed by Unna as the elementary and microbic lesions of eczema. It was easy when they met with a lesion containing the staphylococcus aureus to know if it were this microbe itself which had caused it, for in the lesions which it caused the staphylococcus aureus existed alone. Dr. Sabouraud then described the method of culture which he had employed. No microbic secondary infection could come after it. The local remedy for pustular lesions produced by the staphylococcus aureus was sulphur; for example: alcohol 30 grammes, sulphur precipitatum 19 grammes, aqua rosæ 100 grammes. It succeeded in all cases where the staphylococcic pustule was not superimposed upon a dermatosis in itself irritable or intolerant to its action, such as eczema.

3. *The grey cultured staphylococcus* (*staphylococcus cutis communis*).—This was the most common microbe on the surface of the human skin. It always occurred in single scattered elements. But on certain skins it found conditions propitious for growth. It then broke up the horny epidermis and caused pityriasis. In such lesions it did not exist as isolated elements, but in masses more or less considerable and numerous. It caused the fine pityriasis of the surface of acneic skins, the pityriasis simplex of the scalp or fatty pityriasis. This microbe caused cleavage of the horny cells of the epidermis which it raised by multiplying underneath them. It caused itching and mutiplication of the epidermic cells which result in the formation of scales—the elementary lesion of pityriasis. When its action was prolonged it caused a disturbance of the function of cornification which characterised the normal horny layer. Thus, the scale became fatty, the so-called seborrhœic "eczema" of Unna. When this multiplication took place on a dry skin the pityriasis, after having begun by a round spot, lost its regular form. When this multiplication took place on a previously fatty skin, its lesions kept their regular circinate form, as in the type which was called "circinaria" by Payne, "figurated seborrhœa corporis" by Duhring, "lichen annulatus" or "serpiginosus" by E. Wilson, and in France *eczéme parasitaire* (Besnier) or *flanellaire*. In all these pityriasic forms it was frequent to find near the grey-cultured staphylococcus the "fläschen bacillus of Unna" (spores of Malassez), which, perhaps, was only a degenerated form of the grey-cultured staphylococcus itself. When this special staphylococcus grew on a skin already infected by other microbes little pustules might accidentally form, which evolved almost without any functional symptoms. The most typical of these pustules was presented by the common little pustules of polymorphous acne. The best topical remedy against this microbe and for the pityriasis that it caused was coal-tar combined with the mercurial peroxide, oil of cade (juniperus oxycedrus) 10 grammes, yellow bioxide of mercury one gramme, yellow vaseline 30 grammes.

The address was illustrated by a large number of drawings and lantern slides from high magnification of microscopic specimens (up to 2000 diameters amplification) made by Dr. Noiret of Paris, under the direction of Dr. Sabouraud.

Dr. JAMES GALLOWAY (London) made a communication on the same subject. He commenced by remarking that the increase of pathological and bacteriological investigation in diseases of the skin had produced a large amount of information requiring criticism and simplification. The tendency had been to magnify small distinctions in organisms discovered, to consider these distinctions sufficiently important to characterise a species, and thus to introduce the organism as the specific cause of the disease. The streptococci and staphylococci had specially suffered from this tendency. It was to be recollected: (1) that these organisms were very variable both in cultural peculiarities and in virulence; (2) that inflammatory lesions of the skin were rarely the result of one cause or one pathogenic organism, but had a complicated causation, or at any rate were the result of mixed infections; and (3) on account of the enormous number and variety of organisms present bacteriological investigation was difficult and apt to be inaccurate and so to give rise to error. These results of his observations coincided with those of Dr. Sabouraud, and he (Dr. Galloway) was glad that Dr. Sabouraud had modified his views in some respects. There seemed to be three species of cocci specially concerned in diseases of the skin: (1) streptococcus, identical with the streptococcus pyogenes (Fehleisen); (2) staphylococcus—producing yellow cultures—identical with the staphylococcus pyogenes aureus (Rosenbach); and (3) staphylococcus cutis communis—producing whitish cultures—identical with the staphylococcus pyogenes albus (Rosenbach).

Dr. A. WHITFIELD (London) expressed a preference for Dr. Sabouraud's original classification of the cocci affecting the skin.

Dr. NORMAN WALKER (Edinburgh) thought it was remarkable that observers should be so anxious to prove that eczema was non-microbic. Pure streptococcic cultures could be obtained every time from impetigo contagiosa. He used agar first, then a fluid medium. The other two organisms found in the skin were the staphylococcus aureus and the staphylococcus epidermidis albus. He agreed with Dr. Sabouraud in the main.

Dr. T. D. SAVILL (London) wished to turn to the practical aspect of the question. He had inoculated a patient, a man, aged 27 years, who had been suffering severely for three months from boils, with some streptococcic vaccine, which Professor A. E. Wright of Netley had kindly supplied to him. The first inoculation was performed on a Monday, the second on a Thursday, and the third on Monday again. The patient made a very rapid recovery. This was perhaps remarkable because streptococcic vaccine (the dead cultures of streptococcus) had been used for what was known to be a staphylococcic infection.

Dr. W. DUBREUILH (Bordeaux) discussed the possible sources of infection in impetigo contagiosa: was it always a previous case, or might it not be any pus infection such as discharge from a suppurative otitis?

Dr. W. A. JAMIESON (Edinburgh) referred to the clinical aspect He thought it was curious that the same coccus should be the cause both of erysipelas and impetigo. He had seen extensive epidemics of the latter in schools, but not a single case of erysipelas had occurred.

Dr. H. RADCLIFFE CROCKER (London) referred to an infant who was recovering from vaccination complicated by impetigo. Six weeks later erysipelas developed which imperilled the child's life.

Dr. COLCOTT FOX (London) and Mr. GEORGE PERNET (London) followed.

Dr. W. DUBREUILH (Bordeaux) read a paper on

Paget's Disease of the Vulva.

Paget's disease of the nipple was first considered to be an eczematous condition of the skin which, owing to some local peculiarities, was liable to degenerate into cancer. Since then it had been proved that the disease was an epithelioma from the first, but a superficial one, attacking only the epithelial covering of the skin and lasting for years without invading the deeper structures. When it did go deeper it followed the epithelium of the milk-ducts. Paget's disease might exceptionally affect other parts than the nipple, but no case had been published of its affecting the vulva. The patient was a woman, aged 51 years, who had noticed three years before a tender part on or near the clitoris; this increased slowly and itched moderately. When first seen there was a large sore patch involving the front part of the vulva. The skin and the mucous membrane were superficially ulcerated, deep red, with a few white spots of thickened epidermis. The patch had a well-marked outline and was hard and thickened, so that it had somewhat the appearance of a syphilitic primary sore. The whole patch was removed, also an enlarged gland in the left groin. Microscopical examination showed that the epithelial covering of the parts was not destroyed, but had taken the aspect of ordinary epithelioma spread out as a sheet on the surface. The disease was quite superficial and the papillary layer of the corium was quite free. The epitheliomatous nests which were sometimes to be found deeper were easily traceable to the follicles and mucous glands, the superficial ulceration having followed down their epithelial covering.

Dr. J. M. H. MACLEOD (London) made a contribution on

The Histo-pathology of Yaws,

the material for which was obtained from the Kurunegalle Hospital, Ceylon, through the kindness of Sir William Kynsey, late Inspector-General of Hospitals, Ceylon. Eight typical cases of yaws in different stages of the disease were selected and characteristic lesions were excised. The tissues were preserved in spirit and for ordinary histological purposes were in no way injured by their journey from Ceylon. Yaws belonged to the group of the "infective granulomata." It was distinguished from (1) actinomycosis and rhinoscleroma by the absence of their specific micro-organisms; (2) from the lepromata by *the absence of Hansen's bacillus*; (3) from mycosis fungoides by the absence of "fragmentation" of the infiltrating cells, and of degenerative changes with the formation of products of degeneration in the collagen and elastin, and by the presence of the peculiar epidermal changes of yaws; (4) from tuberculosis, apart from the tubercle bacillus, by the absence of the characteristic architecture with its giant cells, daughter-plasma cells, more marked disintegration of the fibrous stroma, and complete disappearance of the blood-vessels; and (5) from syphilis it was distinguished by the following details which, considered collectively, strongly suggested that yaws and syphilis were different histological entities. (*a*) Cellular infiltration: plasma cells were not so definitely arranged in rows or clustered round the blood-vessels as in syphilis; no large multinuclear cells (chorio-plaques) or true giant-cells, or intracellular hyaline degeneration was noted in yaws. (*b*) *Fibrous stroma: rarefaction of the collagen* was more marked than in syphilis, but no organisation or colloidal degeneration (such as occurred in syphilitic gummata) was found. (*c*) Blood-vessels: there were no distinct proliferative changes in the vessel-walls or endothelium as frequently occurred in syphilis. (*d*) Epidermis: marked proliferation and down-growth of the epithelium, with a great thickening of the horny layer (due to hyperkeratosis or parakeratosis), were characteristic features of yaws, while they were unusual in syphilis.

Sir WILLIAM KYNSEY, C.M.G., F.R.C.P. Irel. (London), drew attention to the confusion between syphilis and yaws. The incubation of both was very much alike; in both there was polyadenitis. Superficially they much resembled each other but really they were quite distinct. The seat of inoculation of yaws was never sclerosed. The eruption was not polymorphic—it was always the same at all ages—and *essentially it was a non-ulcerative disease unless by pus* inoculation or tuberculosis. The constitution never suffered cachexia in yaws, and only the skin and mucous membranes were affected, not all the organs as in syphilis, and never the nervous system. Yaws was a disease of childhood, but it was *never congenital*. The eruption was a granuloma and it never left a cicatrix.

THURSDAY, AUGUST 1ST.

The meeting opened with an exhibition of cases by Dr. H. WALDO (Bristol), Mr. MALCOLM MORRIS (London), and Mr. JOHN HOWELL (Cheltenham).

Mr. MALCOLM MORRIS (London) then initiated a discussion on

The Treatment of Skin Diseases by Finsen's Light Method and X Rays.

He remarked that he would direct his attention chiefly to the application *of this treatment to lupus. In northern latitudes* the sun could not be relied upon altogether, and therefore the electric light must be had recourse to, which in point of fact was therapeutically more *active. In* respect of current he had found one of about 70 ampères and 60 volts sufficiently strong to produce the effect required in most cases, and it had been thought better to shorten the time of exposure rather than to lessen the intensity of the light. In order to get a powerful light it was *most important* (1) that the lenses, especially the bottom one, should be clean and bright and (2) that the water should be clear and free from floating particles. The bottom lens should be thoroughly cleansed and polished every day—a detail which was greatly facilitated by having it made detachable. The method of application was then described, and Mr. Morris remarked that up to July, 1901, the total number of cases treated at the *establishment under his direction* was 60. In 36 of these the disease was lupus vulgaris, in six lupus erythematosus, in 13 rodent ulcer, in one doubtful rodent ulcer, in two alopecia areata, in one cheloid, and in one epithelioma. Of the cases of lupus vulgaris eight might be claimed as instances of cure; in three the treatment was abandoned on account of failure of health, while *in six the result* was *unsuccessful or unsatisfactory*. The remainder were still under treatment. Of the cases of rodent ulcer seven were cured, in two the unsatisfactory state of the patients' health made it impossible to go on with the treatment, and two were still under treatment. Of the cases of lupus erythematosus in two the result was satisfactory, in three the treatment *had to be discontinued*, and one was still under treatment. Of the cases of cheloid and epithelioma nothing definite could yet be said. In the successful lupus cases the number of sittings *varied from* eight to 370. They were mostly favourable cases, in which the disease was superficial and of small extent. Brief notes of the cases were then given. Having stated the results which he had obtained, Mr. Morris proceeded to describe the manner in which the light rays produced their remedial effect on the diseased skin, and he mentioned some of the difficulties that interfered with their action. The application of the light was followed by an inflammatory reaction consisting in hyperæmia and redness, followed by the formation of a bleb which broke and dried in about a week into a thick yellow crust. Healing was complete in 10 days *or a fortnight. In places where the* tissues were loose—for instance, near the eye—there was often great swelling of the neighbouring parts. The intensity of the reaction varied in proportion to the intensity of the light and also according to the structural peculiarities of the patient's skin and especially according to the local conditions produced *by* the disease. In persons *with thin* skins the reaction was greater, while it was less marked in coarse thick skins. The reaction came on *from* five or six to 24 hours after the application of the light. It was usually slight at the beginning of the treatment and sometimes became greater as it was continued. Even after prolonged treatment it still showed a tendency to increase rather than to diminish. The Danish physicians said that the treatment was painless, but this was not strictly accurate. There was, indeed, seldom anything that could be called pain at the time the light was applied, though sometimes *a feeling of heat was experienced. But the after-smarting* was often considerable, and the inflammatory phenomena constituting the reaction were also more or less painful. There was seldom any constitutional disturbance. In the case of ulcerated surfaces there was, of course, no blistering or crusting; a much larger number of consecutive applica*tions could therefore be made without inconvenience* to an ulcer than to an area of intact skin. Reaction was manifested by redness and soreness which were sometimes accompanied by some swelling of the surrounding parts and great tenderness on pressure. These effects were seen about *the fourth or the fifth day, and if the applications* were kept up the skin around the ulcer became inflamed. According to Mr. Morris's experience the remedial effect of the light rays was directly proportionate to the intensity of the reaction; the production of a considerable reaction should, *therefore, always be aimed at*. If the disease extended into the deeper layers of the skin, and if there was much scarring, this formed an obstacle to the penetration of the light rays. Another circumstance which made the passage of the rays increasingly difficult when the treatment was prolonged was the pigmentation caused by the frequently repeated applications of light. The amount of pigment naturally present in *the skin must also be taken into account. Brunettes were* not such good subjects as blondes, and the darker they were the less amenable were they to the light treatment. Hence *there were great difficulties in applying it to patients of black* or mixed race. When the disease extended deeply and there was great thickening and infiltration of the tissues—e.g., from previous treatment by other methods—it was difficult for the light to penetrate and a large number of exposures were required to make an impression on the mass of diseased tissue. The large extent of the area involved was sometimes a most serious difficulty, as only a small spot could be treated at a time, and thus it was scarcely possible to deal with all the nodules as they developed on the edge of the patch. The only hope of keeping pace with the disease in such cases was to retain the patient under treatment two or three hours daily. This was seldom possible as the patient could not spare the time or tolerate the prolonged immobility required. Moreover, the reactions tended to become so severe that they could not be borne. Cases in which mucous cavities were involved were unfavourable for the light treatment, but in such cases x rays were useful owing to their power of penetration. If the disease were extensive the treatment must at the best be tedious. It should be applied daily on six days a week if there were nothing—as, for instance, excessive reaction—to make interruption necessary. In cases where there might be a special urgency the treatment might be carried out twice a day without any ill effect. Mr. Morris remarked that the success of the light treatment depended more on the attendant who had the actual management of the details than on the medical man who had the supervision of the case. Her duties required not only intelligence or skill, but devotion, for the work placed an enormous tax on the patience. Another condition of success was in the patient himself, to whom the absolute passivity enforced during an hour or one and a half hours daily for months together was apt to be exceedingly irksome. The length of time over which the treatment had to be prolonged was, indeed, one of the chief drawbacks of the method.

Dr. A. **BARRY BLACKER** (London) in continuing the discussion, said that he wished to compare the Finsen's light and x-ray treatment as regards their relative effects. The original light apparatus of Finsen was well known, but a modification which was now being extensively used in the treatment of lupus had been introduced by Dr. Lortet and Dr. Genoud of Lyons which was cheaper and more convenient, and which employed less current. Moreover, the exposure was only 15 minutes instead of 60 minutes daily, and the results from this apparatus were so far very satisfactory, but time must elapse before it could be proved to be equally efficacious. Dr. Blacker was now in his own practice employing both Finsen's and Lortet and Genoud's apparatus, using them both on the same patch daily, so as, if possible, to obviate in some measure the tediousness which was one of the drawbacks of this form of treatment. A comparison was then made between the reactions observed between Finsen's rays and the x rays on the skin; in the former case it occurred in from four to 24 hours, in the latter in from four to 24 days; the first was comparatively slight and easily controlled, the second was sometimes severe and an ulcer might be produced which might last for months. He wished to emphasise the fact that there was a definite danger of producing this intractable form of ulceration after the employment of the x rays. This could in some measure be guarded against by the employment of a "high" tube, by the protection of the surrounding skin with lead foil, and by watching with care the effect of short exposures on the patient. The reaction was more severe in fair people, in those who suffered from an irritable skin, and in neurotic individuals. In many cases, however, it could only be attributable to an idiosyncrasy. The action of the x-rays on lupus vulgaris was often very marked and was apparent after a few applications, sometimes, however, it was slow, and it was interesting to note that occasionally other patches of lupus than those which were being treated improved at the same time although they were not immediately under the influence of the rays. In the removal of superfluous hairs the action of the x rays was doubtful, as in all the cases in which he had seen the hair removed it had returned within the following six months; in tinea tonsurans it might be found useful. In the treatment of the pain accompanying ulceration he had found chloretone and orthoform of service. In conclusion, Dr. Blacker said that there was much to be learned about the treatment of skin diseases by means of light; especially was this the case as regards the employment of the x rays, which would appear to be a mixture of many kinds of light, some of which might produce harm. The difference between the action of rays from the violet end of the spectrum as employed with Finsen's apparatus, and the rays emanating from an x-ray tube were very marked; they differed in the reaction produced on the skin, in their penetrative power, in their mode of production, and in their employment. As regarded the rays, either from the sun or from the electric arc lamp, he considered that the results obtained in the treatment for lupus were sure and that they gave excellent results. On the other hand, he considered that much more had to be proved before the x rays could be considered as being safe or reliable.

Dr. J. H. **SEQUEIRA** (London) from an experience of 15 months' work at the London Hospital, where there were three lamps continually in use and where nearly 200 patients had been under treatment, had observed improvement in every case of lupus vulgaris. Cases of every degree of severity had been treated. In two instances where the disease was quite recent two applications had resulted in absolute disappearance of the lupus. In other and more extensive cases 200 and even 300 sittings had been given and the patients were still under treatment. He had found it very difficult to determine exactly when the treatment could be stopped with safety, and had seen cases [illegible] small recurrences had occurred. These were, however, [illegible]. Dr. Sequeira quoted the latest statistics of [illegible] in [illegible], mentioning that over 130 patients were [illegible] free from recurrence from one to five years after [illegible] In lupus erythematosus a certain proportion of cases did well, but in others there was no improvement at all. Those in which the erythematous element was very marked were particularly unsuitable. Dr. Sequeira then demonstrated his new lamp, modified from that of Lortet and Genoud, which was easily worked from an ordinary street service, and the manipulation was so simple that the great expense of the Finsen treatment could be materially lessened. Moreover, the sittings were of a quarter of an hour's duration only, and an area of skin one and a half inches in diameter could be treated at each sitting. Referring to the relative value of the Finsen and x-ray treatment, Dr. Sequeira had found that ulcerative forms of lupus yielded excellent scars with x-ray treatment, but in the scars typical lupus nodules were visible even when the treatment had been carried on for several months. He indorsed Mr. Malcolm Morris's experience of the value of x rays in lupus of the mucous cavities. Since his first case in June, 1900, he (Dr. Sequeira) had treated 45 cases of rodent ulcer with the x rays. The ulcers healed up rapidly and huge cavities filled up in a remarkable manner. Difficulty was experienced with the hard raised edge, and slight but easily treated recurrences had been observed. In his small experience of the treatment of cancer by the x rays he had found pain to be relieved and ulceration to be dried up, but in some cases the tumours grew rapidly in spite of the rays. A single case of nodulated leprosy of the skin had shown a marked improvement, the hard masses softening and becoming flat. The value of the x rays in diseases of the hair, especially sycosis, was commented upon, and the results achieved were regarded as being very satisfactory.

Dr. **ALLAN JAMIESON** (Edinburgh) remarked that his experience was limited to the x rays. His results had been very unsatisfactory in lupus vulgaris. Some paling but no cure had followed. In rodent ulcer he cited one superficial and extensive case which had been all but cured by the x rays combined with scraping. In another ulcer the nasal bones were involved, while in one part the disease was arrested; in another the ailment progressed in spite of, and while under, the rays. He regarded the rays as valuable means auxiliary to other and tried methods, but he could not see what advantage was to be derived over and above scraping, the use of the knife, and caustics.

Dr. H. A. G. **BROOKE** (Manchester) remarked that his experience was somewhat limited. He had been to Copenhagen and it was perfectly obvious that the results were infinitely better there than any which ensued from ordinary methods; the skin was healthier, smoother, and softer, and altogether he knew of no other therapeutic measure which could produce the same results. In a great many cases the disease started in the laryngeal duct, and it was absolutely necessary to reach this focus of disease to prevent recurrence. Finsen rays were not subject to the same dangers as the x rays, and he believed in the combination of Finsen and x rays as being the most efficacious, the latter being employed for the less accessible foci.

Dr. **NORMAN WALKER** (Edinburgh) was quite sure that in lupus vulgaris other foci of disease than those directly exposed to the light improved—e.g., those on the back while the face was being treated. He had in one case of lupus erythematosus had the most violent reaction, but the patient had undoubtedly improved in spite of this. As to favus this was in his experience a method which was quite unapproached. In one case he had had a patch on the scalp which very nearly sloughed. In tinea tonsurans he had not had very favourable results. In sycosis it was sometimes very favourable but at the cost of much tribulation to the patient. He thought it a pity that all other methods of treatment should be absolutely excluded. He had recently seen a case scraped 15 times which was most successful; and the galvano-cautery, acid nitrate of mercury, and the knife might be most important additions to the Finsen and x rays. The x rays should certainly be kept in the hands of the medical profession, and he wished to sound a note of warning in this sense. A form of quackery was arising which should be damped down at its inception.

Dr. G. G. **STOPFORD TAYLOR** (Liverpool) had employed x rays for the treatment of 22 cases of lupus, one case of scrofuloderma, five cases of rodent ulcer, one case of large ulcer of the left forearm after burns, one case of favus, two cases of epithelioma, and one case of pigmented carcinoma. As regards lupus vulgaris, he had observed, first, that when the rays were applied to a moist surface the discharge was lessened and became altered in character, assuming a purulent in place of a serous appearance; secondly, that normal epithelium developed very rapidly and healing quickly followed, thirdly, that when applied to dry surfaces exfoliation of the epidermis took place and the part exhibited a dried and shrunken appearance, fourthly, that absorption of morbid products took place and resulted in a smooth, soft, and pliant scar, and fifthly, that an erythema of uncertain duration depending not altogether upon the length of exposure or on its strength always accompanied these changes, and that unless this was permitted to disappear between each successive application of the rays an aggravation of the disease occurred. This had happened in two instances in his experience, and superficial destruction of tissue took place in three cases as if an escharotic had been used Too much had been expected from the x rays in the treatment of lupus He considered their action to be of the nature of a stimulant, and that they should be applied as such, care being taken that over-stimulation did not occur Any treatment of tuberculosis must of necessity prove tedious With a view, therefore, to accelerating the action of the rays he had not hesitated in a few instances to employ in addition any other means which seemed requisite, and the result was most encouraging While he had been able to remove all traces of secondary inflammation in some cases he had not succeeded as yet in causing the total disappearance of the characteristic apple jelly nodules The cases treated were not selected Many of them had been under his care for years and some had undergone various operations, such as curetting, cauterisation, scarification, excision, and the injection of tuberculin, but under no treatment had he observed the same steady and painless tendency towards recovery as under the x rays The effect of the rays upon that form of rodent ulcer which had a natural tendency to heal in one part while it spread in another had been a perfect revelation and cases were quoted in illustration He had succeeded in removing most of the hair off the scalp of a lad suffering from favus, but the presence of the fungus was still in evidence. He had noticed that the rays had the power of exciting the rapid development and temporary growth of epithelium even upon the surface of carcinomatous ulcers though the pigmented tumour cells could be clearly discerned through the new epithelium In further proof of the remarkable effect of the rays in stimulating the growth of epithelium the case was quoted of a boy who had sustained a severe burn of the arm, where any healing had taken place the scar was hard and fibrous and the prospect of a very troublesome contracture looked ominous The x rays were applied and the remaining part of the ulcer healed up rapidly with a soft and pliant scar, and the child had now a serviceable arm with a good movement

Mr J **HALL EDWARDS** (Birmingham) remarked that he had been obliged to discontinue the researches which he had commenced into this subject two years ago on account of his absence in South Africa He thought that it was greatly to be regretted that no light had been thrown upon some of the most important points From an examination of the interesting cases exhibited he had noticed that the same pigmentation which he always looked for during his treatment with the x rays occurred in cases treated by the Finsen light He had hoped to have heard more of the theories which were to account for the phenomena produced, and he felt disappointed at the little progress which had been made in isolating the cause of the curative and that of the hurtful, effects produced by the x rays He had previously stated that in his opinion the effects were to a great extent electrical, and more especially those which had any therapeutic value That some of the effects were due to the x rays or to some other rays which proceeded from an x ray tube he was certain, but they could not make any true progress until experiments enabled them to isolate the electrical from the purely x ray effects What condition of tube was best suited to the treatment? It had been stated that the x rays encouraged the growth and multiplication of the tubercle bacilli Was it not possible that their rapid multiplication under the influence of the x rays might bring about their ultimate destruction?

Dr **GEORGE B BATTEN** (London) advocated the use of the high tension tubes He believed that the x rays acted by stimulation of the healthy tissues and cells of the part and by over stimulation of the microbes which were so to speak, "grown to death"

Dr J S **BOLTON** (Nottingham) asked what was the cause of the cure. The high frequency current produced many of the effects of Finsen and x rays, and it would, he believed, prove to be of great value

Dr **RADCLIFFE CROCKER** (London), in closing the discussion, congratulated the speakers on the accuracy and completeness of their remarks He had had more experience of the Roentgen rays than the Finsen light, and had had some most excellent results He had come to the conclusions, first, that in the favourable cases the results were as good as it was possible to achieve, but, secondly, that the number of such cases was not very large The treatment must be limited in its scope owing to the expense and complexity of the apparatus, and when it was borne in mind that some cases wanted 300 sittings the applicability of the treatment must necessarily be limited But the Finsen and x rays treatment had evidently come to stay Nevertheless, it would be a great mistake to abandon the older and still excellent methods He referred to a case in which Mr George Pernet had performed multiple scarification in which the results could not have been surpassed. He (Dr Crocker) had worked with Roentgen rays, chiefly with low tension tubes, and he could not agree with Dr Batten in the advocacy of high tension The excitation of a small amount of inflammation was not altogether a disadvantage Something like five ampères was, he believed necessary The real practical difficulty was to know the number of exposures necessary, one case would require 80 and another 24 exposures The expense was an obstacle A case could be scraped and while healing could be exposed to the rays Some cases wanted one treatment and some another and they must not limit themselves to one kind of treatment

THE ANNUAL MUSEUM.

(Continued from page 3[illegible]1)

II.—FOODS AND FOOD PRODUCTS.

There was an excellent display of special foods, although it must be admitted that novelties were rather the exception than the rule Indeed it is pretty safe to say that at least, and probably more than three fourths of the exhibits in this section were but a repetition of the display at Ipswich last year There were however some notable exceptions, especially amongst milk and meat preparations Milk and milk products were decidedly in evidence Attention seems to have been devoted more particularly to the separation of proteids from milk in the form of soluble dry white powder The evidence in favour of plasmon as a highly assimilable and nutritious "additive" in diet continues The company's representatives (International Plas[illegible] quare London, W.) [illegible] the number of usef[illegible] [illegible]yed Amongst other things iced plasmon is worthy of notice Another preparation of importance is the plasmon beef extract containing 80 parts of plasmon and 20 parts of beef extract, representing the nutrient properties of milk and the stimulating properties of meat Besides these there were plasmon cocoa, biscuits and chocolate The Aylesbury Dairy Co., Limited, of St Petersburg place Bayswater London, W., may lay claim to have presented a demonstration of a decidedly scientific character Thus the rapid estimation of fat proteids and other constituents of milk was practically illustrated and other subjects practically discussed were the curdling of milk and the rapid estimation of acidity and the microscopic detection of the bacillus tuberculosis Further useful demonstration was given on points connected with the chemistry of milk The exhibits included a number of preparations of milk for invalids and infants As is well known the Aylesbury Dairy Company practise a system of control in connexion with all departments of their enterprise Their laboratory staff consists of 15 medical officers six veterinary surgeons and three analytical chemists As an example of milk produced in a thoroughly healthy way may be mentioned the germ free invalid milk and the germ free [illegible] mothered milk exhibited by Mr J Carson of Crystall [illegible] Farm Theydon Bois Essex His farm is a model of sanitary efficiency and medical men who are interested are invited to inspect this farm and see for themselves how cleanly the production of milk can be carried on We have recently had occasion to examine this milk and the results were highly satisfactory and such as would account for the remarkably favourable results which it gains when used in the feeding of infants and invalids The specimens exhibited showed a remarkable percentage of cream. The milk is derived from a special herd of Jersey cows, each of which is periodically inspected and examined. A very interesting and elegant milk product is casumen, shown by Prideaux's Pure Casein and Life Food Co., Limited, of Motcombe, Dorset. This is pure milk casein quite soluble in water. It occurs in the form of a fine white powder, and as our analysis has shown, contains over 90 per cent. of pure proteid. This preparation seems particularly well adapted for raising the nutrient value of many foodstuffs. It produces an excellent bread of uniform texture which keeps agreeably moist. Similarly it may be mixed with cocoa or put in tea or coffee or beef-tea or soup. Specimens of macaroni were shown containing a definite proportion of casumen. Pure casein preparations were also shown on the stall of Messrs. Callard and Co., of 25, Regent-street, London, W., whose diabetic foods are well known. Amongst other special foods shown by this firm were the celery and spinach biscuits prepared for the use of sufferers from gout and rheumatism. The Protene Co. of 36, Welbeck-street, Cavendish-square, London, W., presented a number of preparations containing protene. Amongst these may be mentioned protene biscuits, protene bread, and protene flour. Protene bread for diabetics is a good preparation containing a quite unimportant quantity of starch. The Manhu Food Co., of Liverpool and of 88, Charing Cross-road, London, W.C., exhibited a number of so-called diabetic foods, and the Cheltine Foods Co., Limited, of Cheltenham, showed a similar series of food specialities. Both companies appear to claim the same thing—that is, that the starch has been so treated as to become modified and no longer producing glycosuria. These views are opposed to the opinions of leading authorities on the subject. We welcome the departure introduced by the Myosin Albumin Meat Extract Co., of 107, Strand, London, W.C. It cannot be too widely known that the majority of meat extracts do not contain the nutrient properties of beef, but merely the extractives, which at their best are only appetising and stimulating but not nourishing. Myosin albumin is prepared in such a way that the albumins, globulins, and iron albumins are preserved in it intact as they exist normally in beef, while the coarse fibroid matter of beef is completely rejected. The preparation known as "ma.me.co." is described as consisting of pure myosin albumin from which the extractives, waste, or "gouty" products have as far as possible been removed. The preparations are of undoubted nutrient value and represent a step in the right direction towards making beef preparations of real food value. We have noticed before the table-salt known as "Cerebos," prepared by the company of that name of Newcastle-on-Tyne. It is a great improvement on the deliquescent salt which was exclusively used formerly for table purposes. Messrs. Keen, Robinson, and Co. of Garlick-hill, Cannon-street, London, E.C., exhibited their well-known preparations. Amongst these may be mentioned mustard prepared from the best seed, Robinson's patent barley and patent groats, and, lastly, "barlikos," a preparation of barley flavoured with lemon which makes an excellent and wholesome summer drink. The stall of the Bovril Co., Limited, of 152 to 166, Old-street, City-road, London, E.C., was covered with a great number of special foods now connected with their name. We did not notice any new additions to their already long list of meat preparations. An interesting food preparation, and one that deserves more attention than has hitherto been give to it, is marvis (The Patent Fish Food Syndicate, Limited, Berry Yards, Greenock), which may be described as a fish flour. It is said to be prepared from freshly caught fish, it keeps well and has a good flavour, and makes excellent nourishing soup. Liebig's Extract of Meat Co., of 9, Fenchurch-avenue, London, E.C., exhibited their well-known preparations, including lemco, a concentrated extract of beef, oxo, "a new meat beverage" containing a special preparation of fibrin, and peptarnis, a valuable preparation, being a concentrated peptone of beef. We could find no new preparations on the stall of Mellin's Food Co., Limited, of Marlborough Works, Stafford-street, Peckham, London, S.E., although the cod-liver oil emulsion and the lacto-glycose are worthy of mention. Some interesting preparations were exhibited on the stall of the British Somatose Co., of 165, Queen Victoria-street, London, E.C. Somatose is made from beef and, as we have shown, consists largely of albumose with some peptone. This valuable food preparation may now be had in fluid form and it is also combined with iron, forming a soluble digestive iron albumin. Messrs. Cadbury Bros., of Bourneville, near Birmingham, still claim for their cocoa that it is a pure article and entirely free from foreign additions, such as alkalies, kola, malt, and hops, a statement which we have entirely confirmed by laboratory experiment. An excellent substitute for lard for cooking purposes is albene, a highly refined vegetable fat prepared by Messrs. Broomfield and Co. of 83, Upper Thames-street, London, E.C. It is a clean white fat well adapted for frying and for pastry and does not turn rancid. In our analytical columns we have already shown that the shredded wheat biscuit (Shredded Wheat Co., 6 and 8, Eastcheap, London, E.C.) contains the entire wheat, and this fact, coupled with the further important fact that it is thrice cooked, makes the preparation a valuable food rich in flesh-forming as well as bone-producing factors, proteids, and phosphates. Messrs. Cosenza and Company of 95, Wigmore-street, London, W., showed their excellent Maggi's consommé and Maggi's tonic bouillon containing assimilable iron. We have already analysed and tried these preparations with satisfactory results. The only example of condensed milk shown was that of Mr. Henri Nestlé of 48, Cannon-street, London, E.C. As we have previously pointed out, one very important feature of this preparation is that it contains a maximum of cream. At the stall of Mr. Hoff, of 29, Newgate-street, London, E.C., besides the well-known nourishing fluid malt extract, was shown a preparation known as "ironol," containing iron in an organic form. A valuable series of special foods was presented to view by Messrs. G. Van Abbott and Son, of Baden-place, Borough, London, S.E. These were their well-known gluten bread, soya bread, biscuits, cakes, and every conceivable form of food adapted for the diet of the diabetic patient, being practically starch free. The exhibit also included some excellent soups, meat lozenges, beef biscuits, and hypophosphite of lime biscuits. The Maltine Manufacturing Co., Limited, of 24 and 25, Hart-street, Bloomsbury, London, W.C., exhibited their well-known maltine preparations. Maltine is a thin, syrupy, powerful starch digestive and may be had associated with cod-liver oil, coca wine, cascara, hypophosphites, Easton syrup, &c. Messrs. Carnrick and Co. acted in conjunction with the Maltine Co., their address in London being the same. They showed their liquid peptonoids with and without coca, beef, milk, and digested gluten. Their exhibit included also beef peptonoids, a very rapid form of nourishment and containing a very high proportion of nutritive material, and, lastly, Carnrick's soluble food for infants, consisting of evaporated cow's milk with the addition of dextrine and soluble starch. Messrs. Brand and Co. of Mayfair Works, Vauxhall, London, S.W., showed their well-known specialities for invalids, including meat juice, peptones, meat essences, and lozenges. Their exhibit was much the same as in previous years, though we may notice that they have comparatively recently added a nutrient powder dried in such a way as to leave the proteids uncoagulated.

(*To be continued.*)

THE COMING ELECTION OF DIRECT REPRESENTATIVES TO THE GENERAL MEDICAL COUNCIL.

THE meeting arranged by Mr. T. Garrett Horder with the permission of the British Medical Association for the discussion of the question of the election of the Direct Representatives and to hear addresses on medical politics from the present Direct Representatives for England and Wales took place at the Ladies' College, Cheltenham, on August 2nd. Mr. Garrett Horder was in the chair, and called first on Mr. George Brown.

MR. GEORGE BROWN said: I do not see that we can regard this meeting as one that can come to any definite conclusion by way of deciding as to who should or should not be recommended to the constituency as those who should be selected for representation. I should have preferred that some programme had been drawn up or some hint as to what would have been expected of me. Am I to give an account of my stewardship? If so, I am not prepared for that, except that during the time I have represented you I have endeavoured to carry out the programme on which I came before you as a candidate and on which I was successful in 1896. I hope that I have succeeded in satisfying those who placed me in that position. I have received no complaint from anyone about any vote I have given on the Council. On the contrary, I have received numerous letters from all parts of the country expressing approval as well as letters from different associations. I have reason to believe, therefore, that my stewardship has not been altoge[illegible] to those who sent me to the General Medical [illegible] am *not egotistical in* [illegible] election is justifiable [illegible] There may be people who say, and very often the remark has been made of me, that "Brown has a nice fat thing, his fees for the General Medical Council are 5 guineas a day." All I can say is that if it were only for anything of that kind I should wash my hands of the whole matter and should proceed no [illegible] a poor [illegible] which [illegible] out to [illegible] putting your hand in your pocket. I may mention that my midwifery practice has absolutely gone. In my practice the 50 cases in the year I used to attend have dwindled down to one, *and in that one I could not accept a fee because it was a domestic* [illegible] of one of the [illegible] oppose the [illegible] opposed it [illegible] a partially educated woman after three months' education should be given a diploma or *licence* to practise midwifery and be allowed to use dangerous drugs which they are advised to do by those who lecture to them. I have seen a lecture by a midwife to midwives in which it was stated that treatment had been carried out in a bad case of phlegmasia dolens without any mention being made in that lecture of a medical man [illegible] I think that that is likely to occur very [illegible] Bill is passed. You do not want me to [illegible] resolution will be put before you [illegible] to on the ground that the meeting is not representative enough. I will now refer to an incident which occurred during my last candidature. I was invited to a meeting at *Manchester*, and some notice was taken of a *remark of mine* then that if I remained on the Council for three years without something being done that I would resign my seat. I did not resign my seat at the end of three years because I found that your sending as [illegible] to the Council men from your own body had a [illegible] on some important matters on which [illegible] is shown by the salaries which [illegible] Five years ago medical men almost went down on their [illegible] " or [illegible] two [illegible] and [illegible] eral [illegible] t the [illegible] oeful [illegible] On another point I had a mandate, [illegible] tion, and a great deal has been [illegible] ough the effect is not very apparent [illegible] to which will have a great influence [illegible] candidates to the medical profession. [illegible] preliminary education exacted and [illegible] t on the future of the profession [illegible] urriculum has had a good effect in [illegible] men who were not perhaps so well [illegible] There is, however, still much to be [illegible] it road and in the course of time we [illegible] of you desired to have been done [illegible] t despaired of seeing accomplished. [illegible] have had others speaking previous [illegible] perhaps, then have had to answer [illegible] anticipate by saying what I have to say with regard to that unfortunate instance which has occurred during the time in w[illegible] I refer to the case of Kingsley Hu[illegible] myself from all blame entirely in t[illegible] stand the true facts of the case you [illegible] colleague Mr. Horsley of any blam[illegible] n is asked for are submitted to th[illegible] report to the General Medical Council. When the prosecution of Hunter was decided upon his name was dovetailed in in a list of men who were *practising without any qualification*—that is to say, *quacks*. All these names were put together and I have the written evidence of some members of the General Medical Council that when Mr. Hunter's name was dovetailed into this list of quacks not one of us knew that this man Hunter was a qualified man. Had that been known I, of course, should not have consented to his prosecution, and it was *with the greatest amazement that I saw many months afterwards* that by order of the General Medical Council this unfortunate Mr. Hunter had been prosecuted for taking a medical title. I am sorry this has occurred, but personally I do not have it on my conscience that I was guilty of any dereliction of duty in regard to that matter except that I might have called for all the evidence in respect to those five or six names, among which Hunter's name occurred. I certainly think we ought to have had a summary of the evidence, but then if I had applied for such I should have been told I was wasting the time of the Council, as I have been told before. I regard my position as one of extreme difficulty, though not so bad as it was. I think my election at first was rather resented by some of the old members of the Council because it occurred more than once that when *I* had a motion down on the paper and wanted to say something someone popped up and moved the previous question which unfortunately was invariably carried. That, however, does not occur now. There has been much change in the *personnel* of the Council, something like half the Council has changed in the five years. In regard to everything I bring forward now I must say that I am always treated with respect and that facilitates one's position at the Council. One feels more and more at home. As I get to understand the old members better I think at the same time they also get to know George Brown better, and there is more kindly feeling between us in consequence. I shall not say anything in regard to any other candidate who may come forward except *that I feel in justice bound to say that* my colleague Mr. Horsley and myself have worked very harmoniously and happily together during the time we have been on the Council. I am glad to say this because I opposed Mr. Horsley's candidature and supported that of Sir Walter Foster. I thought Sir Walter Foster might have been more useful than Mr. Horsley to general practitioners because of his influence in the House of Commons. We want more representation in the House of Commons and I thought Sir Walter Foster would [illegible]

[illegible] if *Mr. George Brown believed* [illegible] could be restricted by legislation [illegible] a medical man compulsory in cases of confinement, also what policy did he support in connexion with such legislation as was threatened?

Dr. BROWN said he would oppose the present Bill *in toto*. He was in favour of a Bill for the better training of nurses by public bodies [illegible]

[illegible] said that Mr. Brown spoke of a [illegible] was unintelligible. It would [illegible] ered the question whether he believed that it was reasonable or possible to expect the legislature *to pass any measure requiring every obstetric case to be attended by a* medical practitioner. It was no use medical men crying for the moon, something should be asked for which was likely to be granted.

Mr. BROWN said he did not quite understand the question in that direct way.

The CHAIRMAN, at the request of the meeting, then read out Dr. *Ritchie's question to Mr. Brown* who replied that he was sure the legislature would do nothing of the kind. From conversation with Members in both Houses he was certain they would never make that restriction. They could not force a man into a woman's lying-in room and it would be unreasonable to expect it.

DR. GLOVER'S ADDRESS.

[illegible] influence of your representatives. A very serious blow was inflicted on Direct Representation after the last election when one of the gentlemen elected, after clamouring for a seat, left the Council without ever waiting to discuss the main question he was supposed to understand and for the solution of which he was chosen. I have enjoyed your confidence for 15 years—that is, for three separate quinquennial periods—and I am asking you once more to re-elect me. Nobody knows better than I do my many defects and shortcomings, but I have come to the conclusion, in spite of these, that I shall consult the interest of the cause of Direct Representation by sticking to my guns and by seeking re-election. Few members of the Council have seen more of its working; few have had a larger experience of its principal committees, few know better what the Council can do and what *it cannot do than myself. I do not boast* of this. It is simply the length of my experience in the Council as your representative and my knowledge of its members, their attitude of confidence and kindness towards me over this period, that make it so. The Council is not perfect. It is too large. It wants reconstruction and it wants larger powers. But in my opinion it has great powers for good even in its present form, and *I see no immediate chance of it* being materially altered. It has done very much already, as Mr. Brown has admitted, and may do much more both for the public and the profession—for medical education, and for the purity and dignity of the medical profession, which are of enormous consequence to the public. And I believe sincerely that for those ends the presence on the [illegible]

I will [illegible] differ from me on this matter will allow that I have never shirked the question and that I have consistently held that some regulation of midwives practice is urgently required and can scarcely be had without legislation. My support will only be given to a Midwives Bill on two or three very strict and well-defined conditions. First that the practice of uncertified midwives be stopped and penalised, and secondly that the midwife shall be required on the occurrence of any irregularity or abnormality of mother or child to apply to a registered medical practitioner, thus placing her in a distinct, non-medical subordinate position. I have a third condition to [illegible] though I have not been able here as [illegible] Medical Council to agree with me—viz., [illegible] of each district shall be required to [illegible] to the midwife a reasonable fee (not less than a guinea). I have never yet heard any sure arguments [illegible] believe that I have any personal object in the views I hold on this question—I have two objects in supporting a Midwives Bill which I will shortly state. I feel not [illegible] The first is, I wish to abolish the existing untrained [illegible] midwife [illegible] Gamp [illegible] dangerous and deadly [illegible] women who are entitled to the greatest consideration. The second object I have is to abolish the [illegible] of the Obstetrical Society of London in giving certificates to midwives. Here I must be quite explicit. I could be no party to blaming the society for its efforts to raise the [illegible]

[illegible] London, and we have only one punishment and it a capital one—that we should remove their names from the Medical Register. Does any gentleman think that the most advanced medical reformer—Mr. Brown himself, say—would venture to rise seriously and make a definite proposition to that effect in the General Medical Council? To do Mr. Brown justice I must say he has had the chance of doing this any time in the last five years and he has not done it. Gentlemen, what has the Government, the Privy Council, done with one of the chief ornaments of the Obstetrical Society of London? It has made him a Crown Member of the General Medical Council. The only way, and the proper way, to get rid of the irregular and unauthorised action of the Obstetrical Society of London is to create a board, acting under law, to do what it is doing and for which it has in time past had the approval of the public and the tacit approval of the General Medical Council. These are my principal objects in supporting with strict conditions a Midwives Bill. And I would say in dismissing this subject that I have another reason. I feel convinced that such legislation will come to pass and that it will be done independently of the medical profession if it loses the chance of shaping it and controlling and regulating the practice of midwives. Gentlemen, in this matter, as in some others, Mr. Brown poses as the saviour of the medical profession. He has a medical paper all to himself which in the interval of elections undergoes a sort of hibernation, and just before the great event comes to life again and demonstrates to its readers that I am the great sinner—the Jonah—and he is the man to elect to represent the profession. Now I do not believe that the majority of the profession differ from me in thinking that something must be done to get rid of the untrained, dirty, ignorant, often intemperate midwife. What has happened? In the last five years Mr. Brown has never once that I remember in all the midwifery discussions moved the Council to declare that it disapproves of all such attempts at legislation. But he leads his followers to think that he is going to do so and that some great change is going to occur. Gentlemen, let me tell you such a change cannot occur without the Council stultifying itself. I shall tell you what would happen. Mr. Brown would not get a seconder, as happened on a recent occasion to which I shall have to allude further on. I prefer more practical courses and to help the profession to regulate legislation which it cannot and, in my opinion, ought not altogether to prevent.

Gentlemen, the midwives question is only one of a score or a hundred questions that have to be considered by the General Medical Council. I regard the Midwives Bill question as practically disposed of by the General Medical Council. It devoted a special session to it. It has spent thousands of pounds and whole weeks over its principles and it cannot well reopen the question. But there are many other questions to be dealt with by the General Medical Council. Let me remind you of a few of these. The Council is *par excellence* a Council of Medical Education, which must have for its basis a sound preliminary education. I tried to do my duty as your representative on this question. I may be excused for saying that in the very first session after my election to the Council I drew attention to the want o[illegible] clinical and therapeutical subjects and of exami[illegible] The defect was admitted. I was put on the Ed[illegible] resolution I proposed, a resolution on the subject, has been fruitful of good.

The Council has to consider the means of securing the maintenance of a high professional standard of conduct and of work with adaptation to practice among the working classes [illegible] and has suggested the formation of a [illegible] friendly societies on the one hand and [illegible] on the other. The principle of a Conciliation Board has been approved by a committee of the Council of the British Medical Association and there is reason to hope much [illegible] it in the improvement of the position and pow[illegible] ssion in relation to the great friendly societies. [illegible] General Medical Council entitled to great cred[illegible] matter.

It has to discourage degrading and unprofessional modes of promoting practice—especially advertising and touting. I had the pleasure of proposing a resolution meant to discourage these practices. It has been very effective where the evidence of such practices and of the doctor's knowledge of them has been sufficient. One or two large insurance companies with medical aid business have given up the business, and several medical officers have resigned their position under this clause. Mr. Brown tried to counsel the Council to do something more drastic and did not get a seconder.

The Council has been much concerned with the proofs of the large numbers [illegible] who have no medical [illegible] ad the honour of [illegible] loard with Sir Wi[illegible] Duckworth as a deputation on this subject. We had a most sympathetic hearing and have reason to hope that legislation will result that will brace our registration system up and will regard uncertified deaths in a Christian community as a scandal to be inquired into and prevented.

The Council is a complex organism and has much to do in coördinating and harmonising the action of the various medical authorities. There has lately been exhibited an unseemly and injurious friction between the Royal Colleges of England and the General Medical Council. The best friends of medical education must wish to see the end of this discord which threatens to throw back education. I have tried and shall continue to try to urge a *modus vivendi*. The Colleges and the Council can both help each other, while not encroaching on each other's province. At present the question is raised at each Council meeting and threatens to waste much of the Council's money.

My last remark leads me to say a word about the finances of the Council. The money of the Council is the money of the profession and our sittings have lately been so prolonged that our expenditure has exceeded our income. Some gentlemen have advised an annual fee to be paid instead of a single fee for registration. I am much in favour of a single and final payment as at present instead of what would be an annual tax and I believe that with some reforms in the conduct of our discussions the ordinary income of the Council will suffice to meet its expenditure. These, gentlemen, are a few of the subjects that engage, and must engage, our attention, to say nothing of those most painful cases of misconduct which call for the exercise of the disciplinary powers of the Council or of the need for more disciplinary power both for it and the individual medical authorities which we all recognise. To hear some fluent critics you would think that the General Medical Council does nothing and goes on very slowly. Gentlemen, I do not think so. I think that the changes which are taking places in the profession—in its curriculum, in its education, in the public estimate of it, and in the State estimate of it—are enormous and in some aspects serious. I believe if the General Medical Council proceeds in its steady improvement of education and in its steady demand for the maintenance of professional conduct even in the poorest sections of practice it will command more and more the respect of the public, of the medical authorities, and of the registered practitioners of the country who at an election time are called to send men to represent them. Remember that as regards the election it is not the General Medical Council that is on its trial so much as Direct Representation itself. I can imagine nothing more worthy of representation at the Council than the views generated and impressed upon us by the ordinary and varied life of daily and nightly practice and if such experience is at the service of Direct Representation I have good hopes for its extension.

MR. HORSLEY'S ADDRESS.

MR. VICTOR HORSLEY said: I have much pleasure in attending this meeting because I am hopeful that it will be the precursor of many similar meetings and that it will be an annual fixture at the annual meetings of the British Medical Association. With regard to my views on the midwifery question they are exactly what I circularised in my address to the profession when I was a candidate for the General Medical Council four years ago. I still think that registration of existing and prospective midwives is necessary and whether they are called midwives or midwifery nurses some form of registration is necessary and will be insisted on by the Legislature. It is also in accord with my principles that what both Dr. Glover has suggested and what has been more fully suggested in the *Medical Guild Quarterly* should be carried out. I think it is a perfectly feasible way of dealing with the subject. That is my personal opinion. Our duty as members of the General Medical Council is to see as far as we can that the Government will not lend their support to any measure which does not embrace the 10 points that are given in detail in the minutes of the General Medical Council, the 10 points which the Council consider are essential in this subject. This brings me to the action of the Government not only towards us in regard to the midwifery question but also in regard to other questions. You must know that the General Medical Council is practically a sub-department of the Central Government; its head is the Privy Council; the head of the Privy Council is the Duke of Devonshire. If you will study the minutes of the Council in respect to previous questions you will find that the President of the General Medical Council is in communication with the Privy Council in various ways. You will find the letters that passed between the two bodies, and yet in spite of this repeated communication between these bodies extending over all these years it is a fact that the Privy Council has during the last 10 months treated the General Medical Council with superlative contempt. You will find all the facts in our minutes. The Privy Council is at the present moment utterly disregarding the General Medical Council and its 10 points which include the safeguards necessary in midwifery legislation. And why? Because of what is called the respect of authority and because of what is known as negotiations. We cannot parley with the enemy at the gate; it is ridiculous for us to consider that as a sub-department of the Government we can through our President or through anyone else influence the Privy Council privately. We cannot do it. The only way to do it is through the voice of the profession. Now, thanks to the work which has been effected at this meeting of the British Medical Association, I believe that we shall get this power, but until then let me warn this meeting that at the present time the General Medical Council is unable to do what it wishes to do in this matter. I personally am responsible for endeavouring to send up a protest to the Privy Council against its behaviour towards us as its sub-department. Dr. MacAlister, however, opposed me and succeeded very easily in persuading the Council, so that no protest was sent. All that I can do is to try to endeavour to support the authority of the General Medical Council and I should like to point out that this action of the Privy Council during the last 10 months is no isolated instance. For example, the Executive Committee of the General Medical Council took upon itself to conduct negotiations with the Privy Council on the subject of reciprocity of practice in Italy. Now whatever views we hold, and I hold there is no true reciprocity as arranged, at least we are entitled to consideration; but no, the Privy Council passed an order entirely disregarding our views as a Council. So the Privy Council for a second time in 10 months has treated the General Medical Council with contempt. As regards the work of the Council in education this matter of the Colleges is really a very grave question. It is a step taken by the Royal Colleges which is subversive of the present five years' curriculum and of the best interests of the medical profession and it will ruin students' registration. The representative of the Royal College of Physicians, which body is now tottering to financial ruin, did not hesitate to state in the Council, and his speech unfortunately made a most favourable impression on the Council as a whole—this representative actually said that he was willing to ruin students' registration simply to carry out the wishes of his College. I warn you not to enter into any compromise on this matter. If you support this view you will do what in the opinion of all teachers of medicine in this country will lead to an irreparable injury to the medical profession. As regards preliminary professional education headway is being made in this matter by the Council itself quite irrespectively of this step taken by the Royal Colleges. This question of education is coincident with the question of the one-portal system. Until this plan is endorsed, as I hope it will be by the real voice of the profession at Manchester, we shall not get any further with the General Medical Council, because the compromise with the two Royal Colleges is nothing more than the general feeling of the corporations represented in the Council. The Royal Colleges are going to get a greater number of students to enter for their examinations and the Colleges will receive the fees. The other licensing bodies naturally think, Why should not we do the same? By the constitution of the General Medical Council it is unable to receive a scheme for the one-portal system for the Council is co[illegible]*ng bodies and is thus* really unfit to [illegible] now to the necessity of having a [illegible] may ask me, How do we stand in t[illegible] regard to this matter and what chance is there of success? I am rather surprised at the result of three and a half to four years' work on the Council When I [illegible] *taken up with obtaining ordinary con-* [illegible] that for about a year I was unable to [illegible] ever, swept away the men who were [illegible] It has caused hard words and some [illegible] have gone and in their place we have a younger set of men, amongst them Deans of Medical Schools who are keenly *interested in general medical education* These men are men to whom you can appeal with reason and the outlook for the Medical Act Amendment Bill is better. But the body of the General Medical Council consider that such a Bill should come from the British Medical Association, and I am willing to accept that position Let us meet them half way, let the *British Medical Association go on with the work of* [illegible]tee, and let us bring to the General [illegible] ask for In such a Bill I think I [illegible] qualified practice should take first [illegible] of that of course the House of [illegible] require, that the constitution of [illegible] *that it should be deprived of its* corporate body—that is to say, its commercial character—so that it shall be made a representative council, and if the House of Commons demanded it there should be an addition of one or two more Crown members. There must be a bargain and we must give something in return if we are to get anything out of the House of Commons I have left my next point to the last because I believe it is a lever by means of which we shall reform the General Medical Council I come to the question of money, which, as usual, is at the bottom of most things We have now got to the bottom of the pocket of the Council and the Council is in a bad way and may find it necessary to go to the House of Commons and ask for some change in legislation which it can put into operation *in order that it may live* So that I am hopeful in this matter of finance You will remember [illegible] must say, by Mr Bryant. However, after a long series of wrangles we at last succeeded in getting a report from an expert in finance, Mr Frere. Mr Frere's report confirmed in every minute detail not only the facts which I had brought forward two or three years before but Mr Frere proposed as reforms everything that we had been asking for. Now that is a most remarkable thing, for I had no communication with Mr. Frere and I never had told him of the discussions that had taken place in the reform [illegible] reforms we had [illegible]h I must deal [illegible] us his opinion [illegible] be really opera[illegible]n To return, [illegible]e, which I per[illegible]erly discussed, we look to the [illegible] threshed out so [illegible] in the matter [illegible] stewardship in [illegible] the reports to the profession I have from time to time issued, and I shall continue that action if you re-elect me I only wish to conclude by expressing my intense gratification that we are at last likely to be in a position through the British Medical Association to be able to instruct our representatives as to what they ought to do

[illegible] When I was a candidate for [illegible]er occasion I polled over 4000 [illegible] now and having been asked by [illegible]ou I come forward as a candi[illegible] of the midwives the trend of [illegible]*ms to be*, and I have talked [illegible] in favour of some form of registration We ought to try to guide legislation so that it shall [illegible] Campbell that that was carried out at Saddleworth, the payment for *the services rendered being regarded as a loan* In Jamaica it was also done and there advances were made to pay for the doctor and for the [illegible] was [illegible] but at any rate the mortality is very considerable, and it behoves us therefore, to take more care of our population producing people, to take more care of the mothers of the country and not to allow them to die in this way and to take more care of the children He suggested that the British Medical Association should introduce a Bill into Parliament on the lines indicated in the *Medical Guild Quarterly* and there should be a regular system of nurses, that they should have from two to three years' training before they were allowed to have anything to do with nursing as a sufficient training was necessary so as thoroughly to drill the nurses in their work, because if taught only for a limited time the nurses *lapse into careless ways* It was more important for the public at large to be well nursed than to be well doctored. The whole body of the profession as represented by the Bri[illegible] have more weight with the professio[illegible] Direct Representatives and of cutting up the country into smaller electoral districts The General Medical Council would thus be able to promote legislation favourable to the profession and to the country at large In the House of Commons you must *insist that it is for the benefit* of the country at large We must improve matters in that way For instance, as regards quacks who are allowed to practise as aurists and oculists they should be [illegible] registration of deaths, because of the enormous number of uncertified deaths We have examples of this in cases in which chemists attend *people and simply write a note to the registrar informing him of the* death. Stillbirths also should be registered. I do not suppose I have touched on all the points, but I think I have touched on the main points I cannot claim personal experience like the present Representatives, but if elected I shall carry out the duties as far as I can

Dr. S WOODCOCK, J P *(Manchester) said: I do not know that* I am a candidate My position and attitude in regard to this question is this In the first place we are entitled to a representative from the north of England, and I do not think that all our representatives should be in London Other places should have some share in representation When approached I said that if it was *apparent that the bulk of the profession in the north of England* desired me as a candidate I was at their service I have no personal [illegible] when I approached members of the House of Commons and the House of Lords I was met with a simple reply: "What do you propose instead, because their must be some legislation, and things can't [illegible] disposed of the men who were giving the certificates But all this was only done with the idea of it being submitted to Parliament if the other proposed Bill came before the House Our Bill was to be put in only in order that it should not be said that we had nothing to suggest I consider that to insist on a medical man being called in in every case of confinement is impracticable and it is not possible for the Government to consent to that This present Government appears to be in for a long tenure of office and there is a weak Opposition You may judge what the attitude of the Government is on this question when I tell you that with all our efforts we could never get at the President of the Privy Council We tried again and again to get him to receive a deputation but we were never allowed to see him On the other hand, the promoters of the Midwives Bill have had no difficulty and they were encouraged by him to go on No difficulty was placed in their way and when a vacancy occurred on the General Medical Council of a [illegible] *to the man through* [illegible] and the worst Registra[illegible] Sir John Williams was [illegible] the Government has put Sir John Williams on the General Medical Council Is the Government going to agree to a Bill like the Medical Guild Bill? I do not *disapprove of it* but I want something to be done in my lifetime and I want something done now. Is it desirable that these men should be allowed to go on giving these midwifery certificates? Is it desirable that you should have people unregistered and consequently uncontrolled or is it not better that something should be done which should be a *safeguard* to the public? If there was any *unanimity of the profession* and if there was any encouragement from the public you might hope to insist on a medical man being called in to each confinement But it is absurd to believe in any such thing which is so far from being practical In our Bill we laid down distinct[illegible] and there were certain stated circumstances under which a woman should be compelled to call in a medical man, but for every confinement it is not practicable If I go to the General Medical Council I must go and be able to feel that I am speaking what I really believe I would not propose resolutions which could not be passed and would be ineffectual if they were I am generally in approval of the attitude and policy of Mr Horsley and I agree with him on this midwives question I am not supporting the measure in favour of the registration of midwives Our Bill was altered in its title by the Council of the Association—the name was not altered by the Committee I have also taken some part in attempting to draft a Medical Act Amendment Bill and there I have sufficiently indicated my opinion in regard to the [illegible] Then it will be carried by the [illegible] I think that we should aim at [illegible] is not creditable that we should have [illegible] *into the profession.* If the Council is paralysed for funds we should go to Parliament and get [illegible] to ha[illegible] fee. Lawyers do it and so do other men who [illegible] r than we do. I know something of the work [illegible] have had some experience in public life and if the medical profession should think that I have the ability and the tact to represent them sufficiently well I am prepared to place myself at their service.

Dr. RITCHIE said after the speeches they had listened to the midwives question must be excluded from that election; to introduce it would be throwing dust in the eyes of the electors.

Mr. G. H. BROADBENT (Manchester) said that he thought just the opposite. It was most essential to prevent the establishment of an inferior order of practitioners.

The CHAIRMAN then repeated the following question to the candidates: Did they believe it probable that the practice of midwives will be restricted by legislation so as to make the attendance of a medical man compulsory in cases of confinement? which was replied to in the negative.

In reply to Dr. A. Cox (Gateshead) Dr. GLOVER said that he voted for the present form of certificate issued by the London Obstetrical Society and it would be remembered that it used to be a diploma. He would continue his present attitude until some legal body was provided to look after that business.

Dr. MAJOR GREENWOOD said that the General Medical Council had made the Obstetrical Society alter the diploma issued to midwives into a certificate. What was it that led those who held certificates to go on using the term "L.O.S."?—that could only imply licentiate. That was the most important point and that was omitted by the Council. It was a deception and the General Medical Council should take notice of it because licentiate was a medical title.

Mr. WOLSTENHOLME asked if Dr. Glover had afforded Mr. Horsley any assistance when Sir William Turner, the chairman of the General Medical Council, had refused to allow Mr. Horsley access to the documents of the Council.

Dr. GLOVER said that he did not remember the facts as to the first resolution of the Council about the documents. The ultimate resolution, however, by which the documents were accessible was moved by him. He explained that he had no other object than to secure first the care of the documents, and secondly the right and convenience of members in the use of them. The present resolution of the Council was drawn up by him in place of the first one which, though he supported it. was not quite satisfactory.

Mr. WOLSTENHOLME asked with regard to the Royal Colleges and their scheme, it appeared to reduce the medical curriculum to four years. As Dr. Glover had spoken of a *modus vivendi* would he say if that was to prevent the five years' course being shortened to four years?

Dr. GLOVER replied that he had no intention of disturbing the five years' course and there was not one instance in which the Colleges had accepted less than a five years' curriculum. They included in that curriculum one year passed at a preliminary educational institution approved by them.

Mr. WOLSTENHOLME asked if Dr. Glover agreed to that.

Dr. GLOVER answered that he agreed with that till the Council had power to interfere with the legal rights of the Colleges, otherwise they would be landed in an appeal to the Privy Council which they would lose.

Mr. WOLSTENHOLME then turned to Mr. Horsley and asked him whether he had found any difficulty in his attempt to inspect the documents of the Council, whether he had been thwarted in that application, and whether Dr. Glover had given him proper support on that occasion. He also asked whether Mr. Horsley was in favour of the *modus vivendi* with the Royal Colleges permitting the five years' course to be curtailed to four years.

Mr. HORSLEY said: Dr. Glover has told us that his memory does not serve him in regard to the first session when the question of the documents came up. I have to say that mine does; the facts are burnt into my memory. The Chairman of the Council locked up the documents which were public property and which I had a right to inspect. When I made my protest I was opposed by Dr. Glover so strongly that actually I could not obtain a fair hearing. I am speaking of the first session which Dr. Glover does not remember. I was so strongly opposed that I could not obtain a fair hearing and during the whole of that week's work I was looked upon as a kind of outcast for having endeavoured to disorderly interrupt the Chairman. That was the state of affairs, *but I carried* my point at the next session and what Dr. Glover says is true. It was on his motion that the documents are now inspected. It is a ridiculous thing that there should have been any reason for such a proposal at all, but it is what we work under at the present time. With regard to the *modus vivendi* with the Colleges I want to say that the Colleges have legal rights under their charters and the Council has legal rights under the Medical Acts, but owing to the carelessness of the [illegible] 386 was drawn up purporting to be an Act [illegible] ll the corporate bodies, a clause was left [illegible] the Council was the head of all these bodies. That clause having been omitted, if you were to bring the matter before the courts [illegible] would have to say both parties were in the r[illegible] sition and I intend to resist any attempt [illegible] profession in going to law in this matter. [illegible] *vivendi*. If the Council chooses to succu[illegible] ssible, and unless the Direct Representativ[illegible] the profession behind them that the Cou[illegible] er position a very grave injury will be done to the medical profession.

Mr. BROADBENT then asked if the candidates opposed legislation for midwives, making them independent practitioners, and was answered affirmatively.

Mr. BROADBENT again rose and wanted to know if the candidates considered that it was for the good of poor women that every case of midwifery should be more or less under the direct and personal supervision of a medical man even if details were conducted by a trained and registered nurse, and received affirmative replies.

Dr. C. H. MILBURN asked if the candidates would furnish reports to the profession like those supplied by Mr. Horsley to which he was answered in the affirmative.

Dr. S. CRAWSHAW wanted to know if any legislation in midwifery was to be restricted to a particular class, and was replied to by the candidates to the effect that the legislation was for the poor, but that it was impossible to prevent the public using their own discretion in the matter.

Dr. MAJOR GREENWOOD pointed out that in the event of legislation for midwives particular attention should be directed to securing local registration by the sanitary authorities.

Mr. WHITAKER, in moving a vote of thanks to the candidates for their speeches, especially welcomed the candidates from the provinces. They had three representatives who were in London and it was for the profession to show that they preferred two of the candidates to be from the provinces. It was very satisfactory to note how competent Mr. Jackson and Dr. Woodcock were to represent the profession on the General Medical Council. If they elected one representative for London with Mr. Jackson from Plymouth and Dr. Woodcock from the north it would be most satisfactory. It was very satisfactory to be certain that Mr. Jackson and Dr. Woodcock, if elected, would coöperate with their London colleague.

Dr. MILBURN, in seconding the vote of thanks, pointed out the advantages of electing two out of the three candidates from the provinces.

Mr. WOLSTENHOLME regretted that Mr. Whitaker had suggested to the profession whom they should elect.

Mr. WHITAKER replied that he did not suggest anything. He said it would be gratifying if one candidate was elected from London together with Mr. Jackson and Dr. Woodcock from the provinces.

Mr. WOLSTENHOLME said the profession would not stand Mr. Whitaker's suggestion for one moment. Medical men were quite able to criticise and judge for themselves.

A vote of thanks to the Chairman terminated the proceedings.

THE PATHOLOGICAL INSTITUTE OF THE LONDON HOSPITAL.

THIS compact and excellently arranged building serves the threefold purpose of hospital mortuary, post-mortem room, and pathological laboratory and is so constructed that each part can be entirely shut off from the other two when necessary. It stands in a large quadrangle and is entirely separated from the hospital buildings by an air-shaft. It consists of two storey, the lower devoted entirely to the mortuary and post-mortem room arrangements, the upper to the pathological laboratories. On the ground floor there is a long corridor or main passage reaching from end to end of the building, to which the bodies are brought from the hospital on enamelled metal slabs slightly curved and fitted underneath with sleigh-runners to facilitate movement of them from the trollies on to the storing-frame. They are taken to the mortuary store, which is an offshoot of the main corridor and contains a very convenient contrivance for storage of the bodies previously to section. It consists of a large metal frame made in segments and easily taken to pieces, either in part or entirely, for purposes of cleaning. The metal slabs are arranged so as to slide easily over rollers placed transversely in each segment of the frame. There is an admirable arrangement by which any exudation can be drained from these slabs. To one side of this store is a very effective cold chamber of simplified construction, worked by the carbon-dioxide process and capable of storing 12 bodies; to the other side is a tank-chamber for storage of material. From the mortuary store the bodies can be taken into the post-mortem room for section. This is a large room, lofty, well ventilated, and with excellent lighting both from the top and sides. It contains two white enamelled porcelain tables capable of rotation and discharging into an open circular gutter, and there is also in another part of the room a tank for sections under water or other fluid. There are cupboards for appliances, reagents, and other apparatus. Leading from the main room is a smaller one of similar character with one table for special necropsies.

The students' entrance to the post-mortem room is in the front of the building and is quite separate from that from the main corridor at the back through which the bodies are brought and into which they are again taken after section and conveyed to the main mortuary. This is a large room at the end of the corridor, containing a frame in all respects similar to that in the mortuary store room, on which the bodies remain till placed in the coffins. when they are conveyed into a simple but tastefully decorated mortuary chapel, to which the patients' friends are admitted through a small lobby with an entirely separate entrance in the front of the building. Noteworthy features of this department of the building are the excellent arrangement of the various rooms about the main corridor, the frames and slabs for storage purposes, and the conveniences for the friends to view the bodies.

The pathological department is on the first floor and has an entirely separate entrance in the front of the building, though it can be entered from the post-mortem room direct by those with a pass key. It consists of a large laboratory, a bacteriological room, private rooms for the director and two assistants, a chemical laboratory, and a research laboratory, with preparation and mechanics' rooms. The main laboratory is a large and lofty room with excellent light in all parts, with benches, lockers and stain cupboards, for 12 workers [illegible] each with separate [illegible] removeable to [illegible] the stain cupboard [illegible] the stains to be kept away from the light. There are separate microscope lockers at one end of the room. Two medium sized sinks are placed in the middle of the room with racks over them for reagents, and are fitted for the dissection and preparation of specimens. There [illegible] round all four sides of the laborat[illegible] for the storage and preparation o[illegible] vestigation. The bacteriological annexe to this room is for the investigation of material obtained in the post mortem room. The director's and the assistants' private rooms are fitted for research work, as also is the research laboratory which can accommodate two or three workers engaged on special work. The chemical laboratory is arranged with benches and racks for five men, with special slate slabs for *Kjeldahl determinations and stone slabs for combustions.*

The whole building throughout is lined with glazed brick, with terazzo flooring, and can therefore be easily cleaned. The ventilation is good and is effected by a number of large lamp ventilators supplemented by electric fans in certain of the rooms. It is evident that very great care and consideration have been given to its construction and the arrangements are admirable in every way. It forms a very striking and noteworthy addition to the resources of the London Hospital and will doubtless attract many workers to avail themselves of the almost unrivalled opportunities afforded for pathological study and research.

VITAL STATISTICS

HEALTH OF ENGLISH TOWNS.

IN 33 of the largest English towns 6096 births and 4658 deaths were registered during the week ending July 27th. The annual rate of mortality in these towns, which had been 15·1, 15·6 and 17·9 per 1000 in the three preceding weeks, further rose during the week to 21·2. In London the death rate was 18·2 per 1000, while it averaged 23·2 in the 32 provincial towns. The lowest death rates in these towns were 9·7 in Croydon, 10·8 in Derby, 12·3 in Cardiff, and 12·4 in Halifax; the highest rates were 30·0 in Birkenhead, 30·2 in Portsmouth, 31·7 in Sheffield, and 34·3 in Liverpool. The 4658 deaths in these towns included 1508 which were referred to the principal zymotic diseases, against 431, 567, and 897 in the three preceding weeks; of these 1191 resulted from diarrhoeal diseases, 114 from measles, 68 from diphtheria, 64 from whooping cough, 45 from scarlet fever, and 26 from "fever" (principally enteric). No death from any of these diseases occurred in Halifax; in the other towns they caused the lowest death rates in Plymouth, Derby, and Oldham, and the highest rates in West Ham, Portsmouth, Birkenhead, Liverpool, Burnley, Leeds, and Sheffield. The greatest mortality from measles occurred in West Ham, Birmingham, Birkenhead, and Gateshead; from whooping cough in Brighton, Swansea, and Sunderland; and from diarrhoeal diseases in Portsmouth, Birkenhead, Liverpool, Burnley, Leeds, and Sheffield. The mortality from scarlet fever and from "fever" showed no marked excess in any of the large towns. The 68 deaths from diphtheria included 28 in London, five in Sheffield, and four in Salford. No fatal case of small-pox was registered during the week in any of the 33 towns. There were 11 small-pox patients under treatment in the Metropolitan Asylums hospitals on Saturday, July 27th, against five, six, 12, and 14 at the end of the four preceding weeks; two new cases were admitted during the week, against two, six, and five in the three preceding weeks. The number of scarlet fever patients in these hospitals and in the London Fever Hospital at the end of the week was 2974, against 2918 and 2907 on the two preceding Saturdays; 374 new cases were admitted during the week, against 363, 324, and 371 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 165, 133, and 135 in the three preceding weeks, declined again during the week to 133, and were 43 below the average. The causes of 51, or 1·1 per cent., of the deaths in the 33 towns were not certified, either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Bristol, Nottingham, Salford, and in 13 other smaller towns; the largest proportions of uncertified deaths were registered in Swansea, Birmingham, Liverpool, Halifax, Sunderland, and Newcastle.

In 33 of the largest English towns 7180 births and 4926 deaths were registered during the week ending August 3rd. The annual rate of mortality in these towns, which had increased from 14·8 to 21·2 per 1000 in the five preceding weeks, further rose last week to 22·4 per 1000. In London the death rate was 20·0 per 1000, while it averaged 24·0 in the 32 large provincial towns. The lowest death-rates in these towns were 9·7 in Croydon, 11·4 in Halifax, 11·6 in Wolverhampton, and 13·1 in Bristol; the highest rates were 30·2 in Liverpool, 31·0 in West Ham, 31·7 in Newcastle, and 33·0 in Gateshead. The 4926 deaths in these towns included 1755 which were referred to the principal zymotic diseases, against 567, 897, and 1508 in the three preceding weeks; of these, 1436 resulted from diarrhoeal diseases, 120 from measles, 69 from diphtheria, 56 from whooping cough, 43 from scarlet fever, 30 from "fever" (principally enteric), and one from small-pox. The lowest death rate last week from these diseases were recorded in Croydon, Plymouth, Bristol, Wolverhampton, and Halifax; and the highest rates in West Ham, Liverpool, Manchester, Salford, and Preston. The greatest mortality from measles occurred in West Ham, Birmingham, Salford, and Sheffield; from scarlet fever in Blackburn and in Preston; and from diarrhoeal diseases in West Ham, Portsmouth, Liverpool, Manchester, Preston, and Sheffield. The mortality from whooping cough and from "fever" showed no marked excess in any of the large towns. The 69 deaths from diphtheria included 28 in London, six in Leeds, five in Leicester, and five in Sheffield. One fatal case of small-pox was registered last week in London, but not one in any other of the 33 large towns. 13 small-pox patients were under treatment in the Metropolitan Asylums hospitals on Saturday, August 3rd, against 12, 14, and 11 on the three preceding Saturdays; four new cases were admitted during the week, against six, five, and two in the three preceding weeks. The number of scarlet fever patients in these hospitals and in the London Fever Hospital at the end of the week was 3091, against 2907 and 2974 at the end of the two preceding weeks; 391 new cases were admitted during the week, against 324, 371, and 374 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 135 and 134 in the two preceding weeks, further declined to 125 last week, and were 43 below the average. The causes of 43, or 0·9 per cent., of the deaths in the 33 towns last week were not certified, either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Bristol, Nottingham, Bradford, Leeds, Newcastle, and in 11 other smaller towns; the largest proportion of uncertified deaths were registered in Liverpool, Preston, Sunderland, and Gateshead.

in Greenock. The deaths from measles, which had been 25, 24, and 22 in the three preceding weeks, further declined to 16 during the week under notice and included 11 in Glasgow and five in Dundee. The fatal cases of whooping-cough, which had been 25 and 22 in the two preceding weeks, further decreased to nine, of which five were registered in Glasgow and three in Edinburgh. The deaths from scarlet fever, which had been four and seven in the two preceding weeks, declined again to six, and included four in Glasgow. The deaths referred to diseases of the respiratory organs in these towns, which had been 95, 79, and 75 in the three preceding weeks, further decreased during the week under notice to 56, and were 11 below the number in the corresponding period of last year. The causes of 24, or more than 4 per cent., of the deaths in these eight towns were not certified.

The annual rate of mortality in the eight Scotch towns, which had been 18·4 and 17·8 per 1000 in the two preceding weeks, rose again to 19·8 per 1000 during the week ending August 3rd, but was 2·6 per 1000 less than the mean-rate during the same period in the 33 large English towns. The rates in the eight Scotch towns ranged from 14·4 in Paisley and 15·8 in Aberdeen to 22·1 in Greenock and 22·9 in Dundee. The 630 deaths in these towns included 128 which were referred to diarrhœa, 28 to whooping-cough, 13 to measles, two to scarlet fever, two to "fever," and one to diphtheria. In all, 174 deaths resulted from these principal zymotic diseases last week, against 89 and 134 in the two preceding weeks. These 174 deaths were equal to an annual rate of 5·5 per 1000, which was 2·5 per 1000 below the zymotic death-rate during the same period in the 33 large English towns. The fatal cases of diarrhœa, which had been 29, 45, and 99 in the three preceding weeks, further rose last week to 128, of which 73 occurred in Glasgow, 15 in Dundee, 12 in Edinburgh, nine in Leith, eight in Greenock, four in Aberdeen, four in Perth, and three in Paisley. The deaths from whooping-cough, which had been 25 and nine in the two preceding weeks, increased again to 28 last week, and included 19 in Glasgow, five in Edinburgh, and three in Dundee. The fatal cases of measles, which had been 24 and 16 in the two preceding weeks, further declined last week to 13, of which seven were registered in Glasgow, three in Dundee, and two in Edinburgh. The deaths referred to diseases of the respiratory organs in these towns, which had been 79 and 56 in the two preceding weeks, rose again last week to 65, but were slightly below the number in the corresponding period of last year. The causes of 34, or more than 5 per cent. of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 20·7, 21·0, and 18·4 per 1000 in the three preceding weeks, rose again to 20·6 per 1000 during the week ending July 27th. During the four weeks ending July 27th the death-rate has averaged 20·2 per 1000, the rates during the same period being 15·8 in London and 17·3 in Edinburgh. The 148 deaths of persons belonging to Dublin registered during the week under notice were 16 in excess of the number in the preceding week, and included 26 which were referred to the principal zymotic diseases, against seven, 10, and 18 in the three preceding weeks; of these 20 resulted from diarrhœa, four from whooping cough, one from diphtheria, and one from cholera. These 26 deaths were equal to an annual rate of 3·6 per 1000, the zymotic death-rate during the same period being 5·0 in London and 2 6 in Edinburgh. The fatal cases of diarrhœa, which had been four and 14 in the two preceding weeks, further increased to 20. The four deaths from whooping-cough slightly exceeded the average number in recent weeks. The 148 deaths in Dublin during the week under notice included 35 of children under one year of age and 38 of persons aged upwards of 60 years; the deaths both of infants and of elderly persons showed a slight excess over the numbers recorded in the preceding week. One inquest case and four deaths from violence were registered during the week; and 54, or more than one-third, of the deaths occurred in public institutions. The causes of six, or more than 4 per cent., of the deaths in Dublin were not certified.

The death-rate in Dublin, which had been 18·4 and 20·6 per 1000 in the two preceding weeks, was again 20·6 during the week ending August 3rd. During the past four weeks the death-rate has averaged 20·2 per 1000, the rates during the same period being 17·2 both in London and in Edinburgh. The 148 deaths of persons belonging to Dublin registered during the week under notice included 32 which were referred to the principal zymotic diseases, against 10, 18, and 26 in the three preceding weeks; of these, 23 resulted from diarrhœa, four from whooping-cough, four from cholera, and one from "fever." These 32 deaths were equal to an annual rate of 4·4 per 1000, the zymotic death-rates during the same period being 6·0 in London and 3·4 in Edinburgh. The fatal cases of diarrhœa, which had been four, 14, and 20 in the three preceding weeks, further rose last week to 23. The deaths from whooping-cough corresponded with the number in the preceding week, while the mortality from cholera showed an increase. The 148 deaths registered in Dublin last week included 43 of children under one year of age and 31 of persons aged upwards of 60 years; the deaths of infants exceeded the number recorded in the preceding week, while those of elderly persons showed a decline. Eight inquest cases and six deaths from violence were registered; and 53, or more than a third, of the deaths occurred in public institutions. The causes of five, or more than 3 per cent., of the deaths in Dublin last week were not certified.

THE SERVICES.

Royal Navy Medical Service.

Surgeon T. D. Halahan to the *Pioneer*.

Royal Army Medical Corps.

Surgeon-Lieutenant-Colonel S. Farrant, West Somerset Imperial Yeomanry, is appointed to the medical charge of troops at Taunton. Lieutenant-Colonel Franklin is posted to the Cambridge Hospital, Aldershot, for duty. Lieutenant Wells is posted to the Royal Artillery hut barracks at Deepcut, Frimley, for duty. Lieutenant-Colonel A. H. Keogh, C.B., is appointed for temporary duty at the War Office. Lieutenant H. A. Davidson takes charge of the Station Hospital on Wilberforce Hill, Sierra Leone, and Lieutenant Hull is in the outlying country near Sierra Leone with a detachment of the West African Regiment,

The undermentioned Lieutenants to be Captains, dated July 27th, 1901:—George Snyder Nickerson, George Bedford Crisp, Robert Strickland Hannay Fuhr, Walter Jagger, George Johnston Stoney Archer, Robert Selby, Sidney Octavius Hall, Alfred Edmond Weld, James Stuart Gallie, Francis Joseph Christopher Heffernan, Arthur Edward Thorp, Cecil Wilmot Mainprise, Henry Herrick, Edward John Dobbin, James Cowan, Austin Romuald O'Flahertie, Henry Beckles Gall Walton, and Edmund Philip Hewitt.

Civil Surgeon Charles Glendenning Thomson to be Lieutenant. Dated August 3rd, 1901.

Imperial Yeomanry.

Derbyshire: Richard Mervyn Wilson to be Surgeon-Lieutenant. Dated May 24th, 1901.

Army Medical Reserve of Officers.

Surgeon-Captain J. V. W. Rutherford to be Surgeon-Major. Dated August 3rd, 1901. Surgeon-Captain James Cameron, 6th Volunteer Battalion the Royal Scots (Lothian Regiment), to be Surgeon-Captain. Dated August 3rd, 1901.

Volunteer Medical Staff Corps.

The London Companies: Surgeon-Lieutenant E. B. Waggett to be Surgeon-Captain. Dated August 3rd, 1901.

The Woolwich Companies: William Henry Payne to be Surgeon-Lieutenant. Dated August 3rd, 1901.

Volunteer Corps.

Artillery: 1st Forfarshire: The undermentioned officer resigns his commission: Surgeon-Lieutenant R. Soutar. Dated August 3rd, 1901. 1st West Riding of Yorkshire (Western Division, Royal Garrison Artillery): Surgeon-Lieutenant A. L. Whitehead to be Surgeon-Captain. *Rifle:* 2nd Volunteer Battalion the Duke of Cornwall's Light Infantry: Surgeon-Captain W. Nettle to be Surgeon-Major. Dated August 3rd, 1901. 1st Dumbartonshire: The undermentioned Surgeon-Lieutenants to be Surgeon-Captains: D. Christie, dated July 17th, 1900; C. F. Spinks, dated

April 3rd, 1901 19th Middlesex (Bloomsbury) Surgeon Captain A. W Wigmore resigns his commission. Dated August 3rd, 1901

Correspondence.

' Audi alteram partem

ARE BOVINE (PERLSUCHT) AND HUMAN TUBERCULOSIS IDENTICAL?

To the Editors of THE LANCET

SIRS,—On March 10th 1880 a communication was made by *Professor Virchow to the Berlin Medical Society and* subsequently printed in the *Berliner Klinische Wochenschrift* of April 5th and 12th [illegible] der Hausthiere und deren [illegible] which may be advantage[illegible] The results arrived at after several years' experimentation under Professor Virchow's own direction are given and great stress is laid upon the specific characters which distinguish bovine (Perlsucht) from human tuberculosis The two following paragraphs are specially interesting—bearing in mind that they were written two years before Dr Koch announced his discovery of the tubercle bacillus in the *Berliner Klinische Wochenschrift* of April 10th, 1882.

> The fact that Klebs succeeded in developing pearl nodules by injecting human tuberculous matter in the calf certainly seems to prove that the two products are of the same nature Such a proof would unquestionably be conclusive did we not know that in animals [illegible] tuberculous infection is due [illegible] this micro-organism has not [illegible] not à *priori* deny its existe[illegible] to wait and see whether a [illegible] source both of tubercle and of pearl nodules
>
> In the meantime I think it important we should recognise that Perlsucht (bovine tuberculosis) runs a different course from tuberculosis in the human subject I would point specially to the fact that ulceration *is directly associated with caseous degeneration* The ulcer is produced by softening of the caseous matter (aus dem Käse geht durch Erweichung das Geschwür hervor) If any deposit similar to tubercle does not undergo caseous degeneration there is then no tendency to ulceration This is precisely the condition in bovine tuberculosis In cattle we do not find phthisis ulcerosa de-[illegible] firm tumours which become [illegible] which may finally reach the [illegible]ant differences and in the [illegible] designate pearl nodules as pearl nodules and tubercle as tubercle If we wish to express a dogmatic view of the matter we may say that pearl nodules represent tubercle in cattle but we must always maintain that both the course they take and their structure are different to what we see in the human subject *In any case we must bear in mind that as yet no individual has ever contracted pearl nodules from eating the flesh of animals affected with bovine tuberculosis*—therein lies the theoretical difficulty (Jedenfalls muss man sich erinnern dass noch niemals ein Mensch durch den Genuss perlsüchtigen Fleisches Perlknoten bekommen hat—Das war die theoretische Schwierigkeit)

I am Sirs yours faithfully,

Cambridge August 3rd 1901 P W LATHAM

"THE SALE OF DRUGS BY MEDICAL GRADUATES"

To the Editors of THE LANCET

SIRS,—I am instructed to send you the annexed copy of a resolution recently adopted by the Senatus Academicus of this University and to request that you will kindly give it a place in the next issue of THE LANCET I may mention that a similar resolution has been adopted by the University of Aberdeen

I am Sirs yours faithfully,
I J GRANT,
Secretary of Senatus

University of Edinburgh August 6th 1901

[COPY]

'Whilst it is admitted that the exigencies of practice in certain localities may sometimes render it unavoidable for a medical practitioner to supply to his patients the remedies which he prescribes—the Medical Faculty of this University is of opinion that it is undesirable and detrimental to the position of medical graduates of the University that this custom should be followed under other circumstances; and further it regards the sale of objects other than remedies by its medical graduates as, under all circumstances to be strongly deprecated

THE EDUCATION AND EXAMINATION OF OFFICERS FOR THE ARMY

To the Editors of THE LANCET

SIRS —In the discussion in Parliament upon the subject of army reform one of the most important considerations should be the education and examination of officers

In submitting the following observations I venture to premise that few men in my profession have earned a better right of counsel than myself, since I have served one of the largest and most renowned public schools of England for a *period of 30 years and have thus been enabled to perceive* and to weigh the good and evil features in the system of forming and educating officers

It is not many years ago that the boy who could pass into the army from school was a *rara avis* For most lads had to seek the intervention of that class of teacher called the "crammer," to whom many parents and boys owe a deep debt of gratitude for assistance at a time when little other help was accessible In recent years the public schools have seen the error of their ways and have removed the difficulty by preparing boys for admission direct to Woolwich and Sandhurst with marked success This course has also involved the advantage of preserving the continuity between school life and the army

I am not concerned in discussing the character of the *education* in practice for the purpose required beyond observing that the education of a considerable proportion of young Englishmen is somewhat hampered by the requirements of the military entrance examinations which is shown by the fact that of the large numbers who are specially prepared for this profession about one third only, roughly speaking, are able to obtain commissions, while the remaining two thirds have become specialised to their own detriment The numbers vary year by year according to the requirements of the army, the actual figures for 1897, the year before any war preparations were made being 1300 candidates for 373 commissions If a general school education is a sufficient preparation for the universities and for the learned professions it ought to be adequate for the army without any special preparation prior to entry at Woolwich or Sandhurst If not, then so much the worse for the education Why should such a requirement be necessary in a public school as an army class? If it be why should not the public schools be requested to provide navy, university clerical medical legal and commercial classes? The whole system of preparation for the army is defective The school education for the army, as for all other professions, should be that of English gentlemen and nothing more

But more unwise still is the mode of *examination* of boys for entrance to Woolwich and Sandhurst where the capacities of the candidate are not considered as a whole, but the test is restricted to the quantity of mental food he has been able to digest

The examination of candidates is biennial and takes place at various centres for convenience The whole of the candidates undergo the mental examination in various subjects for which to put it shortly the following marks are assigned 5000 in mathematics 4000 in languages and 5000 in other subjects *And not a solitary mark is allotted to physique!* By physique I do not mean size, for some of our most illustrious officers have been small made men who seem more in demand now than ever But I refer to the possession of capacious chests, good limbs general vigour and sound health

The candidates who have qualified in the mental examination and for whom commissions are available are then submitted to the ordeal of a physical examination And here I hold that an element of unfairness is discernible not from the personal action of the medical examiner or from the personal conduct of his director, but from the faulty system in vogue which permits the injustice and which requires rectification if candidates are to receive their due and the army is to secure the best type of officer For while brains are imperative in modern warfare staying power is equally necessary At this physical examination the qualified candidates who are mainly rejected are the [illegible] whom some organic defect or disease has been discovered. But there is another class which is also sometimes thrown out, and rightly so. The injustice, however, lies in the fact that neither parents nor candidates are given to understand the position. The boy may be perfectly sound in every respect, but cursed with a notoriously unsuitable or poor physique, rendering him quite unfit for a soldier's life. He is, however, rejected with some general excuse, which is eminently unsatisfactory to parents.

This error requires amendment; and I submit the following suggestions upon the point.

Inasmuch as a really vigorous physique is essential for an officer as well as sound mental calibre, it is incumbent on the authorities, in order that the most suitable officers may be secured, to follow some such course as that which I now propose, for such a course would put a spoke in the wheel of physical education at school more than any other method that could be devised; and the candidates' physique, as well as that of the nation generally from the love of imitation, improved by leaps and bounds.

The medical officers deputed to examine candidates, while not knowing the names of candidates or their position in the mental examination, should be directed to award marks, exactly as in the former examination, in accordance with the physical fitness—the maximum number of marks being 2000, being an eighth of the whole assigned, which is not erring on the side of excess to insure a good physique in an officer of the army of Great Britain. And every candidate should previously understand that the physical examination will refer not only (1) to organic defects or disease, but also (2) to general physique, notwithstanding organic soundness. In this way parents would appreciate at the threshold of his career the boy's likelihood of obtaining the total qualifying marks; in many cases the chagrin of failure would thus be avoided; and the lad's education would not be interfered with by the preparation which the army examination so unfortunately entails.

No greater difficulty exists in pursuing this plan than in examining in mathematics or languages. This physical examination, however, requires reconsideration in other aspects. For instance, directions should also be issued to the medical examiners that, while candidates should be assigned a less number of marks when physical defects, such as the albuminuria of adolescents or slight varicocele, are present these defects should not necessarily exclude lads from the army.

Having long desired to speak upon this question of the training and examination of candidates for commissions in the army I have now availed myself of the opportune moment when the subject must secure a parliamentary discussion such as it has not received for generations, in the belief that the most effective officers will now be secured, worthy candidates will not be discarded, and unsuccessful applicants will not suffer a break in their education without compensating gain to those who happily succeed.

I would finally add that in the testing of candidates insufficient attention appears to me to be given to what I may term *general* characteristics, so far as these can be detected (and they should be carefully sought for) in an examination. I mean the apparent alacrity of intelligence which may exist quite apart from largeness of knowledge and for army purposes forms the superior gift—a quickness of resource; the faculty of keen observation; the possession of common sense; and, in short, a general smartness of body and mind.—I am, Sirs, yours faithfully,

CLEMENT DUKES, M.D. Lond.,
Physician to Rugby School.

Rugby, July 19th, 1901.

"LEGISLATION AGAINST NATIONAL INTEMPERANCE."

To the Editors of THE LANCET.

SIRS,—I note with pleasure that Dr. Andrew Wilson in his letter in THE LANCET of July 20th, p. 170, does not attempt to prove a negative. He is good enough to give three reasons for declining to believe that a dragon sat curling his whiskers on the cross of St. Paul's, and very properly adds, "Now, judged scientifically, I say we have no evidence in this case that dragons exist." His attitude is admirable, and I am proud to say that it is one which I have adopted for many years. *I* say that his statement that acquirements are transmissible is wildly incredible and I ask for evidence. He refers me to the works of a number of biologists. I hope that he will forgive me when I say that I have not the time to expend on this mass of obsolete literature. I had to wade through it once and I thank heaven the task is done. But I offered in the most explicit terms to deal with any statements or arguments from the works of these gentlemen that Dr. Wilson cares to quote, and my offer still holds. Dr. Wilson replies that he did bring forward evidence. Here are his words. "He says nothing, for example, of the experiments I alluded to on the division of ova, each division reproducing a perfect animal, and yet he avers there is no evidence on my side for him to criticise." Well, but where is the evidence? I can detect only a confusion of ideas. If Dr. Wilson will tell us what character was acquired and transmitted I will deal with it. He says that I pay no heed to the authority of Spencer, Eimer, and others. As a fact I do not. Deference to authority is destructive to all scientific thought. But if the appeal be made, if we try to settle this question by counting heads, I daresay I could mention 20 authorities to one that Dr. Wilson can mention. Biologists who believe in the transmission of acquirements are now so rare that they complain that they cannot get a hearing. Dr. Wilson says that our argument is reaching the *tu quoque* stage. It is quite true. Here is the *tu quoque.* I say to Dr. Wilson, "Prove an affirmative. Out of all the millions and trillions of characters acquired by living creatures prove that *one* is transmitted." Dr. Wilson replies, "No, *you* prove a negative. Out of all the millions and trillions prove that *none* is transmitted." I am sure that the *tu quoque* is a very pretty one. Were acquirements transmitted a child might answer my demand in five minutes. Omniscience and eternity would hardly suffice to answer Dr. Wilson's demand. Dr. Wilson says: "He asks me for evidence that acquired characters are *never*[1] transmitted." Really I think the printer's devil has been at work. That question precisely Dr. Wilson asked of *me* and I can hardly find words to express adequately my sense of the outrage on logic.

Mr. Cunningham, writing in THE LANCET of July 6th, p. 51, says that I am too dogmatic. The quality of my dogmatism is by now apparent. It consists in a refusal to accept other people's dogmas when they are not supported by evidence. He says: "The question is not whether somatic cells are concerned in reproduction, but whether changes in the somatic cells may affect the powers of development, or, to use a convenient term, the determinants, of the reproductive cells." Mr. Cunningham is hardly correct. The question is not whether changes in the somatic cells can affect the germ cells, but whether changes in the somatic cells can *so* affect the germ cells that *similar* changes are reproduced by the offspring—for example, whether the amputation of a tail tends to cause a lack of tail in offspring subsequently born. Mr. Cunningham declares that excessive drinking tends to make people neurotic and that the neurosis is inherited. He says that he knows of instances in his own experience. I hope that he will let us have that evidence. For 18 months the late Research Committee of the Society for the Study and Cure of Inebriety sought it and failed. Mr. Cunningham, a distinguished biologist, is probably not familiar with the study of alcoholism and will therefore forgive me if I warn him against certain pitfalls which beset the feet of the inexperienced. It will be useless to bring forward instance of drunken parents whose children are neurotic. I can bring forward any number of instances of drunken parents whose children are not neurotic and of neurotic children whose parents are not drunken. Moreover, people naturally neurotic tend to become drunken and offspring tend to inherit the inborn traits of their parents. Mr. Cunningham lays stress on the excessive use of alcohol and says that intemperate habits are often developed after the victims have produced all their children. But insurance companies refuse to accept intemperate lives, and their statistics prove conclusively that even among these picked lives, from the age of 25 years onwards, there is a marked difference in the survival rates of abstainers and non-abstainers. He says that there is some reason to believe that the children of the aged are born old and as an example states that there is reason to believe that the younger children of a family have greater intellectual powers than their elder brothers and sisters. This, he alleges, is due to the facts that men continue to develop intellectually till late in life and that they transmit the acquirement. The whole of this statement if correct, is of extreme importance By all means let us have the evidence I may say at once however, that the statement that the intellectual powers increase till late in life appears to me more than doubtful It is probable that man's intellectual powers are greatest in childhood It is then that he makes his principal acquirements, that he is most capable of learning Consider the vast mass of information—language, reading, writing, &c —that a child acquires in the first few years of his life Later he is in a position of advantage because he is able to make use of his piled up data If I studied law for 10 years no doubt I should become a better lawyer, but I do not think that I should have greater intellectual powers

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[1] The italics are mine.

I must apologise for the length of this letter but the fault is not mine My opponents make assertions, I am obliged not only to re-state their assertions, but to furnish rebutting evidence It would be easy to write a volume in reply to Mr Cunningham alone

I am, Sirs yours faithfully,

Southsea July 21st 1901 G ARCHDALL REID

STERTOR AND POSITION

To the Editors of THE LANCET

SIRS,—Permit me to relate an experience in confirmation of Dr R. L Bowles's views[1] with regard to the value of position in relation to stertor and threatened asphyxia

A good many years ago about 1883 Dr Bowles published a short paper on this subject in (I think) the *British Medical Journal* I was at the time in charge of the General Hospital, Singapore and shortly after I had read the paper referred to a Chinaman (a police prisoner) hanged himself one day in the lock up attached to the native ward The apothecary, Mr Wheatley was soon on the spot and he cut the man down (he was unconscious and nearly dead from suffocation) bled him and succeeded in putting him apparently in a fair way to recover That night I went out to dinner, and on my return, about 11 or 12 o clock perhaps I followed my invariable custom and before going to my quarters walked through the wards of the hospital On visiting the lock up, which was a space railed off from the end of the main ward, I found the Chinaman on the floor resting only on his head and his heels livid unconscious breathing stertorously with his mouth and pharynx full to overflowing with frothy liquid With Dr Bowles's paper fresh in my mind I turned the man well over on his side and kept him in that position A quantity of fluid escaped from his mouth and nostrils the stertor ceased, breathing became natural consciousness gradually returned and he recovered I am confident that but for my accidental visit the man would have died very shortly There was, I remember a native policeman on duty who had looked on but had not thought it necessary or worth while to call for assistance

This case, in which the patient was undoubtedly saved from imminent asphyxia from fluid in the air passages, may be contrasted with the case of hanging noted in Dr Bowles's second lecture in which the result the patient not having been turned on his side, was not so fortunate

Since that time I have employed Dr Bowles's method in many cases of stertorous breathing with success as regards the stertor though as regards the actual saving of life I can recall no case so marked as that given above for too often the causes of stertor are themselves the causes of death If however, the stertor can be stopped it is sufficient reason for the treatment for at the least it helps to procure euthanasia, possibly for the patient, certainly as regards the feelings of the friends who otherwise might have to hear the horrible sound for hours With the exception of Dr Bowles's former paper I have never seen anything written on the subject and have sometimes thought that the treatment is not very widely known or at all events very widely practised, it is a good thing therefore that Dr Bowles has again brought the matter to notice in his lectures which you have lately published —I am Sirs, yours faithfully,

MAX F SIMON
Late Principal Civil Medical Officer Straits Settlements
Welbeck street W July 29th 1901

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[1] Lectures on the Practical Points in the Treatment of Threatened Asphyxia THE LANCET June 22nd (p 1 43 and 29th (p 1814) and July 6th (p 1)

THE INHALATION OF FORMIC ALDEHYDE IN THE OPEN-AIR TREATMENT OF TUBERCULOSIS

To the Editors of THE LANCET

SIRS,—In your issue of August 3rd 1901, p 310 your reporter in his report of the proceedings of the Tuberculosis Congress has inadvertently substituted Dr R. Maguire's name for mine It was I who read the paper on the Inhalation of Formic Aldehyde in the Open air Treatment of Tuberculosis at the Congress Will you kindly correct this error and oblige Yours truly

CHOWRY MUTHU

Inglewood Sanatorium St Lawrence I W,
August 6th 1901

To the Editors of THE LANCET

SIRS,—In your last issue a paper was attributed to me as having been read at the Tuberculosis Congress which was not mine The mistake was the more unfortunate as the paper expressed views exactly opposite those expressed by me My paper stated that inhalations could have no effect on the tubercle bacillus, and that I had demonstrated that the intravenous injection of methylic aldehyde by my method even to the amount of 50 cubic centimetres, was entirely devoid of danger

I am Sirs yours faithfully

August 6th 1901 ROBERT MAGUIRE.

OPEN-AIR TREATMENT OF PULMONARY TUBERCULOSIS

To the Editors of THE LANCET

SIRS —In your reference to my communication to the Medical Section of the British Congress on Tuberculosis published in THE LANCET of August 3rd p 307, there occurs a statement which appears misleading from my point of view and which I crave your indulgence to correct I am reported to have said that the temperature of a sanatorium ward was "best kept not too high" This is likely to convey a view very different from that which is held by me and was elaborated in my remarks I allow the freest access of fresh air to the patient day and night, at all seasons taking care that he is sufficiently clad I am not careful as to the temperature of the surrounding air, whether in or out of doors Indeed there seems a disadvantage in endeavouring to combine free exposure of the patient out of doors with his occupancy of rooms in which the temperature is maintained constant or still worse which may become overheated It is more logical and experimentally more successful to subject the patient indoors to approximately the same conditions as out of doors It is wise to be sparing in respect of artificial heating

It is an interesting commentary on this statement to add that the results during the past eight years have proved themselves in many respects more satisfactory in winter than in summer Even with the most delicate patient I have on no single occasion observed a bad result follow the most complete exposure to such influence Contrariwise in proportion as the patient is more freely exposed the satisfactory result is attained more quickly During the present spring, for example I have allowed a considerable number of patients not only to be out all day, but to sleep outside all night merely under cover of a three foot-deep shelter completely open in front. Some of these patients literally ran ahead as compared with others sleeping in doors

I am Sirs your faithfully

Edinburgh August 3rd 1901 R. W PHILIP

"BRITISH MEDICAL MEN AND GERMAN WATERING-PLACES"

To the Editors of THE LANCET

SIRS —The correspondence recently published in your columns[1] raises a question of importance at this season when so many betake themselves to health resorts It is one which cannot be settled without the due appreciation of certain incontestable facts While we have in this country springs such as those of Buxton, Harrogate, Strathpeffer, Cheltenham, Leamington, Tunbridge; and Bath, which can hold their own, or should hold their own, with continental waters of like character, it must, I think, be admitted that, rich as Great Britain is in minerals, nature has not provided this country so lavishly with mineral waters of potent constitution and high and regulable temperature as she has some portions of the continent.

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[1] THE LANCET July 20th (p 1[illegible]1 and 27th (p 22[illegible]) 1901.

It is true that deficiencies of temperature and mineral constitution may be artificially supplemented, but for such baths, and merely as such, there is no necessity for going even to English watering-places. They may be had in one's own house, but without the necessary adjunct of that holiday sense of relief which can only be obtained *procul negotio.* This consideration of holiday entertainment is an important one. Our variable climate, and perhaps our national characteristics, seem not to have been so favourable to the cultivation of those powers of entertainment which the more steady climate of the continent and the less insular reserve of its inhabitants have fostered. These differences seem to have led to the establishment of a reputation for "curing" and at the same time "amusing" which accounts satisfactorily enough for our watering-places having been robbed of many English visitors. The physical differences cannot, of course, be removed except by artifice, and Dr. Thomas Dutton acknowledges that certain German springs are more potent in the relief of some diseases than their English equivalents. Much as has been done, moreover, to render English resorts attractive, still more will have to be done in some cases before the level of continental brightness and "go" is reached. Many who betake themselves to such places are in no sense invalids and merely need to be amused. Others are only slightly indisposed. It is this fact which would render it difficult to prove by statistics even the particular contention of Dr. W. Bezly Thorne. It is undoubtedly true, as Dr. Dutton maintains, that many cases of heart disease are better treated by recognised means in this country than by going abroad. Constant experience in our hospitals and among the poor proves this beyond dispute. It is also true that a very large number of persons who go abroad for cardiac treatment suffer from little else than general fatigue and return refreshed and invigorated after a quiet holiday combined with carefully administered baths and regulated exercise, and crowned by a short stay in a bracing climate. In this category I should place cases of slightly disturbed compensation in organic disease of the heart. But will anyone maintain that the waters of Abana and Pharpar—of Buxton, Harrogate, or Scarborough, and a dozen other places would not be equally efficacious in the majority of these cases? Were the statistics of all such cases placed against those of grave organic lesion with much disturbed compensation arithmetic would undoubtedly be with Dr. Thorne, but Dr. Dutton's contention would not be invalidated. It is more easy to detect cases not grave enough to be sent abroad than those grave enough to be *safely* sent abroad. But to send such patients from home may be the duty of the physician if a given spa on the continent be naturally superior to our own for a specific purpose.

I am, Sirs, yours faithfully,
ALEXANDER MORISON, M.D. Edin.
Upper Berkeley-street, W., August 5th, 1901.

"THE TIMES ARE TROUBLOUS."

To the Editors of THE LANCET.

SIRS,—As a general practitioner in London I should like to say a few words to indorse the opinions set forth in the letter of "G. P." under the above heading which I have just read in THE LANCET of July 27th, p. 229. The two evils of which he speaks—viz., the abuse of the out-patient department of hospitals and the prescribing chemist—are very real and very serious ones to us general practitioners. The loss resulting to the medical man from the former can be more especially appreciated by those who, like myself, reside in the near neighbourhood of a large general hospital, the out-patient rooms of which are every day filled to overflowing with patients, a very large proportion of whom would be well able to afford the moderate fees charged by the medical men in the district. If such a plan as that suggested by "G. P." of excluding all such patients from hospital charity as are not actually recommended by medical men were followed the chances of lessening the evil would be very greatly increased, and the number of undeserving cases admitted would be at once reduced to a minimum. With regard to the prescribing chemist, he is a very thorn in the flesh to the general practitioner. One need but wait for a few minutes in any chemist's shop at almost any time of the day to understand why, at a time when coughs, colds, and sore-throats are rife, the medical man has so comparatively few patients on his list afflicted with these maladies. Surely with a little effort something can be done to check this growing evil; if the practice of counter prescribing be illegal, as it undoubtedly is, there should be no great difficulty in putting a stop to it. For obvious reasons this cannot be done by individual action—it is a matter which should be combated by the profession as a whole, and what more natural than that we general practitioners should look for aid, as "G. P." suggests, to our representative body—our General Medical Council—and should call upon the members of this body to act for us and with us in making an earnest effort to stamp out a practice which is becoming more and more a source of loss to the already not overpaid members of an honourable profession. It is in the hope that this matter will be taken up seriously by the profession, and that the suggestion offered by "G. P." may bear much good fruit, that I am writing this letter in which my aim has been simply to uphold the views of that writer rather than to make any further suggestions of my own.

I am, Sirs, yours faithfully,
M.B., CH.B.
July 20th, 1901.

To the Editors of THE LANCET.

SIRS,—That there is considerable abuse of hospitals in London there is no doubt. But then, are not the means of obtaining a knowledge of the financial position of the applicants for charity totally unbusinesslike and inadequate? I submit that in nine cases out of 10 the statement to the effect that "I can't afford to pay a doctor" is considered an adequate answer. I would like to ask if any other charitable institution or Poor-law authority grants its benefits under similar circumstances. The answer is no, and why should medical charities be so foolishly weak, encourage deception, and tend to ruin

THE MEDICAL BROTHERHOOD?
August 5th, 1901.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The Plague Epidemic.—Mr. Haffkine on the After-effects of Inoculation.—Chaulmoogra Seeds.—Strike of Medical Students in Bombay.—Changes in the Indian Subordinate Medical Department.—The Infection of Malaria.—The Famine.—Kala-azar in Assam.—Emigration from India.

A FURTHER rise has taken place in the plague mortality throughout India. For the week ending July 13th there were 1258 deaths, as compared with 1125 for the previous seven days and 200 for the corresponding week last year. The increase is almost entirely in the Bombay Presidency where 1048 deaths were reported. Bombay city had 85 deaths and Calcutta 16. Karachi has been declared no longer infected with plague. There were only two deaths in Bengal, three in the Madras Presidency, and six in the North-West Provinces, but 97 deaths were returned from the Mysore State. An outbreak has occurred in Tongkah in Siamese territory and it has therefore been declared an infected port.

A lecture was recently given at Poona by Mr. Haffkine on the After-effects of Inoculation. Rumours have been spread abroad from time to time by ignorant and malicious persons that inoculation for plague produced other diseases. Mr. Haffkine very clearly proved the baselessness of these rumours. He seems to try to show, however, more than this—viz., that there is a comparative freedom from sickness and disease amongst the inoculated for some time after the operation. The statistics given by Mr. Haffkine certainly seem to show a lessened mortality from general diseases amongst the inoculated which is difficult of explanation. At any rate, the examination of whole groups of inoculated and uninoculated persons living together and belonging to the same races, castes, social position, and families, has clearly shown that the inoculated have not suffered from the operation. It is not generally known that serum from cases of human plague has been tried as a curative agent, but from the notes shown to me there was apparently no benefit obtained. The doses were small—three cubic centimetres and five cubic centimetres once a day and not always that—so this may possibly be the explanation.

It may interest your pharmaceutical readers to know that the source of the seeds known as "chaulmoogra" which are largely used in native medicine as well as in Europe and which have usually been attributed to the species known as gynocardia odorata, is the species known as taraktogenos kurzii and not the tree known as chaulmoogra. This decision has been arrived at by Dr. Watt, the Reporter on Economic Products.

A curious strike of medical students on a large scale is going on in Bombay. The army students and the lady students are taking no part in it. Some offensive writing on the walls was brought home to certain students who were singled out for punishment but who seem to have obtained the sympathy of a large number of the college students. The principal appears to have adopted the punishment of refusing to sign certificates as to moral character, which loses for the culprits the period of a year's study. The strike followed.

Further changes in the organisation and prospects of military assistant surgeons in the Indian Subordinate Medical Department have been made in order to provide an adequate reserve for war or other emergency. These officers will be required for military appointments, for duty with store depôts, marine and telegraph departments, for provincial and railway appointments, and for the formation of a reserve of 15 per cent. of the total for temporary duties and to fill leave vacancies. The pay has been increased and the prospects have improved all round.

A very instructive incident occurred at the Kallang extension works in connexion with an outbreak of malaria. The Javanese workmen had been free from fever until the arrival of a number of Punjabis. These Punjabis were many of them suffering from anæmia and had enlarged spleens. Some Chinese who were also employed turning up the soil escaped. The quarters of the Javanese and Punjabis were adjacent to each other and specimens of anopheles mosquitoes collected from their buildings show them to contain the malarial parasite. It appears, therefore, that the disease was introduced by the Punjabis and conveyed to the Javanese coolies by the mosquitoes. The mere turning up of the soil did not seem to affect the Chinese and they were quartered further off. The disease has apparently been checked by the employment of mosquito curtains, the distribution of quinine, and extensive lime washing. A correspondent of the *Madras Mail* shows that the value of the castor-oil plant against the trouble of mosquitoes lies in its attractiveness for mosquitoes which seem to obtain some nourishment from it. If placed therefore some distance off not even the light of a lamp will attract them away from it. To have a castor oil plant near a sleeper is simply to attract the insect towards him.

The famine returns still show over half a million persons under relief. The monsoon prospects continue to be unfavourable and the rainfall in the areas which want it most has been up to the present very scanty. There has been no rain in Baluchistan, only 26 per cent. in Gujerat, 30 per cent. in Central India, and only 33 per cent. in Upper India.

The peculiar fever of Assam known as kala azar appears to be dying out. The deaths have fallen from 18,597 in 1897 to 9012 last year, but the annual report on the dispensaries in Assam shows an extraordinary increase of skin diseases.

There is a steady emigration of Indian coolies to the various colonies every year. Demerara takes most, but Natal and Fiji as well as Mauritius and Trinidad import them. The total number recruited last year was 18,489. They chiefly go from the North-West Provinces and Oudh. Those returning from Demerara brought back savings on an average of Rs. 139·8 per head; those from Trinidad had an average saving of Rs. 214 per head. The immigrants into Natal seem however to be the best off and to make the largest remittances. The Government of India takes a very fatherly care of all these people and looks well after them.

July 20th.

THE ORGANISATION OF THE PROFESSION

(FROM OUR SPECIAL COMMISSIONER.)

Adoption of a New and Democratic Constitution by the British Medical Association.

It has often been said that medical men are not good business men and certainly the meeting of the British Medical Association at Cheltenham does not belie this impression. On this occasion there were business matters of the utmost importance to be discussed and settled, but garden parties proved far more attractive. A complete revolution has been accomplished by a mere handful of members while the immense majority of the members of the British Medical Association who went to Cheltenham were content to leave all business matters to take their chance. It is doubtful whether any other corporation, professional, scientific, commercial, or trade association would have manifested so much apathy when such important issues were at stake. If the new constitution which has been adopted is worth the paper on which it is written such indifference will never again be witnessed at the annual meetings of the British Medical Association. In future these annual meetings will be attended not merely by members on picnic thoughts intent but by duly elected and paid representatives bearing imperative mandates instructing them how to vote. It is to be presumed therefore that henceforth the business of the Association will be attended to by representatives imbued with the sense of a duty to perform and really qualified to speak on behalf of a large proportion of the practitioners of this country. The paucity of members present to discuss what was qualified on the agenda as the report of the Constitution Committee but what in reality promised a complete revolution of the Association may be explained by the fact that old habits continued under the new order of things. The members evidently utterly failed to realise that there was a new order of things. Formerly the Council of the Association did not believe that they were legally bound to carry out the instructions voted at the annual meetings. As was officially explained the Council had always striven to act according to what they conceived to be the desires of the majority of the Association. But on many occasions they did not consider that the majority vote of a general assembly at the annual meetings represented the majority of the Association and therefore they did not carry out the instructions given. Consequently the utility of adopting resolutions at such general assemblies was more than doubtful, and, presumably, the members grew weary of recording mere pious wishes. Under such circumstances it is not surprising if the rival attractions of garden parties proved a powerful allurement. There was, however, no such excuse at Cheltenham. This time it was fully understood and broadly stated that the Council of the Association have all this while been labouring under a misapprehension and that however poorly the general assemblies at the annual meetings may be attended these assemblies are sovereign and the Council is legally bound to carry out their decisions. That the Council for so many years should have been mistaken as to its legal position and responsibilities constitutes yet further evidence of that lack of business capacity which is widely acknowledged and deplored. Have a few strokes of the pen, a number of votes hastily recorded by a few persons altered all this?

Undoubtedly it is somewhat difficult to believe in the possibility of such a sudden transformation scene. It is all a question of ripeness. Has the day really come for the harvest? Mr. Edmund Owen who reported for the committee appointed to draw up the new constitution, described the ripening of his own mind. He made a most able, humorous, and sarcastic speech. He related that his opinions were not known when he was put on the committee, in fact he did not know them himself, he did not even know that there was a question on which he ought to have an opinion. There is every reason to fear that Mr. Owen was not alone in this state of ignorance, but that even to-day, and in spite of the Cheltenham meeting, this is precisely the position of perhaps the majority of medical men throughout the country whether they belong to the British Medical Association or not. Now, however, that the constitution proposed by the committee—of which Mr. Owen was chairman—has been adopted a good deal more light will be thrown on the subject. To begin with, the unattached member is to be abolished and henceforth every member must join a local branch of the association. Then he must pay 25*s.* instead of a guinea annually. Such a change cannot be effected in silence. Every member who still ignores what has occurred will ask why these alterations have been effected. Some of the members who were formerly unattached to any branch may now that they are forced to join a branch be induced to attend some of its meetings. Then the branches will have to elect representatives, and all this will lead to discussions and explanations and t[illegible] Will this increase of activity and [illegible] the membership of the Association or will it frighten any considerable number of members away? It is difficult to find anyone who is bold enough to prophesy. In any case, the complaints have been loud and long that the British Medical Association did not do anything in regard to the political and economical concerns of the profession. There is the battle of the clubs. The British Medical Association is strong enough and sufficiently numerous to settle that grievance if all its members were disciplined and if they acted in common accord. As yet nothing practical has been done by the Association. Where the battle has been fought it has been fought by small local bodies acting independently of the Association as a whole. The object of the new constitution is to convert the Association into a *fighting* body and to make it take the lead in such matters. There are a few medical unions in this country; their history and militant action have been described at great length in these columns. But these 30 or 40 medical unions or guilds represent only a very small *minority* of the medical profession. It was said that the conference on the organisation of the profession held at Manchester last year represented some 4000 practitioners, but these practitioners were not all in union, at least not in the stricter sense of the word. It is, indeed, because they were so weak, as compared to the great bulk of the members of the profession who remained apathetic, that the idea of capturing the British Medical Association arose, and so far as the voting and carrying of resolutions goes this idea has now been fully realised.

What, however, will be the upshot of these votes? Can the life, habits, mode of action—or rather of inaction—of 16,000 or more practitioners be altered by the votes of less than a hundred among them? If they are really ripe for such a sweeping change then this most audacious attempt may very well prove successful. On the other hand, the fact that five out of six, or perhaps six out of seven, of the medical men who were enrolled as members of the Cheltenham meeting did not take the trouble to participate in the votes or discussion which were to decide their fate does not indicate that their opinions had been ripening. Perhaps, however, those practitioners who feel where the shoe pinches and therefore could not afford to be at Cheltenham, have a far keener appreciation of the importance of the points at issue. It is these absentees who will govern the future meetings. The voice of the poorest practitioner will be as powerful as that of the most wealthy and successful in the election of the future representatives. The Council will no longer be the governing body; its functions are now reduced to that of an executive appointed to carry out the instructions of a representative parliament. This revolution was graphically described by comparing the British Medical Association to a pyramid which stood on its point. The few governed the many. Now the whole thing is reversed and the pyramid is to stand on its broad base and the many are to govern. There is to be proportionate representation. As a rule, and for the more rapid transaction of business, the vote will be by show of hands; but, when desirable, the vote will be taken by card, and "every representative shall record as many votes as there are members in the division or group of divisions which he represents." Then when any constituency has passed a vote on a subject the representative of that constituency must vote in accordance with such resolution whatever his own personal opinion may be. *This* is delegateship and what is termed on the continent an imperative mandate. An amendment was moved to the effect that it was better to call a spade a spade and that therefore the word "representative" should be struck out and the word "delegate" used in its stead. This proposal, however, was outvoted. But if the word "representative" is retained this is done as a matter of tactics rather than of *principle*. A representative is supposed to act according to his own discretion; a delegate must obey the orders of his electors, and the whole wording of the clause clearly indicates that it is delegates and not representatives that are to be elected. Here, again, the question arises whether this discreet veiling of the meaning of the clause is not an indication of the fear that the Association is not ripe for the great democratic revolution that has been accomplished.

On the first day of the discussion on the new constitution there was but a small attendance, composed mainly of the friends of the proposal. Consequently there was very little opposition, comparatively little discussion, and but few amendments. The movers of the amendments were promptly out-voted and in a sitting that lasted only from 2.30 to 5 P.M. 15 clauses with several sub-clauses were adopted. There was certainly some grumbling. It was said that the whole thing was being rushed through, the real fact being that as there was hardly any opposition or even friendly criticism it was easy to progress rapidly. Then it was rumoured that the alarm would be sounded and that the next day the members would come in force to see that their fate should not be decided in such helter-skelter haste and without more careful examination, criticism, and debate. The proceedings on the following day commenced with an address by Sir William Thomson, C.B., on surgery, with special reference to the South African war and the Princess Hall was certainly well filled. It did seem as if this time at least the latter half of the new constitution would be discussed by a more imposing number of members. But no sooner had Sir William Thomson finished his address than a good half of the members present rose and left. Of those who remained the greater part dwindled away one by one. Towards the end of the sitting Mr. H. Nelson Hardy proposed that a recommendation should be made in favour of appointing a committee to advise the editor of the *British Medical Journal*. This met with considerable opposition and it was necessary to count the votes. There were 22 votes for and 20 against. These figures give some idea of the paucity of the attendance. Subsequently there were barely 30 members in the body of the hall and still the clauses of the new constitution were being carried one by one, and this so rapidly that the greater part were not even read out, but their number and heading alone were given. As there were 36 such headings remaining to be voted upon in the course of one single afternoon it was certainly necessary to proceed rapidly. Indeed, the lengthiness of this constitution seems to have frightened a good many members away. To grasp the meaning and bearings of so many rules, details, sections, and subsections was a formidable undertaking, and the weather was very hot.

If it were possible to look upon this project of a constitution in the light of a Bill before Parliament a speaker very justly observed that it would require three or four sessions of the House of Commons to pass such a constitutional enactment. Yet here the whole thing was done in two sittings or about, in all, four and a half hours. Certainly the committee which had prepared the scheme had worked admirably, and had held nine sittings which were well attended. It also evolved within its own ranks a real statesman, Mr. J. S. Whitaker of Yarmouth. At Cheltenham Mr. Whitaker acted as a Prime Minister steering a Government Bill through Parliament. He was ever ready with a concise, lucid explanation which swept away misunderstandings and doubts. His master grasp of the whole subject commanded unbroken and patient hearing. In manner modest, he was yet as firm as a rock, and he courteously but fearlessly criticised men who were much his seniors and have been at the head of the profession for years. If any one can make the new constitution a living reality it is Mr. Whitaker, but there is a weakness even here. Mr. Whitaker's experience is that of Yarmouth, where the profession is admirably organised and unanimous. Such favourable surroundings may make him a little over-confident as to the possibilities elsewhere. The apathy shown at Cheltenham is not encouraging.

Not only had this most important new constitution to be discussed and decided, but, what was quite as important as the adoption of the constitution, this was to be followed by the bringing forward of certain motions which would be a commencement in the practical application of the new order of things. One motion condemned the Midwives' Registration Bill and the other was to impose on all members of the British Medical Association a pledge which would debar them from accepting any post resigned by a fellow member with the approval of his branch. This, of course, is the first principal of unionism. In vulgar parlance it abolishes undercutting. It is the first step that can be taken in fighting the battle of the clubs, but the members of the British Medical Association seemed so little concerned about the battle of the clubs that there was hardly any one remaining in the hall when the matter came up for discussion. Indeed, both motions had to be abandoned because it was rightly felt that it would be ridiculous for such far-reaching principles to be sanctioned by only from 30 to 40 members. This dismal conclusion of what should have been a great and historical sitting is certainly most disconcerting. A new constitution is voted involving very radical changes. Then follow one or two test motions which were to show that the new constitution would be applied in the spirit and direction intended by its principal promoters. This was most critical and more important in a way than the constitution itself, for after all paper constitutions are of but little significance, the whole question rests in their application. It can be understood that some members should have shrunk from the irksomeness of discussing the lengthy and minute details of the new rules, but when it came to the practical question of their application then it was natural to expect that the members would come up in great force. Instead of doing so they allowed the meeting to collapse and in the face of an empty hall the motions which from their practical bearing were the most important of all had to be abandoned. If at these annual meetings anything is to be done affecting the economical interests of the profession it is indeed time that the meetings should be differently constituted. There must be something better than garden-party government and if anything can secure that end the new system of representation by delegates and proportional voting should do it. The future now depends on the constituencies themselves.

THE WAR IN SOUTH AFRICA.

(BY A SPECIAL CORRESPONDENT.)

THE signs of a conclusion of this lingering campaign are slowly but surely becoming more evident. The Boers seem to confine their offensive tactics to the wrecking of a train here and there as circumstances permit, and for the rest they watch our camps and columns from a safe distance and attempt to evade any force sent against them, only fighting when escape is otherwise impossible. The winter is a severe one and the cold nights have a telling effect upon the endurance of even the hardy Boer. Within the last week four prisoners were captured at Brandfort with one boot between them and at the same place it is rumoured that 40 men surrendered because their clothing was not sufficient to protect them from the rigour of the South African winter.

At Cape Town the number of plague cases is diminishing and there seems every prospect that the disease will shortly be stamped out by the energetic means adopted by the medical officers in charge. But whilst the plague is disappearing another annoyance is increasing in severity. Cape Town is rapidly becoming the happy hunting ground for thieves and loafers of all descriptions. All the principal hotels find it necessary to warn their visitors to keep the doors of their rooms locked and even then thefts occur, a wrist watch in one instance being stolen whilst the owner was absent for 10 minutes in his bath.

The discomforts and dangers of travelling on the railway are very numerous. One never knows whether or not there is a dynamite bomb laid under the rails, and in some instances, as at the mishap to the Gordons on the Petrusberg line, the Boers hide themselves within easy range of the site of the accident and shoot the men down as they emerge from the wrecked carriages. In some instances, owing to the destruction of the line in front, the trains are delayed at some insignificant siding where neither food nor drink can be obtained, and the unwary traveller who has not provided himself with a hamper of good things may have to go to bed supperless. Travelling by night in some districts has to be stopped, and the journey from Cape Town to Pretoria takes on an average four or five days instead of 48 hours, which is the usual time taken in times of peace. I recently took eight days to accomplish the journey.

The work of devastating the country, disagreeable as it is to all engaged upon it, is proceeding with certainty. Thousands of sheep, cattle, and horses can be seen collected on either side of the line in immense herds of hundreds of thousands; in some cases one passes by an immense herd nearly half a mile in length slowly and wearily marching to some centre such as Bloemfontein or Pretoria with scarcely a blade of grass and very little water to cheer them on their way. Hundreds of sheep and lambs die on the way from want and exposure. At this time the veldt is almost denuded of any fresh verdure and all that the cattle can find to eat is the grass which has been roasted by the previous summer's sun into a kind of dried hay. Veldt fires are ignited to render the country unfit for the Boers to live in and large tracts of country have been and are being laid waste by this means. It seems to be a common custom in this country to fire the grass early in the winter to give the veldt a chance of coming up fresh and green after the next rainy season, but the fires now are of much larger dimensions than is usual.

The hospitals are everywhere fairly full, but in all there are a certain number of empty beds. The outbreak of enteric fever this year has not been of such proportions as it assumed in the autumn months of 1900. Perhaps this may be partly explained by the fact that a certain proportion of the men in the field have been protected by a previous slight attack from a second infection and from the fact that there is not the same need for haste and of taking long marches on short rations.

The Imperial Yeomanry Hospital at Pretoria is in a flourishing condition. Small convoys of sick and wounded arrive daily. Owing to stress of work in Pretoria Dr. Richmond has been requested to take up duties at the Imperial Yeomanry Hospital there instead of proceeding to Elandsfontein, where a small branch hospital of about 50 beds has been equipped and opened. At present it is intended to keep this branch hospital more as a convalescent camp and for cases of slight ailments, the more serious cases being sent at once to Pretoria.

The chief diseases in evidence are rheumatism, malaria, influenza, and tonsillitis, with cases of heart disease and minor ailments. Enteric fever and dysentery crop up every now and then, but the number of fresh cases is certainly decreasing. The new Yeomanry are not such fine men as their namesakes were either in physique or in general bearing. There seems to be a desire amongst some of them to gravitate to hospitals as the safest and pleasantest places of resort. Such cases of malingering would at once be met by an order which should compel a man to lose his pay of 5s. a day whilst in hospital unless he was specially recommended by his medical officer as a deserving case. It is one of the most difficult things in the world to be sure that a man is malingering and in any case it takes several days of careful watching to make quite sure.

Owing to the absence of any heavy engagements the amount of surgery to be done is not large and it depends chiefly upon accidental injuries, entailing railway accidents, and minor surgery such as abscesses and piles. Hernia and varicose veins are fairly numerous, but owing to the time which must elapse after operation before the patient can resume any active duties it becomes a question as to whether it is advisable in many cases to perform radical cure.

Deelfontein, July 10th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Hospital Sunday and Saturday Fund.

A MEETING of the General Committee of the Manchester and Salford Hospital Sunday and Saturday Fund was held on July 24th. The Sunday collections amounted to £4180 16s. 10d., those on the Saturday (to date) to £3829 12s. 11d., and a balance of over £200 from last year together with bank interest brought the total to £8270 10s. 4d., which the expenses, £556 2s. 5d., reduced to £7714 13s. 11d. It was estimated that about £100 would still be obtained from later Saturday collections and the committee decided to distribute £7600 amongst the medical charities, which is an increase of £1000 over last year's distribution. Manchester, unfortunately, does not approach Liverpool in regard to this special [illegible] of charity.

The Heat and the Drought.

Like most other places in the country Manchester has had its share of hot and dry weather. Perhaps the shade temperature, 88·2°F., recorded on July 20th may prove the highest of the season. The mean temperature of the third week in July was 7° higher than the average of the mean for the corresponding week for the previous 10 years. The mortality rose from 16·9, the average for the previous six weeks, to 20·1. The long-continued drought came to an end on July 25th. It was beginning to be felt seriously and Manchester was put on a shortened allowance of water, notwithstanding the supply from Thirlmere, without which, indeed, it would have been in a much worse case. On one occasion 320,000,000 gallons were added to the reservoirs of Longdendale. The rainfall on that day, as observed at St. Bede's College, for the 24 hours from 9 A.M. on the Thursday to 9 A.M. on Friday, was 2·62 inches, the highest, it is believed, ever recorded for Manchester, and higher than the total for any single preceding month of this year, March and April approaching it most nearly. Curiously enough the rainfall at Longdendale among the hills was half *an inch less than at Manchester, quite reversing the usual* order of things.

The Milk-supply.

The drought has told heavily on the milk-supply, greatly increasing the cost of production, and a meeting of the Cheshire Milk Producers' Association was held at Crewe to consider the question of price and also that of the new milk standard which came into operation at the end of the month. This directly affects Manchester which is very largely supplied from Cheshire and Derbyshire. It was said that present prices did not pay the cost of production, and a resolution was passed appointing a committee from the meeting to meet the milk-dealers of Liverpool, Manchester, Birkenhead, and other towns, and to try to get better prices. Any rise in the price of milk is always to be regretted in the interests especially of the young, but farmers can scarcely be expected to supply it at a loss. As regards the new milk standard a resolution was passed objecting to samples being taken for analysis "after the milk has left the farmers' control" and urging that they should "be taken at the loading station," which seems to be a reasonable request.

Medical Relief and Civil Rights.

At the last meeting of the Manchester Board of Guardians a resolution was passed "in favour of asking the Local Government Board to urge on the Government the desirability of amending the law which prevents persons who are, or who have been, in receipt of medical relief in workhouse infirmaries from voting in Parliamentary or municipal elections." It will be sent to other boards of guardians with a view to concerted action. A letter was received from the president of the Poor-law Officers' Association calling attention and objecting to the condition required by many of the boards of guardians that married couples required as officers shall be without children, *alias* "encumbrances." The board agreed not to use the words in advertising for married officers. The presence of children would no doubt lessen the temptation to drinking among the couples who are now perforce childless.

July 30th.

LIVERPOOL.

(From our own Correspondent.)

The Housing Problem in Liverpool.

For some time past the Housing Committee of the Liverpool Corporation have had under consideration a large scheme for re-housing persons who will be dispossessed by the demolition of about 8184 insanitary houses. The committee have issued their report, in which they state that the number of insanitary houses is now 7500, consisting of 750 houses erected since 1842 and contained in, or abutting on, courts; and 6750 back-to-back houses, erected prior to 1842, having no through ventilation and contained in courts with narrow entrances. Of this number about 15 per cent. are derelict or in respect of which a closing order might be obtained as unfit for human habitation; and this deduction left the number to be dealt with as about 6400. The cost of demolishing these houses might be estimated at £279,000, which sum included the cost of acquiring the sites. With regard to the re-housing adequately of the persons who will be dispossessed it appeared to the committee that they ought, as the work of demolition proceeded, to provide for all those of the dispossessed who would require re-housing by the corporation. The committee estimated that this would involve the erection of 4800 houses, and that it would not be safe to assume as the cost of erecting these a less sum than £720,000. In the letting of these houses the committee proposed to continue the policy which they had already adopted—viz., to accept as tenants those who have been or were to be dispossessed. The committee had already built, or were about to build, 903 houses in 12 streets. They would thereby be in a position of having houses always ready for dispossessed tenants until the work of demolition was completed. With regard to the cost to the ratepayers of the work yet to be done by the committee, assuming that a period of 60 years only was obtained within which to repay the amount borrowed for the purpose, and assuming that the cost of demolition would be £529,000 and that the estimated cost of re-building would be £720,000, the annual charge would be £64,531. From this sum must be deducted £25,000 in respect of the net rents to be received, leaving an annual charge on the rates of £39,531.

The "Celtic" and the Liverpool Hospitals.

The leviathan White Star liner *Celtic* was open for public inspection on July 24th for the benefit of the hospitals, 5,162 persons visiting the ship. The receipts amounted to £258 2*s*., the whole of which will be divided amongst the David Lewis Northern Hospital, the Stanley Hospital, and the Bootle borough hospitals in equal proportions. These institutions are mostly used by employés of the White Star Company.

August 6th.

WALES AND WESTERN COUNTIES.

(From our own Correspondents.)

Newport and Monmouthshire Hospital.

The Newport and Monmouthshire Hospital, which was formally opened by Lord Tredegar on August 5th, is a three-storey brick building with Bath stone facings, and is situated in the town of Newport within grounds about five acres in extent presented to the trustees of the hospital by Lord Tredegar. The out-patient block is placed close to the entrance to the grounds and is quite distinct from the main buildings which stand back from the Cardiff-road nearly 100 ft. There is a total accommodation for 84 patients in six 12-bed and 6 two-bed wards;. 14 beds will be used for male medical cases, 14 for female medical cases, and 14 will be allotted to children; 28 beds will be available for male surgical cases and 14 for female surgical cases. The central block of the hospital is devoted to administrative purposes and on either side are the male and female ward blocks connected with each other and with the administrative block by corridors. On the ground floor of the central building are the house-surgeon's bedroom, bathroom, and sitting-room, the matron's sitting-room and office, the board-room, porters' rooms, and a bathroom. On the first floor are 14 nurses' bedrooms, each 14 feet by nine feet, a nurses' sitting-room and dining-room, a bathroom, and the matron's bedroom, leading out of which is a separate bathroom. On the second floor are the kitchen, the scullery, and the pantries, nine servants' bedrooms, and a servants' hall. The arrangement of each of the ward floors is similar; one description will therefore suffice for the six. There is on each floor one large ward, 11½ feet in height, 50 feet long, and 26 feet wide, intended for the accommodation of 12 patients with an air-space of 1245 cubic feet for each. Eleven of the 12 beds have a window on each side. The walls are covered with Parian cement and painted, and all corners are rounded. Between the beds there are plug connexions fitted in the wall to enable a portable electric light to be used for special examinations. The heating of the large ward is by means of a double-fronted central stove with descending smoke flue and a fresh-air flue, and by hot-water radiators. The sanitary offices are in a corner annexe approached by a cross-ventilated passage. The slop sink of Messrs. Dent and Hellyer is of the fountain pattern for which is supplied a separate cistern—a precaution not always observed where this type of closet is fixed. The nurses' duty room adjoins the large ward and has an observation window in the dividing wall. There are also a patients' bathroom fitted with a porcelain bath, store cupboards, nurses' water closet and lavatory, a two-bed isolation ward, and a convalescent room made particularly attractive by the addition of a corner bay window from which on the upper floors an extensive view across the Bristol Channel can be obtained. The operating theatre is on the ground floor close to the patients' entrance; it has a north-west aspect and is lighted by windows and a top lantern light. The walls are of Parian cement painted white and the angles are rounded. There is an anteroom for the giving of anæsthetics. The floor is of terrazzo sloped towards an opening at the floor level. One of the glazed porcelain sinks has treadle action water fittings. Hot-water radiators are fixed in front of fresh-air inlets at the floor level. The whole building and the grounds are lighted with electric light from the corporation mains, but gas is also laid on to all the rooms. A hydraulic lift is provided of sufficient capacity to enable a patient on a stretcher and an attendant to be taken from one floor to another and a double household lift is fixed in the administrative building. There is telephonic communication between all departments of the institution. In each bathroom there is an electric bell push, and upon being pressed a bell rings continuously until some person pulls a cord hanging immediately outside the bathroom door. This is an addition to the mechanism of electric bells which might well be placed in every public institution. The laundry, mortuary, and post-mortem room are in a one-storey building at the rear of the administrative block. The general arrangement of the hospital is admirably adapted for economical working and a great deal of care appears to have been bestowed upon matters of detail the first cost of which has no doubt been great, but it will be found in the end that the expenditure has been fully justified.

Sanitary Inspectors' Association.

The annual meeting of the Western branch of this Association was held on July 27th at Plymouth, Mr F M Williams, medical officer of health, presiding. Mr Victor Prigg read an interesting paper on the main drainage scheme now being carried out by the Corporation of Plymouth. Mr F M Williams, in replying to a vote of thanks for presiding, remarked that sanitary inspectors should be granted superannuation allowances in the same manner as Poor-law officers. Mr C Seale Hayne, M P, was re-elected president.

August 5th.

SCOTLAND

(FROM OUR OWN CORRESPONDENTS.)

University of Glasgow.

THE July graduation was, as is usually the case, mainly concerned with the "capping" of graduates from the medical faculty. The honorary degree of LL.D. was conferred on Dr James Dunsmure, President of the Royal College of Surgeons of Edinburgh, and on Mr W Mitchell Ramsay, M A, D C L, Professor of Humanity in the University of Aberdeen. Nine gentlemen received the M D degree and there were five successful candidates for the titles M B and C M. The present day degrees of M B and Ch B were conferred on 71 gentlemen and six ladies. Mr Alexander Dery Thompson and Mr W Macalister Brown graduated with "Honours," the former gaining the Brunton memorial prize as the most distinguished graduate of the year, and nine of the graduates were awarded "commendation." After the degrees had been conferred and the class prizes and distinctions announced an address was delivered by Sir Hector C Cameron, Professor of Clinical Surgery. The Senate have appointed Professor Ferguson, Professor Bower, and Professor R M Wenley to represent the University at the celebration of the bi-centenary of the Yale University, U S A, to be held in October next.

The late Mr John Ure, LL.D.

The announcement of the death of Mr John Ure intimates the removal from the civic life of Glasgow of one who in his day and generation rendered yeoman service to the cause of sanitary improvement in his native city. His first entrance on public life dates as far back as the year 1856 when he became a member of the town council and from that date until quite recently he has been more or less concerned with public affairs. The record of the offices to which he was elected by the votes of his fellow townsmen would itself be a lengthy list, and the secure position which his ability, honesty of purpose, courtesy and sense of duty had gained for him in the public confidence and esteem cannot be defined here. It is as a sanitary reformer and administrator that the memory of Mr Ure claims the sympathetic regard of the medical profession. It was early in the 'fifties, after the third invasion of cholera, that he began to display a strong interest in public health questions and the recognition of this led to his appointment as chairman of a committee on nuisances constituted by the town council in 1857. It was one of his early acts to secure the appointment of Dr (now Sir William) Gairdner as the first medical officer of health and it was the combined action of the chairman and the medical officer which swept away the old insanitary tenements and laid the foundation of the present elaborate public health organisation. The cleansing department was put into working order, foul fever dens were demolished, inquiries regarding drainage were instituted and last but not least a public opinion was created and organised. Mr Ure continued for many years to be the active champion of sanitary progress and was an important force in securing the passing of the City Improvement Act under the operation of which substantial workmen's dwellings now occupy the sites previously occupied by foul "lands" and "closes" opposed alike to health and morals. In recognition of his services to sanitation Mr Ure was in 1879 elected a Fellow of the Sanitary Institute of Great Britain, the University conferred on him the honorary degree of LL D and at the expiry of his term of office as Lord Provost of the City he was offered the honour of knighthood which, however, he respectfully declined. In his death there closes a long, generous and honourable career of service rendered for the public good.

University of St Andrews.

At the July meeting of the University Court the plans, specifications, and estimates for the erection of the new conjoint medical school at Dundee were approved and the committee in charge of this matter were authorised to proceed with the building. It was agreed that the installation of the Right Hon Lord Balfour of Burleigh as Chancellor of the University should take place in October. Dr James Musgrove, the lecturer in Anatomy in the University, was elected as first occupant of the Bute chair of anatomy. The followin
were made Dr A M
J Rorie on Mental Dise
Medicine, Dr James Greig, on Clinical Surgery, Dr G Taylor Guild on Diseases of the Throat, Nose, and Ear, and Dr R C Buist on Clinical Midwifery and Gynæcology. The elections to examinerships included Dr A Macphail (Glasgow) in Anatomy, Dr R B Ness (Glasgow) in Materia Medica, Dr D A Welsh (Edinburgh) in Pathology, Dr W J [illegible] (Edinburgh) in Forensic Medicine and Public Health, Dr R Kennedy (Glasgow) in Surgery, Dr W Russell (Edinburgh) in Medicine, and Dr W Fordyce (Edinburgh) in Midwifery. It is announced that Professor W S McCormick of University College, Dundee, has been elected secretary to the Carnegie Trust.

Glasgow Royal Infirmary.

Dr T K Monro, one of the physicians to the Infirmary, has been elected Professor of Medicine in St Mungo's College. Dr G Ritchie Thomson, who has for some months been on service in South Africa, has resigned his position as assistant surgeon, and Dr John Patrick has been elected as his successor.

Morningfield Hospital, Aberdeen.

At the last meeting of the acting committee of the Morningfield Hospital for Incurables, Aberdeen, it was reported that there being 80 patients in the institution there was at present no room for any more. It was agreed to carry out, according to a plan by Mr W Kelly, architect, of Aberdeen, certain alterations and additions to the buildings, including a new dining hall for the patients, the enlargement of the wash-house and laundry, kitchen, scullery, and larder accommodation, the erection of a private room for the medical officer, and additional bathroom and lavatory accommodation.

August 6th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Army Medical Service Committee.

A LETTER from Sir Thornley Stoker appeared in the *Times* of July 16th calling attention to the absence of Irish representation from the committee appointed to consider the state of the Army Medical Department. On July 18th in the House of Commons Mr. Balfour stated, in reply to Mr. Healy, that Sir William Thomson, C.B., of Dublin, had been asked to join the committee representing Irish schools of medicine. Sir Thornley Stoker has again addressed a letter to the *Times* on the subject, in which he complains that the representation is even now insufficient when it is remembered that in 1893 nearly half of the medical officers of the naval and military services of the Crown held Irish diplomas. The fact that the number has fallen now to 37 per cent., as stated by Mr. Brodrick, shows that young medical men from the Irish schools are more than dissatisfied with the prospects afforded by the service at present.

The British Pharmaceutical Conference.

The opening meeting of the British Pharmaceutical Conference was held in the lecture theatre of the Royal Dublin Society at Trinster House on July 30th, Mr. Druce, M.A., President of the Conference, being in the chair. The inaugural address was delivered by the chairman and it dealt with the present position of the science of pharmacy. The members were afterwards entertained at luncheon in the Mansion House. On the previous evening a reception was held at the Science and Art Museum, Kildare-street, at which the President was present with some 200 guests. The Conference terminated on August 2nd.

The Epidemic of Typhoid Fever in Belfast.

At a meeting of the City Corporation of Belfast held on August 1st an animated discussion took place on the deplorable state of affairs which was consequent upon the continued and increasing prevalence of typhoid fever in the city. During the period between June 16th and July 20th out of a total of 765 cases of zymotic diseases which were notified 505 were those of typhoid fever, the others being 168 of simple autumn fever, 30 of erysipelas, 29 of scarlet fever, 21 of diphtheria, 11 of croup, and one of typhus fever. The worst feature of the present outbreak of typhoid fever is that now it is prevalent in all the districts of Belfast, in the north, east, and west parts of the city and on both sides of the river. There were 167 deaths from zymotic diseases. Again, at the present time a serious outbreak of measles is present in Belfast of an unusually fatal type, having caused 55 deaths, and to crown all there were 133 deaths from phthisis and 104 from diseases of the respiratory organs. Further, while such figures are serious enough they are much more suggestively alarming when it is borne in mind that in the corresponding period of last year the deaths from zymotic diseases were 36, those from phthisis 112, and those from diseases of the respiratory organs 91, making a total of 203 from chest affections. The state of affairs as disclosed in the report of the medical officer of health of Belfast presented to the city corporation clearly indicates that a very full and exhaustive independent inquiry is needed as to these recurring epidemics of typhoid fever, which, apart from the terrible results to the inhabitants themselves, are doing the city so much injury abroad. Alderman the Right Hon. W. J. Pirrie, D.L., made the very practical suggestion that all personalities and fights between members of the corporation and officials should be set aside and that they should do their best to remedy the important matter before them. If they all tried to follow in the footsteps of those who had made Hamburg clear of the disease (and it was a difficult place to make right) they might be able to avoid the increase of typhoid fever. He advised the chairman to get information as to what had been done in that city. It is said that the Water Commissioners will shortly issue a counter report to the one recently brought out at the instance of the Public Health Committee which suggested the water as being the cause of the present outbreak of typhoid fever.

August 6th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Contagiousness of Alopecia Areata.

THE Academy of Medicine has devoted much time to the consideration of this question, which is an ever-recurring subject of discussion. In a communication read by M. Jacquet a good while ago the opinion was expressed that alopecia areata was not a contagious disease and was not produced by a parasite, but was a trophoneurosis dependent on disordered nutrition, in proof of which the existence of a change in the proportions of the saline constituents of the urine was relied on. On the occasion of the presenting of a communication by M. Dezautière (Le Creusot), M. Hallopeau in his turn read a report in which he showed that of the arguments against the contagiousness of this disease not one possessed any real value, and that, on the other hand, proofs of its transmissibility were plentiful. There were numerous instances quite indisputable of small epidemics of alopecia areata in houses, in villages, in barracks, and elsewhere. The occurrence of epidemics in schools was equally well established; an additional example has been supplied by one observed by M. Dezautière in a school at Le Creusot, where two children who came from Paris suffering from alopecia areata infected successively several of their school-fellows, the teacher, and the children of another school. Moreover, there was no doubt that the clinical phenomena presented by alopecia areata were those of a parasitic disease progressing by successive auto-inoculations. Nevertheless, as the parasite has not yet been identified, and as it was certain that the disease was not transmitted by infection at a distance, being scarcely propagated except by direct contact, it was quite wrong, according to M. Hallopeau, to exclude the victims of this complaint from schools and offices; all that was required was that they should be careful to keep their heads covered, and it would be reasonable to amend the hygienic regulations in this respect. M. Du Castel was of opinion that alopecia areata was much less contagious than was formerly supposed, and it even appeared that there were varieties of it devoid of any contagious quality; but notwithstanding this it was the fact that no sufferers from the disease were allowed to remain in administrative offices, in workrooms, in shops, or in schools. It was desirable, however that less severe measures should be taken with respect to these persons and that they should not be treated as pariahs. M. Chauvel said that in the army there was no doubt about the infectiousness of the disease, regard being had to the numerous epidemics which make their appearance after a man suffering from it has joined. Beyond a doubt there were forms of it which were not contagious, but since no means of distinguishing them have as yet been discovered it was right in all cases to take precautions against the possibility of transmission. M. Fournier believed that it might be positively stated that in the great majority of cases the disease was not contagious; he regarded the measures taken against it as being far too severe, and he compared it with leprosy which, under some circumstances, was not found to be transmitted to those with whom the leper came in contact. It was also necessary to recognise that in addition to true alopecia areata, which was perhaps contagious, there were quite a number of pseudo-alopeciæ (in French "pseudo-pelades") or peladoid conditions which were not alopecia areata at all, particularly those which depended on syphilis. M. Fournier, therefore, agreed with M. Du Castel in thinking that the prospects of young persons suffering from alopecia areata ought no longer to be endangered, as happened too often, by excluding them from schools and colleges.

Actions-at-law brought against Medical Men.

The French law courts habitually treat medical men with extraordinary harshness, examples of which tendency I have frequently had occasion to mention in THE LANCET. Cases of this kind have been increasing for some time past, and the injustice of judgments which have been delivered have at last come to be bewildering; it appears as if the judges were actuated by a positive animosity against medical men and were endeavouring to increase the difficulties of practising a profession the conditions of which become worse every day. Recently a medical man attached to the dental clinic of the Hospital for the Blind requiring cocaine for a small operation on a patient sent a ward attendant to get some from the hospital dispensary The bottle brought back by the attendant was labeled "Chlorhydrate de Cocaine" but after the operation the patient suffered from severe sloughing and from necrosis of the jaw, for the bottle contained corrosive sublimate. The patient brought an action against the medical man and the courts held that the latter was responsible, as he argued that he could not analyse the contents of the bottle before the operation, that the bottle came from the dispensary with a label in due form and that such an interpretation of the law would make it impossible for any medical man ever to perform a surgical operation the judgment stated that the medical man had a simple way of avoiding the mistake—namely by going to the dispensary for the drug himself One is lost in astonishment at such decisions the effect of which is far reaching because the public begin to perceive that in taking legal proceedings [illegible] advantage and [illegible] or instance not [illegible] a young man [illegible] and as he was returning home accompanied by her she asked him what was the nature of her son in law's illness Having replied that it was tuberculosis he was subsequently proceeded against by the patient and compelled to pay a heavy penalty A patient who had been treated in hospital for a fracture of the leg is now bringing an action against the surgeon on the plea that the usefulness of his leg has not been fully regained.

August 5th

BERLIN

(FROM OUR OWN CORRESPONDENT)

Female Medical Students in Germany

A RECENT number of the *Deutsche Medicinische Wochenschrift* contains some interesting statistics of the female medical students at present attending the German universities As I have mentioned on a former occasion[1] the Government is very favourably disposed towards medical study by women A few years ago there were no female medical students in German universities and German women desiring to become qualified as medical practitioners had to go abroad especially to Switzerland where no distinction was made in the conditions of study on the ground of sex The principal obstacle to women studying medicine in Germany was first that the entrance examination (Abiturienten examen) was not open to them because there were no "gymnasia" where females could receive training in classics mathematics &c Moreover, even if they had been admitted to the universities it was of little use for them to study because they were not allowed to pass the medical examinations necessary for qualified practitioners in Germany Matters have now been altered by the institution of gymnasia for the female sex and by a decree of the Federal Council allowing female medical students to present themselves for the State examination even though they may have taken part of their curriculum at foreign universities The official representatives of the profession constituting the medical chambers disapproved of the admission to medical practice both of women and of male students who had not been educated at gymnasia because they feared that the accession of these new classes of students would cause overcrowding in the profession The statistics of female students however, which have been collected by Professor Eulenburg show that female medical students have not come forward in such numbers as had been anticipated According to information supplied by all the German universities that of Munich only excepted where no particulars were obtained the total number of female medical students was only 95 of whom 56 were foreigners and 39 were Germans The greatest number were found in Berlin—namely, 25 of whom 21 were foreigners Next on the list came Leipsic with 24 of whom 22 were foreigners, then came Freiburg with 18 (including 14 foreigners) Halle with 12 (including nine foreigners) Heidelberg with six Bonn with five Breslau with two Strasburg with two and Konigsberg with one at the last mentioned five universities none of the female students were foreigners The preponderance of the foreign element among the female students is easily explained by the fact that foreign ladies when not wishing to undergo the State examination are admitted to attend the lectures without passing the entrance examination Many of the German universities have no female medical students at all—for instance Erlangen Giessen Göttingen Greifswald Jena, Kiel Marburg Rostock, Tübingen and Würzburg It is interesting to compare the number of the female medical students in Germany with those attending some of the Swiss universities Berne University has no less than 188 (of whom one is a German and 180 are Russians) Lausanne University has 61 and Zürich University has 85 (of whom 12 are Germans) so that Switzerland is evidently well patronised by female students The net result is that the total number of female German medical students is 52 of whom 39 attend German and 13 attend Swiss universities The increase of future medical practitioners of the female sex when compared with the number of the medical profession in Germany (amounting to 27 374) will therefore not be exceedingly great and Professor Eulenburg rightly observes that owing to the small number of medical women the representatives of the profession ought not to show any unfriendliness towards them

Professor Virchow on the Bacteriology of Tuberculosis

The Berlin Medical Society met for the last time before the summer holidays on July 25th Professor Virchow being in the chair The proceedings were not of general interest and the attendance was very small as the majority of the members had already left Berlin At the end of the meeting Professor Virchow instead of delivering the usual valedictory address alluded to the recently enunciated views of Professor Koch as to the non identity of tuberculosis in cattle with that affecting the human subject In his sarcastic style he remarked that he was happy to find that Professor Koch's views had undergone a change and were now in accordance with his own, for he had maintained that the mere presence of the Koch bacillus was not the essential thing in tuberculosis, a tubercle was in his opinion a growth with a distinct anatomical structure, and he had always protested against the bacteriologists terming *anything a tubercle simply because a Koch bacillus happened* to be present He said that the adherents to Koch's theory had believed his view to be rather old fashioned but it did not annoy him to recall to mind that he had sometimes been superciliously treated by the younger bacteriologists Professor Virchow's ironical words produced a great impression *on the meeting*

July 29th

Obituary.

JOHN SAMUEL SLATER M R C S Eng , L S A J P ,

MAYOR OF EVESHAM

THE death is announced on July 25th of Mr J S Slater which took place at the comparatively early age of 54 years after an illness of *only three days duration* He received his medical education at St Thomas's Hospital where he obtained the gold medal in general distinction and was resident obstetric physician He settled in Evesham in 1872 and on the retirement of the late Mr Anthony Martin from practice due to illness about that time he joined his son Mr A H Martin in partnership and with him he carried on a wide and extensive practice He was elected a member of the Evesham Town Council in 1879 and last November he was chosen mayor of the borough an office which he filled with great distinction so much so that the appointment met with the warmest approval from all sections of the community In a most eventful year he was always ready to carry out the duties devolving upon him among these may be mentioned those connected with the death of Her late Majesty the Queen the proclamation of the King the reception of the Gloucestershire and Worcestershire Agricultural Society in the town in June on the occasion of the annual show which lasted for three days and also the reception of the local volunteers from South Africa About five years ago he was placed on the Commission of the Peace for the borough and was very conscientious in the discharge of his magisterial work. Mr Slater was a man of high principle and honour and was greatly esteemed by all those with whom he came into contact in the exercise of his profession. He was attacked with acute gastro-enteritis on July 22nd, upon which heart failure supervened. The funeral was of a public nature and references were made to the sad occurrence in all the places of worship in the town. Mr. Slater was twice married and is survived by his widow, one son, and four daughters.

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[1] THE LANCET Sept 8th 1900 p [illegible]

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Yersiloff, *privat-docent* of Neurology in Moscow.—Professor Karl Langenbuch, surgeon-in-chief to the Lazarus Hospital, Berlin.—Dr. Delpeuch of Paris.—Dr. Marston, a New York orthopædic surgeon.—Dr. Salishcheff, Professor of Surgery in the University of Tomsk.—Dr. Viertel of Breslau, a well-known surgeon whose speciality was diseases of the urinary organs.

Medical News.

VICTORIA UNIVERSITY.—In the Faculty of Medicine the following candidates at examinations held in July were successful:—

FINAL EXAMINATION.

Part I.—Roy Appleton and H. M. Birkett, Yorkshire; Walter Briggs and G. H. Brown, Owens; A. E. Burkhard, Yorkshire; A. G. Christian and J. A. Davenport, Owens; R. T. Dobson, University; J. E. Floyd, W. P. Grant, and P. T. Harding, Owens; J. L. Hawkes and H. E. Heapy, University; James Hindshaw, G. R. Hitchin, Alexander Hodgkinson, C. H. H. Hopwood, Arthur Howard, J. R. Hutchinson, H. L. Jenkins, S. J. C. Johnson, and J. A. Jones, Owens; G. W. N. Joseph, University; R. G. Ladell, Yorkshire; A. W. Latham and G. H. Leigh, Owens; J. A. Longley, Yorkshire; Joseph Longworth, Owens; Percival Pollard, Yorkshire; Arthur Richmond, C. A. Ricketts, W. E. Rothwell, J. A. C. Roy, S. H. Ryan, F. W. Scholield, W. F. Shaw, and A. F. Thompson, Owens; Ernest Tinker, Yorkshire; A. E. Townley and F. E. Tylecote, Owens; G. F. C. Walker, University; and T. B. Wolstenholme, M. S. Wood, and W. S. Wrigley, Owens.

Part II.—D. M. Alexander and E. L. Anderson, University; M. B. Arnold, Owens; Herbert Bates, University; A. D. Beckett, Owens; J. L. Beldoes, University; S. B. Brentnall and H. N. Bridge, Owens; Henry Brown, Yorkshire; E. R. Cooper,† J. F. Corson, J. M. Cort, and E. N. Cunliffe,* Owens; S. W. Davies, University; D. J. Ferris, Owens; A. H. B. Fletcher, Yorkshire; F. S. Fletcher, Owens; J. A. C. Forsyth, Yorkshire; Mercier Gamble† and Walter Garstand, Owens; G. W. Gelderd† and V. J. Glover, University; P. H. Green† and J. W. Greenwood, Owens; F. Griffith, University; F. W. Harrowell, Yorkshire; Walter Hickey and W. C. Johnson, Owens; R. J. Jones and R. E. Kelly,† University; James Kemp and Charles Mackey,† Owens; J. C. Mann, University; S. B. Mehta and A. H. Priestley, Owens; T. F. Pugh, University; P. A. H. Radcliffe, Yorkshire; H. H. Rayner, Owens; E. C. Roberts, University; F. M. Rodgers and F. R. Sawdon, Owens; Edwin Saville,† Yorkshire; G. H. Shaw, W. R. N. Smithard, and J. H. Stephens, Owens; W. A. Stott and J. H. Sutcliffe,† Yorkshire; H. G. Tansley,† Owens; A. R. Thompson, Yorkshire; Harold Thorp, R. N. West, H. W. Whiteley, T. B. Williams, and B. M. Wilson, Owens; F. P. Wilson, University; and W. J. Woodyatt and J. G. Woolham, Owens.

* Awarded first-class honours. † Awarded second-class honours.

SECOND EXAMINATION.

A. Anatomy and Physiology.—R. A. H. Atkinson, Owens; J. A. M. Bligh, University; F. L. Boag, Owens; Neville Bradley, University; Archibald Cambell, J. B. Dalton, J. A. Davies, J. P. Garlick, Marshall Hooper, W. H. Judson, F. H. Lacey, A. S. McNeil, W. Y. Martin, Stuart Murray, and C. S. O'Neill, Owens; W. V. Pegler and E. W. Reed, Yorkshire; G. H. H. Russell, Owens; Henry Woods, University; and A. R. Wright and William Wright, Owens.

B. Materia Medica and Pharmacy.—Fred Bailey and F. P. H. Birtwistle, Yorkshire; J. A. Blig [illegible] Boag, Owens; J. L. Brown, University; [illegible] therine Chisholm, Catherine L. Corbett, [illegible] J. B. Dalton, G. D. Dawson, H. S. Dixon, R. L. Ferguson, and W. G. Fuller, Owens; F. W. M. Greaves, Yorkshire; A. E. Grisewood and W. L. Hawksley, University; W. H. Hey, Owens; Pantland Hick, University; E. E. Hughes and Ernest Hulmes, Owens; G. H Joseph and G. J. Keane, University; Lawrence Kilroe, E. C. Lea, and Hector Mackenzie, Owens; James McClellan, University; H. J. Macvean, Yorkshire; W. Y. Martin, Owens; R. H. Mole and L. D. Napier, University; R. K. Porter, Owens; R. B. Radcliffe, Yorkshire; F. G. Ralphs, Owens; J. S. Rowlands, University; G. H. H. Russell, Owens; G. C. Scott, University; J. F. Smith, Owens; J. N. M. Sykes, University; Philip Talbot, F. P. S. Thomas, and Leonard Thorp, Owens; Herbert Tomlin, Yorkshire; T. E. Walker, University; T. W. Walker, Owens; H. W. L. Waller, University; F. J. Walton, Jerry Whitehead, and W. D. Wilkins, Owens.

DIPLOMA IN PUBLIC HEALTH.

W. S. Sinclair, W. H. Waddington, M.B., J. W. Wells, and R. H. Wilshaw, M.B.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS OF EDINBURGH AND FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—At the July sittings of the Scottish Conjoint Board held in Glasgow the following candidates passed the respective examinations:—

First Examination—William Noble Walker, James Taylor (with dis- [illegible] Alfred
tinction), James Alfred A [illegible] hool,
Edwin M'Dougal, all of [illegible] llege,
Glasg [illegible] and
Glasg [illegible] er, and Daniel
Willia [illegible]
Thom [illegible] rshall Metcalfe,
Second [illegible]
Ander [illegible] Miller Ramsay,
Second examination, five years course. [illegible] Thomas M'Master Glen,
David Haig, James Booth-Patterson, Thomas M'Master Glen,
and Alexander Glen, all of St. Mungo's College; William Arthur
[illegible] both of Queen's College, Cork; Patrick
Magill [illegible] y; and Cecil James Todd,
Franci [illegible] castle.
Durha [illegible] Thomas Longmore Ashford,
Third ex [illegible]
Anderson's College Medical School; Alexander Russell Young,
Robert Calder Blyth, David Roberts Williams, and Thomas Weir
[illegible] College, Glasgow; David Christie and
M'Cubbin [illegible] d St. Mungo's
R. Vithal [illegible] e University,
College, [illegible] Cork; Grace
Dublin; [illegible] lon School of
Eleanor [illegible] een's College,
Medicine [illegible]
Belfast; Frederick Herbert Maberly, Mason College, Birmingham;
and Arthur G. Jackson [illegible] co-operating
Final Examination (and [illegible] Noble, Oliver
authorities).—John M [illegible] w, John Bell
Scanlan, Robert Ward [illegible]
Walker, and John Kean, all of St. Mungo's College; Marion Ethel
Unwin and Clara [illegible] School of Medicine for
Women; Sydney P [illegible] and William Alexander
Reid, all of Melbo [illegible] Cooper, Durham Uni-
versity Medical Sc [illegible] ity College, Liverpool;
Archibald MacMillan, Anderson's College Medical School (with
honours); Joseph Dalby Andrews, Yorkshire College of Medicine;
and Henry Christian Ernest Quin, Queen's College, Cork.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berne:* Dr. von Zehender, formerly Professor of Ophthalmology in Rostock, has presented his library to the University of Berne.—*Breslau:* Dr. Roland Sticher has been recognised as *privat-docent* of Midwifery and Gynæcology.—*Erlangen:* Dr. Ernst Graser has been offered the chair of Surgery. Dr. Aichel has been recognised as *privat-docent* of Gynæcology.—*Helsingfors:* The Czar has granted the petition of the Senate in favour of the adm[illegible] of female students to the University. —*Jena:* Dr. Seidel [illegible] of Pharmacology, the lectures in which subject will for the present be given by Professor Stintzing. Dr. J. A. Grober of Berlin has been recognised as *privat-docent* of Internal Medicine.—*Moscow:* Dr. Gulevich of Kharkoff has been appointed Extraordinary Professor of Medical Chemistry; Dr. Karusin has been appointed Professor of Descriptive Anatomy.—*Odessa:* Dr. Medviedeff has been appointed Extraordinary Professor of Physiological Chemistry.—*Paris:* Dr. Landouzy has exchanged his chair of Therapeutics for that of Clinical Medicine.—*Strasburg:* Dr. F. Weidenreich has been recognised as *privat-docent* of Anatomy and Comparative Anatomy.—*Tübingen:* Dr. Albert Dietrich has been recognised as *privat-docent* of Pathological Anatomy.—*Vienna:* Dr. von Widerhofer is resigning his chair of Children's Diseases which has been offered to Dr. Escherich of Gratz. Dr. R. Kraus has been recognised as *privat-docent* of General and Experimental Pathology.

PRESENTATIONS TO MEDICAL PRACTITIONERS.—After the distribution of the certificates and prizes to the St. John Ambulance Association first aid classes held at Assuan, Upper Egypt, among the Englishmen employed at the Great Dam Works by Messrs. John Aird and Co. and the Egyptian Government, Mr. A. T. White, the chief surgeon to Messrs. Aird's Hospital and to the Government, was presented by the members of the class with a carved "Mushrabieh" screen and a case of pipes and gold and amber cigar and cigarette tubes in token of their regard and in appreciation of his services as lecturer to the class. Of this class of 17 members 14 qualified for the certificate of the association and it is the first class held by the association in Egypt. At Assuan, where accidents are so common and so severe, the members have done good work in rendering first aid to those injured by blasting and through accidents with machinery and also to the many cases of heat apoplexy which are bound to occur where Europeans have to work in a heat which has registered not infrequently 122° F. in the shade, and where it is constantly in the daytime from 110° to 112°.—On July 26th, at 41, Belsize-park, Dr. Ford Anderson presented Dr. Edmund Gwynn, on behalf of the *medical practitioners of the neighbourhood, with a pair of* silver candelabra and a silver bowl, together with a handsomely bound album with 60 signatures, on the occasion of his retirement from the post of medical officer of health of Hampstead; and on July 24th, at the Hampstead Town Hall, Professor Stokes presented Dr. Gwynn with a set of four silver bowls on behalf of his colleagues on the Hampstead borough council.—*After the meeting of the Epsom Board of Guardians* held on July 31st, Mr. E. B. Jay, on behalf of past and present members of the Epsom Urban and Rural District Councils and Board of Guardians, presented a silver tray and an illuminated address to Mr. Edward L. Jacob, M.R.C.S. Eng., L.S.A., who has been medical officer of health of the above-mentioned districts for upwards of 27 years.

APOTHECARIES' HALL, IRELAND.—At the annual meeting of the General Council of the Apothecaries' Hall of Ireland convened by the Act of Incorporation, 1791, on August 1st, the following were duly balloted for and elected to hold office for the ensuing year ending July 31st, 1902:—Governor: Mr. George A. Stritch. Deputy-Governor: Dr. Arthur Atock. Directors: Mr. Hugh A. Auchinleck, Mr. John Evans, Mr. William V. Furlong, Dr. J. Adam Johns, Dr. Thomas D. Finucane, Dr. Edward Hanrahan, Mr. Robert Montgomery, Mr. Robert J. Montgomery, Dr. Richard G. O'Flaherty, Mr. James Raverty, Mr. Joseph A. Ryan, Mr. James Shaw, and Mr. Charles R. C. Tichborne. Representative on the General Medical Council: Mr. Charles R. C. Tichborne. Secretary: Mr. Robert Montgomery.

LITERARY INTELLIGENCE.—In order to bring the late Dr. Norman Kerr's valuable and exhaustive work on Inebriety within the reach of the increasing number of those interested in the study of the subject the price of the enlarged third edition has been reduced to 7*s.* 6*d.* net. Mr. H. K. Lewis is the publisher.

Parliamentary Intelligence.

HOUSE OF COMMONS.

FRIDAY, AUGUST 2ND.

Medical Examination for the South African Constabulary.

MR. MUNRO FERGUSON asked the Secretary of State for the Colonies whether his attention had been called to the fact that Scottish candidates for the South African Constabulary had to proceed to London for [illegible] at the London recruiting office, as, apart from the medical examination, it is necessary that they should be seen by the constabulary re[illegible] I have sanctioned the grant of [illegible] Africa to selected candidates [illegible] expense to which they have been put. No difficulty is experienced in obtaining an ample supply of suitable candidates under the present conditions of recruiting, and so far, I believe, only one actual complaint has been received from Scotland.

The Improvement of Barracks.

Lord STANLEY announced that the War Office had decided to ask Parliament for money for the extension and improvement of many of the barracks in various parts of the United Kingdom.

Burgh Sewerage, Drainage, and Water-supply (Scotland) Bill.

This measure was read a second time and referred to the Grand Committee on Law.

MONDAY, AUGUST 5TH.

The Home Office and Lead-poisoning.

At this sitting of the House, on the vote for the salaries and expenses of the Home Office, several Members, including *Sir* CHARLES DILKE, Mr. TENNANT, and Mr. JOHN BURNS, called attention to the question of lead-poisoning in various industries and the action of the Home Office in this connexion.—Mr. RITCHIE, in the course of his reply, said that it was matter for congratulation all round to find that the number of lead-poisoning cases in 1900 had considerably decreased, and that the cases of phosphorus poisoning had disappeared. Complaint was made that the Home Office had been extremely slow with reference to the new rules. He assured Members that he had done his best to prevent delay in getting the question adjudicated, but negotiations were going on with the manufacturers at [illegible] nt was not without hope [illegible] arrived at. *If it had been* [illegible] with the manufacturers [illegible] postpone dealing with it [illegible] operation of arbitration. Looking at the condition of things at the beginning of the year, he came to the conclusion that, inasmuch as the law did not place on the Home Secretary the ultimate responsibility of deciding the question it was desirable to settle it by a *reference to arbitration. There had been some delay in* carrying the question to arbitration, but the two arbitrators had been decided upon and also the umpire. Lord James had undertaken at the request of the arbitrators to act as umpire, and although he could not promise any immediate decision he thought that members might rely upon it that no delay would be caused by Lord James if [illegible] allowed [illegible] trying [illegible] take [illegible] left [illegible] were convinced that there remained some room for improvement in the working of this dangerous material by which a still greater reduction could be made in the number of persons killed and permanently injured by this most desolating complaint it would have been most unwise on their part, and indefensible as well, to have allowed the question to rest where it was.

The Fees of Medical Witnesses.

Mr. [illegible] Home Office vote, raised the question of [illegible] attendance at police-courts and [illegible] which had never received adequate [illegible] on an Act of 1858. For a police-[illegible] for a medical witness was 10*s.* 6*d.* [illegible] n, for there were instances where [illegible] not the funds with which to make [illegible] sent to the assizes or the sessions the payment was a guinea for a day's attendance with an allowance if the witness had to remain in the town overnight. [illegible] nd refused £2 12*s.* 6*d.* [illegible] and two other long [illegible] fare. For such [illegible] and an [illegible] a couple [illegible]

[illegible] where they were celebrated for their economical administration, the fees given [illegible] those which appeared to be given in [illegible] the fees were fixed a good many yea[illegible] circumstances had in some degree changed. But while he did not dispute the fact that the amount of remuneration was small, it must be remembered that the *cost of prosecutions was great, and that they ought to be extremely* careful before they increased it unduly. Moreover, they could not take into account one class of witnesses merely, they must take into account the whole scale, and that was rather a formidable thing to undertake.

TUESDAY, AUGUST 6TH.

The Army Medical Department Report.

[illegible]

Questions about Tuberculosis.

Sir WALTER FOSTER asked the Secretary to the Treasury, as representing the Postmaster-General, whether his attention had been called to the conclusions of the British Congress on Tuberculosis, more [illegible] master-General has not received any authentic record of the conclusions of the British Congress on Tuberculosis, but he is considering what action it may be desirable for the department to take in regard to the matters referred to.—Mr. FIELD asked the President of the Local Government Board whether [illegible] respecting the admi[illegible] [illegible] o and report upon the [illegible] as intended to put a stop [illegible] that a decision had not at prese[illegible] to the matter referred to [illegible]

[illegible] asked the Chief Secretary to the Lord Lieutenant of Ireland, whether, in view of the pro[illegible] statements recently made by Professor Koch, to the effect that [illegible] tuberculosis of bovine animals was not transmissible, or but slightly so, to the human subject, and in view of the confiscations and trouble to which those engaged in the dairy and live-stock industries were being subjected in consequence of the assumption that the milk and meat of tuberculous animals were capable of conveying the disease to human beings, he would cause experiments to be carried out by the Local Government Board, in conjunction with the Department of Agriculture in Ireland, with the o[illegible] of setting finally at rest the question as to the transmissibility of bovine tuberculosis to the human race, and thereby either removing the restrictions alluded to or establishing their necessity.—Mr. Wyndham replied: This matter is engaging the attention of the two authorities mentioned in the question.—Mr. Field asked: Am I to understand that an inquiry of this nature will be made?—Mr. Wyndham answered: The two authorities are in conference and I do not know whether they have yet determined whether an inquiry is necessary.

Royal Irish Constabulary and First Aid.

Mr. Wyndham, in reply to a question, stated that all recruits in the Royal Irish Constabulary undergo a course of instruction in first aid treatment of the sick and wounded.

THE NEW FACTORY AND WORKSHOP LEGISLATION.

PROCEEDINGS IN THE GRAND COMMITTEE.

The Grand Committee of the House of Commons on Trade at its meeting on Thursday, July 25th, completed the consideration of the Bill of the Government to amend the Factory and Workshop Acts. Several subjects of special interest to medical men were discussed at this meeting.—Mr. Trevelyan moved the adoption of a new clause designed to prevent women in factories taking away work to do at home within four weeks of their confinement. The hon. Member called the attention of the committee to a report by Miss Deane, factory inspector, in which it was stated that a woman only a few days after her confinement was found washing at home for the laundry at which she was ordinarily employed. The law prevented her working in the laundry but allowed her to take work to her own home, where the conditions were much worse than in the laundry. This, he submitted, was a state of things which ought to be stopped.—Mr. Ritchie, however, opposed the clause. The effect of it, he said, would be to prevent women doing any work, no matter how light, for four weeks after their confinement. He agreed that women so circumstanced should not overwork themselves, but he thought it would be a great hardship upon many of them if they were prevented by law from doing any work at all, because it might seriously interfere with their means of livelihood. —The Committee negatived Mr. Trevelyan's proposal without a division.—A new clause, of which notice had been given by Mr. John Burns, saying that "after the first day of January, 1904, an underground kitchen of any hotel or restaurant shall not be used for the cooking or preparation of food for sale," was ruled out of order by the Chairman of the Committee.—Sir Fortescue Flannery moved to insert in the Bill a clause in these terms—viz.: "The Secretary of State for the Home Department may by order make regulations for the better investigation bacteriologically of anthrax disease."—The Chairman ruled the clause out of order as proposing something outside the scope of factory legislation.—Sir Fortescue Flannery pointed out that it dealt with a disease acquired only in factories, and Sir Charles Dilke reminded the Chairman that anthrax was specially named in connexion with other highly dangerous diseases in the Factory Act of 1895.—Mr. Ritchie said it was perfectly true that anthrax came within the purview of the Home Office, but this clause proposed to convert the Home Office into an investigating department for which it had no sort of equipment.—After some further debate, Sir Fortescue Flannery altered the form of his proposed clause, making it read, "The Secretary of State for the Home Department may, by order, make regulations as to the reporting by factory inspectors and surgeons of cases of anthrax disease," and the Chairman allowed him to move it in this form. The hon. Member explained that the employers and the employed who were concerned in this matter were agreed that there should be better facilities for the investigation of this terrible disease and they had adopted a form of rule. Medical opinion, however, had not approved that form of rule. Medical opinion was that regulations had better be left to the discretion of the Secretary of State, and now all three interests were in agreement that the Secretary of State should undertake this duty.—Mr. Ritchie said that if he did not accept this clause it was not because he disagreed with his hon. friend as to the seriousness of anthrax and the necessity for the Secretary of State taking adequate means to endeavour to deal with it, but it was because all the powers proposed were already in the hands of the Secretary of State. There was no need for regulations as to reporting by officers who were the servants of the Department. All the Secretary of State had to do was to give instructions to these officers and the thing would be done.—Mr. Louis Sinclair thought that if there were a statutory obligation to have these cases reported there would be a better chance of a proper inquiry.—Mr. John Burns said that he objected to any one disease being singled out for special treatment in an Act of Parliament.—Mr. Taylor said that this disease was specially obscure and specially dangerous and in his opinion it was worthy of, and required, special investigation.—Sir Charles Dilke said he thought that there was a grievance in connexion with this matter. A case had been made out, not against the present Home Secretary but against the Home Office, of not having done all that might have been done. But the matter was one of administration rather than legislation, and he thought an assurance from the right hon. gentleman would meet the case.—Mr. Ritchie, in response to this suggestion, said that the committee might rest assured that the Home Office were quite alive to the extreme gravity of this disease and to the responsibilities which rested upon them in connexion with it, and they might rely upon it that nothing would be wanting on his part to endeavour to deal successfully with it. Further, he would be glad to put himself in communication with the Local Government Board to see whether they had any suggestions to offer.—Sir Fortescue Flannery, accepting this assurance, withdrew his proposed clause.—Captain Jessel put forward a proposal to require the chief inspector of factories to send to the medical officer of health of the district a notice of cases of anthrax and certain other diseases, but the Home Secretary opposed it as involving unnecessary trouble upon the chief inspector of factories and it was not pressed.

The amending Bill which has been the subject of so much discussion before the Grand Committee and the Consolidating Bill have been embodied in a single measure of 153 clauses and seven schedules, and it is this measure which will be discussed in the House of Commons on the report stage. It embodies the whole of our factory and workshop legislation.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to The Lancet *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.*

Butler, William, M.B. Glasg., C.M., D.P.H., R.C.P.S. Lond., has been appointed Medical Superintendent, Isolation Hospital, Willesden, vice D. S. Skinner, M.D., resigned, and Assistant Medical Officer of Health to the Willesden Urban District Council.

Gough, J. H., F.R.C.S. Edin., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory Acts for the Torquay District of Devonshire.

Haswell, W. C., M.B., B.S. Durh., has been appointed Certifying Surgeon under the Factory Acts for the Flaxton Rural District of the North Riding of York.

Macnair, Norman, B.S., M.D. Glasg., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Extra-Dispensing Physician to the Glasgow Royal Infirmary.

Patrick, R., M.D. Durh, M.R.C.S., L.R.C.P. Edin., has been appointed Certifying Surgeon under the Factory Acts for the South-east Bolton District.

Pearson, H. Carden, M.B., F.R.C.S. Edin., has been appointed Surgeon to the Darlington Hospital.

Turner, B. R., M.B., B.S. Camb., has been appointed Certifying Surgeon under the Factory Acts for the Oundle District of Northants.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

Birmingham City Asylum.—Senior Assistant Medical Officer, also Junior. Salaries respectively £180 and £130 per annum, with board, apartments, and washing.

Bradford Royal Infirmary.—Dispensary Surgeon, unmarried. Salary £100 per annum, with board and residence. Also Junior House Surgeon, unmarried. Salary £50 per annum, with board and residence.

Brecon Infirmary.—Resident House Surgeon, unmarried. Salary £100 per annum, with furnished apartments, board, and attendance.

Denbighshire Infirmary, Denbigh.—House Surgeon. Salary £100, with board, residence, and washing.

Devon County Asylum, Exminster.—Third Assistant Medical Officer. Salary commencing at £125 per annum, and increasing at the rate of £10 per annum to £155, with board, residence, &c.

Devonshire Hospital, Buxton, Derbyshire.—Assistant House Surgeon. Salary £50 per annum, with furnished apartments, board, and washing.

District Hospital, West Bromwich.—Resident Junior House Surgeon. Salary £50 per annum, with board, lodging, washing, and attendance.

Eastern Counties' Asylum for Idiots, Imbeciles, and the Feeble-minded, Colchester.—Resident Medical Attendant, unmarried. Salary £100 per annum, with furnished apartments, board, and washing.

East Suffolk and Ipswich Hospital.—Second House Surgeon, unmarried. Salary £80 per annum, with board, lodging, and washing.

Essex and Colchester Hospital.—House Surgeon. Salary £100 per annum, with board, washing, and residence.

Fulham Infirmary, St. Dunstan's-road, Hammersmith, W.—Locum Tenent for four weeks. £3 3s. per week, with board, apartments,

shing.

Leeds.—Assistant Resident Medical Officer f

at rate of £100 a year.

Hospital, Salterhebble.—Medical Officer.

Salary £100 per annum.

Hull Royal Infirmary.—Casualty Officer. Salary £60 per annum, with board and lodging.

Kent and Canterbury Hospital.—Assistant House Surgeon, unmarried. Salary £60 a year, with board and lodging.

Lewes Dispensary and Infirmary and Victoria Hospital.—Resident Medical Officer. Salary £100 per annum, with apartments, board, and attendance.

Liverpool Infirmary for Children, Myrtle-street.—Assistant House Surgeon for six months. Salary £25 for the six months, with board and lodging.

Manchester Royal Eye Hospital.—House Surgeon.

North London Hospital for Consumption, Hampstead.—Junior Resident Medical Officer for six months. Honorarium at rate of £60 per annum.

Nottingham General Dispensary.—Assistant Resident Surgeon, unmarried. Salary £160 per annum, increasing £10 every year, with furnished apartments, attendance, light, and fuel.

Owens College, Manchester.—Junior Demonstrator in Physiology. Salary £100, rising to £150 per annum.

Plymouth Borough Asylum.—Assistant Medical Officer, unmarried. Salary £150 per annum, rising to £200, with apartments, board, and washing.

Preston Royal Infirmary.—Assistant House Surgeon. Salary £60 per annum, with board, lodging, and washing.

Royal Boscombe and West Hants Hospital, Bournemouth.—House Surgeon. Salary £80 per annum, with board, lodging, and washing.

ROYAL LANCASTER INFIRMARY.—Assistant House Surgeon, single. Salary £60 a year, with residence, board, attendance, and washing.

ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House Surgeon for six months. Salary at rate of £50 per annum, with rooms, board, and washing. Also Dispenser. Salary £60 per annum, with board [illegible]

ROYAL [illegible] House Surgeon [illegible]

SALOP [illegible] ary £100 per ann[illegible]

STAFFO[illegible] [illegible]stant Medical Offi[illegible] ard, lodging, atte[illegible], and washing.

STAMFORD, RUTLAND, AND GENERAL INFIRMARY.—House Surgeon. Salary £100 per annum, with board, lodging, and washing.

SUSSEX COUNTY HOSPITAL.—[illegible]

TAUNTON AND SOMERSET [illegible] *House Surgeon.* Salary [illegible] lodging [illegible]

[illegible] ARY, Liverpool.—Resident [illegible] with board [illegible]

[illegible] lodging, and washing provided. Also Assistant House Physician. Honorarium at the rate of £75 per annum will be given. Board, lodging, and washing provided.

WOLVERHAMPTON EYE INFIRMARY.—House Surgeon. Terms, £70 per annum, rooms, board, and washing.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies for Certifying Surgeons under the Factory Acts at Basingstoke and at Croydon.

Births, Marriages, and Deaths.

BIRTHS.

ALLEN.—On July 31st, at Hirzel House, Guernsey, the wife of James Davidson Colquhoun Allen, M.B. Edin., of a son.

BANNERMAN.—On July 29th, at High Wycombe, the wife of G. D. K. Bannerman, M.R.C.S., L.R.C.P. Lond., of a daughter.

COWAN.—On the 4th inst., the wife of Horatio Cowan, M.B., C.M., 32, Fitzroy-square, W., of a [illegible]

GEDDES.—On [illegible] wife of J[illegible]

GUNDLACH.—[illegible] N.I., the [illegible]

LONG.—On Ju[illegible] Frank Tho[illegible] of a daughter.

MUNDAY.—On July 30th, at the Royal Marine Infirmary [illegible]

OCT[illegible]

POR[illegible]

RUS[illegible] Crumpsall, Manchester, the wife of John Rust, M.R.C.S., L.R.C.P., of a son.

STABB.—On July 30th, at Harleston, Torquay, the wife of W. Wilking Stabb, M.D., of a [illegible]

SWALLOW[illegible] road, S.W., the w[illegible]

WHITE.—[illegible] the wife of Finch [illegible]

MARRIAGES.

CALVERLEY—DOUËT.—*On July 27th, at St. John's, S.E., Ernest Joseph* Goodfellow Calverley, M.B., B.S. Lond., M.R.C.S., L.R.C.P., of Claremont House, Folkestone, to Evelyn, daughter of L. Douët, Esq., of St. John's.

DARBYSHIRE—WORLEY.—On August 1st, at St. John's Church, Perth, W.A., by the Right Rev. the Bishop of Perth, Douglas Edward Darbyshire, M.B., L.R.C.P., M.R.C.S., second son of Edward *Darbyshire, of Norwood, late of Liverpool, to Florence, second* daughter of William Charles Worley, L.R.C.P., M.R.C.S., of Green lanes, N.

DONALD—LINNER.—On the 6th inst., at St. Paul's, Winlaton-on-Tyne, by Rev. Arthur Jones, M.A., rector, David Donald, L.R.C.P., L.R.C.S. Edinburgh, L.F.P. & S. Glasgow, to Bessie, daughter of the late Francis T. Linner, Newbiggin, Northumberland.

***HOWARD JONES—PEACOCK.**—At Brent, by the vicar, Rev. H. Speare* Cole, John Howard Jones, M.R.C.S. Eng., L.R.C.P. Lond., of Polyphant, Launceston, to Blanche Evelyn Gladys, youngest daughter of F. B. Peacock, late Indian Civil Service, and grand-daughter of the late Sir Barnes Peacock. Indian papers, please copy.

LYLE—SELF.—On July 31st, at Holy Trinity Church, Blackheath-hill, *by the Rev. E. F. Hooper, rector of Lydlinch, Dorset, assisted by* the Rev. R. Bayne, M.A., vicar, Herbert Willoughby Lyle, M.D. London, M.R.C.S., F.Z.S., elder son of Thomas Lyle, M.A., of the Board of Education, to Elizabeth Ada, the eldest daughter of James D. Self, of Blackheath Rise.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE DUTIES OF A MEDICAL OFFICER OF HEALTH AND HIS RESPONSIBILITIES.

AT the recent Warwick Assizes, before Mr. Justice Phillimore and a jury, Robert Clarke, a farmer, of Benhill, Atherstone, sued Robert Mears, M.R.C.S. Eng., L.R.C.P. Edin., medical officer of health of the Atherstone Rural District Council, *to recover damages* for slander. Counsel for the plaintiff put in a letter written by the defendant on April 21st, 1900, and containing the passage: "It has come to my knowledge that tuberculosis to a serious extent is prevalent among your cows. As medical officer of health and pending the meeting of the district council I must *warn you to discontinue the sale of milk until a veterinary certificate* of the freedom of your cattle from tuberculosis has been produced." Clarke gave evidence that he had acted upon the letter and discontinued the sale of milk, whereby he alleged that he suffered damage. He declared that tuberculosis had not existed among his cattle, and the gist of the action was to show that the defendant had not ascer*tained that his facts were accurate before he wrote the letter which* had caused the plaintiff pecuniary loss. The plaintiff in answer to the judge said that he took the letter to be a [illegible] council, wherefore he had acted [illegible] to be free from tuberculosis [illegible] they had bought cattle from the plaintiff which were not tuberculous, and one of these made th[illegible] ment that he had bou[illegible] perfectly healthy—they [illegible] Ison, a veterinary surgeon who had been called in to treat one of plaintiff's cows, said that he had made no examination of the cattle for tuberculosis, but that all the cattle were poor, especially two of them. A diagnosis of tuberculosis had been present in his mind, but he did not in words suggest that the cattle were so affected. The defendant gave evidence that he had heard from the son of the veterinary surgeon that his father considered that Clarke's cattle were tuberculous. Upon this information which he consid[illegible] [illegible] letter as an order unless he were conscious of the presence of tuberculosis. Various witnesses gave evidence as to the poor condition of Clarke's cows. Mr. Ison, jun., spoke of visiting the farm with his father when he saw two cows that he considered tuberculous and which he suggested should be destroyed. The jury agreed that the defendant reasonably believed that tuberculosis existed among the plaintiff's cows to a serious extent. This, said the judge, was equivalent to giving a verdict for the defendant, and judgment was given accordingly, with costs and certificate for a special jury.

On the evidence the jury could have come to no other conclusion. Numbers of witnesses, some of them being called for the plaintiff, deposed to the poor condition of the cows, and one witness actually said that he had bought dead cows from Clarke which, though perfectly healthy, had died from weakness. The younger veterinary surgeon, who had actually seen the cattle, believed that two at least were tuberculous, while a similar diagnosis was present to his father's mind. The defendant, it seems to us, was quite justified in writing as he did on such information. The future health of the neighbourhood is in his care. The infant mortality is high and is partly attributable to tuberculosis. He believed honestly *and on good primâ facie grounds that he had found a focus of the* disease and he took the only immediate step in his power to prevent its spread. We congratulate him upon the verdict which received a marked endorsement from the judge. The whole story, by the way, furnishes one more instance of how the duties of a medical officer of health bring him into conflict with his neighbours and *therefore one more argument for putting medical officers of health* into such a position that they will be independent of private practice.

AN OBNOXIOUS BUSINESS.

To the Editors of THE LANCET.

SIRS,—Permit me to call your attention to the recent method now being adopted in country towns and villages for the spread of disease and the dissemination of a most dangerous source of evil, thereby causing the pure country air to be polluted with obnoxious smells to the danger of the public health. The recent boom in the manufacture of bricks has caused a great many new brickfields to be opened for their manufacture, and where land could be obtained near a railway station brickyards on a large scale have been introduced in the locality through the facility of sidings. Railway companies are only too glad to encourage this branch of industry and are continually carrying truckloads of refuse from large towns to these new enterprises. The stench arising from this filth is simply abominable and may be noticed at the sidings of several railway-stations which could be named. This refuse is much cheaper to the brickmaker than screened ashes which were formerly used. Then there is the carting of the refuse through the roads and streets where houses are closely built. Even in this town, during hot weather especially, carts may be seen loaded with this filth covered on top with a bit of canvas to prevent the wind blowing it into the gardens as they pass along, and people may be seen with handkerchiefs to their noses as they pass the carts. Another objection is the burning of this filthy rubbish close to the dwelling-houses in the poorer districts—even within 100 yards of a large local school where about 300 children may be seen playing about. If this is to continue the spread of diphtheria, measles, and other complaints must soon be alarming, as the inhalation of such obnoxious smells must result in much illness. Surely immediate steps should be taken to stop this nuisance, and I trust that you will use your powerful influence in drawing the attention of medical men to the matter.

I am, Sirs, yours faithfully,

Horsham, July 31st, 1901. WILLIAM BUCK.

⁂ We sympathise with our correspondent in his hearty dislike to the smell of brick-manufacturing, but pathology does not bear out his apprehension of a spread of diphtheria or measles in the neighbourhood of brickfields.—ED. L.

WHITE PRECIPITATE IN INFANTILE DIARRHŒA.

To the Editors of THE LANCET.

SIRS,—Recently in attending at a coroner's court I heard the evidence of a medical man to the effect that he had prescribed for the subject of the inquiry—an infant, aged five months—a mixture of liq. hydrarg. perchlor. with aromatic spirit of ammonia. Unless my chemistry is at fault this combination would produce "white precipitate." It may be that my therapeutic knowledge is "behind the times" and that this is the most "up-to-date" agent in the treatment of infantile gastro-enteritis, but till now I believed hydrargyrum ammoniatum to be an irritant poison. Times change and methods of treatment with them and this may be a useful innovation. I should be glad to know if any of my professional brethren have experience of it.

I am, Sirs, yours faithfully,

August 5th, 1901. EDWIN T. ENSOR, M.D.

PUBLICITY.

WE have had our attention called by more than one correspondent to the following newspaper paragraphs during the week:—

> *Dr. and Mrs. Fenton have left 27, George-street, Hanover-square, for Recess, Connemara.* *Daily Telegraph*, August 2nd.
>
> Dr. T. Miller Maguire wishes it to be known that he will remain at 12, Earl's-court-square throughout the summer, and will be glad to see his clients daily from half-past 11 till half-past one o'clock, or by appointment at other hours. *Morning Post*, August 3rd.

Our correspondents seem to have thought that the two paragraphs were examples of advertisement by medical men of their private movements. With regard to the second paragraph our correspondents are completely in error. Dr. T. Miller Maguire is not a medical man, and the clients whom he is ready to see by appointment are not patients, but pupils who are being prepared for various examinations. The paragraph concerning Dr. Fenton's holiday arrangements is certainly not one which a medical man should seek to have inserted in the editorial columns of a newspaper. If the information has been published without Dr. Fenton's knowledge he should ask the editor of the *Daily Telegraph* to be more discreet in the future.

THE RE-MAKING OF MATTRESSES.

WE have received a letter which we print below on the subject of the necessity that woollen mattresses should be re-made at reasonable intervals. It is clear enough that the letter is from a layman, and there are sentences and sentiments in it with which we do not agree, but the communication as a whole is valuable. There is no doubt that in England the simple sanitary precaution of re-making the mattress is much neglected even by housekeepers whose care for the hygiene of their households is great and elaborate.

To the Editors of THE LANCET.

SIRS,—I have been greatly interested by the various reports of the proceedings of the Congress held last week in London for the cure of tuberculosis, and although the delegates have gone far in their debate as to preventive means, such as spitting in the streets, &c., yet to my idea they have not gone far enough. The English, though a clean nation, pay no attention to their bedding; they will sleep on their mattresses for years without thinking of having them re-made. As to what their mattresses are made of they are quite indifferent. I am an upholsterer and ignorant of what might be a hotbed for breeding bacilli; I leave that for the doctors to find out whether there is anything in my theory. I will give a few examples of my experience. A few years ago I had the order to make a very sumptuous carved bedstead—the curtains were of brocaded silk—but the lady did not wish me to re-make her bedding as she said it was very comfortable. I had to undo the side of the mattress and found that it was made of what is called "coloured wool." Now coloured wool, which is used largely for cheap bedding, is composed of old woollen rags, such as old clothes, carpets, &c., also the refuse sweepings of the floors, &c., of woollen factories. It goes through a machine called the "devil," but goodness knows whether Old Nick is charitable enough to eliminate the microbes. I argued with the lady but to no purpose. I had it on the tip of my tongue to repeat the rhyme of Margery Daw, but I thought better of it. The lady still sleeps night after night on the same mattress. Another case—a gentleman in the country. His daughter was suffering with a sore-throat. His medical man advised him to send for a specialist. Of course, he condemned the drainage, over which the gentleman spent over £1000. And yet to my knowledge not a single mattress has been re-made in the house for the last 20 years, and the servants' mattresses are a mass of corruption, and it is about the same all over England. The English housemaids do their work in a slovenly manner; the mattresses are hardly ever turned, and as for brushing and airing them that is quite out of the question. Now, what a difference with the French people. Take, for instance, the working-class. They do not lie on shoddy and muck; their bedding is of white wool or horsehair; and you can see in the Faubourgs of Paris, such as Belleville, Grenelles, Montmartre, &c., the bedding airing at the windows; besides which men come round to re-make the mattress, for in France the poorest person would never think of sleeping on a mattress which had not been re-made within two years.

I am, Sirs, yours faithfully,

July 29th, 1901. H. C. R. J.

We do not know if experts in domestic furniture would bear out our correspondent's statements that French bedding is so much superior in make to English bedding, but undoubtedly the French domestic servant is more thorough in her care of sleeping-rooms than is her English sister.

◆

Glasgow.—The matter is one of taste, not of rule, and must be left to our correspondent to decide for himself. The comparison of his institution, doubtless a useful private venture, to King's College, London, does not strike us as happy.

C. E. C.—The matter is one to which we have already called pointed attention. See, for example, an annotation in THE LANCET of Oct. 13th, 1900, page 1088.

Typhoid.—No British university and very few, if any, foreign universities, save the one our correspondent has named, hold out the required facilities.

Wirrimbirchip has not given us sufficient information to make it possible to reply.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (12th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M.).

TUESDAY (13th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden square (9.30 A.M.).

WEDNESDAY (14th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.).

THURSDAY (15th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.).

FRIDAY (16th)—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St [illegible]

[illegible]

Throat (2 P.M. and 6 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden square (9.30 A.M.)

SATURDAY (17th)—Royal Free (9 A.M. and 2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), University College (9.15 A.M.) *Charing-cross (2 P.M.), St George's (1 P.M.), St. Mary's (10 P.M.)*, London Throat (2 P.M.), Throat, Golden-square (9.30 A.M.)

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

LECTURES, ADDRESSES DEMONSTRATIONS, &c

MONDAY (12th)—WEST LONDON VACATION POST-GRADUATE COURSE (West London Hospital Hammersmith road, W)—5 P.M. Mr McAdam Eccles *The Treatment of Enlarged Glands*

THURSDAY (15th)—WEST LONDON VACATION POST GRADUATE COURSE (West London Hospital Hammersmith road, W)—5 P.M. Mr A. Baldwin: Some Surgical Emergencies and their Treatment

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff It is urgently necessary that attention be given to this notice

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION

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THE INDEX TO THE LANCET

THE Index to Vol I of 1901, which was completed with the issue of June 29th, and the Title page to the Volume, were given in THE LANCET of July 6th

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(Taken daily at 8.30 a m by Steward's Instruments)

THE LANCET Office August 8th 1901

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Aug 2	30·15	N N W		121	78	57	62	68	Cloudy
" 3	30·27	S W		118	75	60	59	64	Cloudy
" 4	30·06	S W		99	70	61	62	61	Cloudy
" 5	30·04	N W	0·07	103	70	60	57	62	Overcast
" 6	29·80	S W	0·07	112	77	55	53	57	Cloudy
" 7	30·00	W		124	81	56	58	63	Cloudy
" 8	30·02	W	…	124	78	61	63	68	Bright

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Remarks

ON

THE DIAGNOSIS AND SURGICAL TREATMENT OF CARCINOMATOUS STRICTURE OF THE COLON.

By W. J WALSHAM, F R C S ENG,

SURGEON TO, AND LECTURER ON SURGERY AT, ST BARTHOLOMEW'S HOSPITAL, EXAMINER IN SURGERY ROYAL COLLEGE OF SURGEONS OF ENGLAND, ETC

I HAVE chosen the diagnosis and treatment of malignant stricture of the colon for disquisition because during the last few years have had some 10 or 12 cases under my own care and have had the benefit of seeing a number of others under the care of my colleagues at St. Bartholomew's Hospital. By stricture of the colon I, of course, mean obstruction to the lumen of the bowel depending upon organic change of its walls I confine my remarks to carcinomatous stricture because this is the most common form and also for the purpose of limiting whatever discussion may follow my paper.

I will discuss the subjects under the following heads first, that the common form of carcinoma of the colon—namely, the columnar celled—is one of comparative benignity and may remain for a considerable time a purely local disease limited to the wall of the bowel; secondly, that this being the case its early diagnosis is of such importance and justifies us when in doubt in making an exploratory incision, since if the growth is removed early with a wide margin of healthy bowel-wall the patient may be completely cured, or, stopping short of this, may enjoy several years of comfort before secondary deposits in the glands and internal viscera terminate his life, and thirdly, that when, as is too frequently the case, symptoms of acute obstruction have come on before surgical aid is sought it is better to operate in two stages, in the first place to do a preliminary colotomy with or without the withdrawal of the carcinoma on to the abdominal parietes, and in the second place when the patient has thoroughly recovered from the deleterious effects of the obstruction to remove the carcinomatous portion of the bowel and unite the ends of the bowel above and below

I will now discuss the question under each of these heads, giving illustrations from cases that have been under my own care or that I have had opportunities of observing under the care of colleagues First, that columnar celled carcinoma the most common form is a comparatively benign growth and may remain for a considerable time a purely local disease I need not say much under this head The local origin of this form of carcinoma is, of course, well recognised by surgeons, but I am not so sure that we all are so familiar with the fact of its comparative benignity In many of the cases I myself have had to deal with, even although the lumen of the colon has been so reduced as barely to admit a small quill, the growth has been markedly limited, affecting often not more than an inch of the long axis of the bowel, which it causes to become hard, contracted and puckered forming a little mass of about the size of a walnut or Tangerine orange and feeling to the fingers when introduced through an exploratory incision into the abdomen very like a small lump of scybalous fæces, and although in many of these cases the contraction was often so great that only fluid fæces could dribble through, still no lymphatics or glands could be felt enlarged, and in several cases that I have met with in the post-mortem room of similar growths there has been actually no glandular enlargement or secondary deposits in any of the organs Two examples from my own practice bear upon this point Eight years ago I removed with the help of my friend Dr H J Ilott at the Cottage Hospital at Bromley a carcinoma of the cæcum and brought the ends of the divided gut together with Senn's plates. This patient made an uninterrupted recovery, and through the kindness of Dr Ilott I was able to examine her when I started putting these few notes together a few weeks ago She was still in the best of health and had no bowel trouble whatever, nor on careful palpation of the *abdomen could anything abnormal be detected. During the* early part of 1898, that is, three years ago, I removed another such localised mass, but from the sigmoid of an

enjoying good health

—namely, the import-

typical symptoms of

en so far advanced as seriously to obstruct the lumen of the bowel we are most of us familiar—namely, that the patient gives a history of having had one or more, often two or three, attacks of complete constipation lasting for several days to a week and attended by abdominal pains and distension but relieved by purgatives and enemata, that vomiting has only appeared late during the last attack and is probably not of a feculent character, that the abdomen has been gradually becoming distended and probably bulges more in the right flank than in the left, that nothing can be felt in the rectum or through the abdominal parietes if there is much distension; and that notwithstanding the absolute constipation the patient is not collapsed, his temperature is not raised, nor is he, except that he suffers spasms of pain and from time to time is distressed by the vomiting, apparently very seriously ill. Given such symptoms most of us, I imagine, would venture to diagnose stricture of the colon, and where the patient is advancing in years and has been losing in weight would probably not be wrong in pronouncing the case malignant. Although even when the carcinoma is so far advanced as to produce symptoms such as the above the disease may still be local, as in the two cases I have just quoted, yet there must be a grave chance of dissemination having already occurred or of the growth having formed such extensive adhesions to surrounding parts as to preclude surgical interference In a case of carcinoma of the cæcum and in another of carcinoma of the ascending colon on which I operated two or three years ago it was found on exposing the *growth that its removal, in consequence of* the matting together of neighbouring intestines, was quite out of the question, so in one I short circuited the intestines by a Murphy's button and in the other opened the cæcum and established an artificial anus Though both patients recovered from the operation, yet they succumbed within six months from dissemination of the disease in internal viscera.

What are the symptoms then that should arouse our suspicions of carcinomatous stricture whilst still in the early stage? A review of the history of my cases leads me to attach importance to the following (1) indefinite symptoms of abdominal disturbance, such as uneasiness, distension, eructations, constipation symptoms called by the patient and often by his medical attendant indigestion, but not referable to the stomach and not benefited by ordinary routine treatment, (2) attacks of pain or spasm referred to the colon, often of daily recurrence and having no special connexion with the time at which food is taken, (3) nearly always liquid stools with rarely a formed motion, (4) slowly progressive loss of weight, and (5) constant desire to defecate Those in family practice may say that they are constantly meeting with such symptoms and find them yield to careful dieting, judicious drugging, rest, and change of air and scene, and no doubt this is so but I have been greatly struck with the fact that in those cases in which I have taken a careful history and rigorously cross-examined the patient such symptoms have been almost invariably the precursors of the serious attack of obstruction for which I have been called in. Thus to quote one or two examples from my note books In the summer of 1899 I was asked to see a patient with serious obstruction by my friend Mr P E Wallis of East Grinstead. The patient had suffered from obscure abdominal symptoms such as those I have mentioned and had consulted two or three eminent practitioners in town who had put down his symptoms to indigestion gastritis enteritis, &c., and had treated him for such without relief In passing my finger into the rectum just within reach I detected a columnar celled carcinoma which had unfortunately too extensive attachments to admit of a removal In a second case—that of a medical friend who consulted me some years back on account of piles and a small internal fistula—indefinite abdominal symptoms which he attributed to his local trouble had existed for a few years In addition to loss of appetite eructations distension after food, and constipation he had continually recurring spasm and pain in the region of the colon and so constant was his desire to defecate that, as he told me, he had to spend half his mornings in the water-closet, nothing, however, passing but a little slime and mucus unless he had taken a strong purgative. Beyond the piles and fistula nothing could be felt in the rectum or on careful palpation over the sigmoid. He was gradually losing weight and I felt convinced that he had a stricture and impressed upon him the desirability of an exploratory incision in the left inguinal region. This he would not consent to, preferring to take the view that his trouble was the result of reflex spasm of the bowel consequent upon the irritation of his hæmorrhoids—an opinion in which he was supported by some of his medical friends. He, therefore, got a surgeon to remove his piles (I would not do it myself), but, as I expected, this did not relieve him, and some 12 months or so later complete obstruction set in and inguinal colotomy had to be performed. A growth was then discovered but too late to permit of removal. My contention, then, is that given a patient with indefinite symptoms of indigestion, with constant daily attacks of pain and spasm, and with constipation or occasionally what is called diarrhœa unrelieved by ordinary remedies and dieting, that the rectum should be examined and the colon carefully palpated, if necessary under an anæsthetic, when, if nothing is discovered, he should be periodically weighed, and if he steadily loses in weight and the symptoms do not seem to clear up that an exploratory incision should be made.

And this brings me to my third and last point—the treatment—first, during an attack of acute obstruction, and, secondly, when the growth is felt or discovered by exploration before acute obstruction has supervened. In either case the indication is to remove the growth and to restore the continuity of the divided intestine. When the symptoms are acute my own experience has led me strongly to advocate dividing the operation into two or even three stages. To attempt a complete operation, which must necessarily be lengthy in a patient with acute obstruction, perhaps of a week or ten days' duration, is to court failure. Both the local and the general conditions are unfavourable. The bowel above the stricture is dilated and distended with liquid fæces and its walls softened or even inflamed, whilst the bowel below is collapsed and shrunken. Notwithstanding the use of clamps to the distended bowel or the drawing off of its contents previously to excising the growth there must be a serious risk of fæcal soiling of the peritoneum even if the growth with the loop of the bowel in which it is situated can be drawn out of the wound, and then there is the further difficulty of uniting the distended portion to the collapsed portion owing to the difference in their calibre. But the growth may not present at the wound and to search for it amongst distended and overcharged coils of intestine which constantly tend to protrude through the incision is a procedure fraught with danger; not only do such manipulations prolong the operation, a most serious fact in itself, but they may cause so much injury of the peritoneal coat of the bowel that the bacillus coli and other micro-organisms contained in the fæces and probably already invading the mucous and muscular coats may penetrate the serous layer and set up acute septic peritonitis. Moreover, the general state of the patient is most unfavourable for any prolonged operation. Think for a moment of the state he is in. His stomach is completely upset by regurgitation of fæcal matter from the intestines, he is exhausted by the constant vomiting and pain and the want of nourishment (for even if nourishment has been given, as is unfortunately too often the case, by the over-anxious friends it is vomited and not assimilated), and his vital powers are depressed by the ptomaine absorption which has been taking place from his over-charged intestines. We all learn by experience, and I have to confess to losing a patient through the desire to complete the operation at one sitting. I was asked to see a man, aged about 60 years, a little distance in the country. He was suffering from an attack of complete abdominal obstruction of some weeks' duration. I diagnosed stricture of the ascending colon and in cutting down on the colon my diagnosis was verified. I removed the growth and united the bowel above to the bowel below by means of a Murphy's button. All went well for from 24 to 36 hours, when the softened intestine above gave way and the patient collapsed and died. I cannot help feeling that had I contented myself with making an artificial anus and subsequently removing the growth and restoring the continuity of the intestine when the effects of the acute obstruction had passed off the result might have been different.

Having given my reasons against resection during an acute attack let me now speak of the practice that my personal experience leads me to advocate. It is as follows. Should the symptoms point to the obstruction being in the sigmoid left inguinal colotomy should be performed and the sigmoid drawn into the wound. If found distended it is clear that the obstruction is below. Now assuming the distension of the abdomen to be great, the patient elderly, feeble, and his condition grave, I advise fixation of the distended coil and its immediate drain by a Paul's tube. This operation should take less than a quarter of an hour, and then in from 10 days to a fortnight's time, or as soon as the abdomen has become flat, the tongue clean, the appetite regained, and the patient's general health sufficiently restored, the growth may be safely dealt with. Thus during the year 1898 a woman, aged 65 years, was admitted under my care into Lawrence Ward. She had frequent attacks of vomiting and constipation and had been losing flesh. Her bowels had not been open for 14 days before admission. Her abdomen was immensely distended; she was constantly vomiting fæcal matter. Left inguinal colotomy was performed. The patient was so desperately ill and the coils of bowel that presented in the wound were so distended that no exploration was made, but the sigmoid was drawn out and a Paul's tube inserted into it. She was at once relieved and progressed satisfactorily in every way. A week or two later a growth was discovered in passing the finger into the bowel through the colotomy wound about three inches down the distal portion of the gut. When her general condition was sufficiently improved a small incision was made below the colotomy wound, the loop of the intestine containing the growth was excised, and the intestine, united end to end by Murphy's button, returned into the peritoneal cavity and the parietal wound closed. 12 days later the button passed out of the rectum. Injections could now be freely thrown from the anus through the colotomy wound and *vice versâ*. Still later the colotomy wound was closed without opening the peritoneum and had quite healed except at one spot when she left the hospital. A fortnight ago one of my dressers visited her at her house in Clerkenwell for me and found her in excellent health without any sign of recurrence and no abdominal trouble whatever. In a second case with similar symptoms of 10 days' duration, pointing to obstruction in the sigmoid, in which the patient's condition was also too serious to admit of any exploration, I resorted to inguinal colotomy and a Paul's tube as in the former case, and here again, when the patient had recovered from the obstructive attack, made an elliptical incision around the colotomy opening, drew out the portion of sigmoid that had been opened at the colotomy together with about six inches of the intestine below, in which I discovered, at about four inches from the colotomy opening, a growth of the size of a Tangerine orange. The sigmoid was divided above the colotomy wound and below the growth, the intervening portion removed, and the ends united by Murphy's button, dropped back into the peritoneal cavity, and the external wound closed by sutures. No enlarged glands were felt in the mesentery. Healing occurred by the first intention and the button was passed on the tenth day. When the patient left the hospital she was in the best possible health and spirits, and my friend Mr. R. Mathews of Bickley, who sent her to me, told me only the other day that her condition was still most satisfactory. In neither of these cases, for reasons already given, was any search for the growth made, my whole aim being to get the patients off the operating-table in the shortest time possible. In a third case, a man, aged 49 years, the symptoms, though severe, were less acute than in the preceding cases. I therefore on finding the sigmoid distended passed my fingers along it towards the pelvis and discovered and drew out a growth. This, together with about two inches of the distended sigmoid above the growth, was fixed in my usual way by an hysterectomy pin passed through the mesentery and a Paul's tube inserted into the bowel above the growth. The operation took less than 20 minutes. Huge quantities of fæces flowed away for the next few days to the immense relief of the patient, who had no bad symptom, and at the end of a fortnight I made an incision around the colotomy wound, drew out healthy sigmoid together with the portion of sigmoid through which the Paul's tube had been inserted, and united the bowel above and below by a large-sized Murphy's button. The united intestine was then replaced and the parietal wound sutured. The button was passed on the twelfth day.

Fortunately for the surgeon carcinomatous stricture is much more common in the sigmoid than in other portions of the colon, but I have met with it in the splenic and hepatic flexure, ascending colon, and cæcum. Time will not permit me to enter upon the question of the diagnosis of the site of the growth—indeed, in any case one can only make an appropriate guess. When in doubt my practice has been first to look at the sigmoid and if this is found collapsed and the distension of the small intestines is great to close the wound and open the cæcum through a second incision on the right side. Where the distension, however, is not great it may be well to trace the sigmoid upwards before opening the cæcum. Quite recently my colleague Mr. Alfred Willett on tracing the sigmoid in such a case came upon the growth in the splenic flexure and with a little traction was able to bring it out of the wound and to insert a Paul's tube into the bowel above. This patient made an excellent recovery from the operation but died later from secondary growths in the viscera. When the cæcum has been opened and the patient's condition has sufficiently improved, if no growth can be detected on palpation or with a finger passed upwards through the colotomy opening it is perhaps better to explore the colon through an incision in the middle line as freer access is in this way gained. In these cases in which the growth can be felt in the line of the colon either with or without an anæsthetic and the symptoms are not acute, the right course is clearly to make an incision over the swelling and remove the carcinoma if feasible, or if not to short-circuit the bowel. I have before me two specimens of the cæcum, one removed eight years ago and the other about a year ago; both patients when last heard of were well.

Finally, a very few words as to where the exploratory incision should be made where the symptoms lead us to suspect a stricture but no growth can be felt, there are no indications as to its situation, and acute obstruction has not supervened. For such cases a median hypogastric incision is preferable, since through it not only the condition of the colon but that of the small intestine can be investigated as well. Thus, in a case of the kind on which I operated quite recently at Bromley the stricture, contrary to our expectation, was in the small intestine and was readily dealt with through this incision. Had the growth been in the colon and inaccessible from the median incision, after locating its actual position I should have made a second incision over it and dealt with it there.

In conclusion, let me briefly recapitulate the points I have endeavoured to make out: first, that the columnar-celled carcinoma is one of the least malignant of the cancers, and although it may have led to almost complete stenosis of the gut there may still be no dissemination; secondly, since, as in other forms of carcinoma, dissemination at length occurs it is desirable where symptoms such as have been mentioned are present to make an exploratory incision; and lastly, if acute obstruction has supervened the safest course is merely to open the colon above the growth and to deal with the latter after the acute stage has subsided.

THE SERO-THERAPEUTICS OF PLAGUE.

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IN giving an account of my experience of the treatment of patients suffering from plague with Yersin's serum, as received from the Pasteur Institute of Paris, it may be well to point out that the disease as it occurred in Glasgow was apparently of a much milder type than is that usually seen in the East. The number of cases was too small to admit of statistical comparison between those treated with the serum and those not so treated, and on account of the mild character of the epidemic comparison with the statistics of other epidemics in other countries is not possible. Consequently the value of the treatment can only be gauged by a careful consideration of each case in detail.

The first two cases in which the serum was given were those[1] of T. H—— and C. M——, already reported in THE LANCET.[1] In both these cases the only organism obtained in puncturing the buboes was the bacillus pestis. The first of these cases belonged to the septicæmic variety of plague with multiple bubo. The prognosis was bad. Within 36 hours of the administration of the serum the temperature fell nearly to normal and the patient was apparently out of danger. In the second case, which appeared to be an example of the fulminant type of plague, an injection of 20 cubic centimetres of the serum intravenously and of a like amount subcutaneously was followed within 24 hours by a complete cessation of symptoms. Both patients were excessively ill and in both the subsidence of the symptoms was marked and immediate. There were, it is true, some cases of plague untreated by the serum in which there was a critical fall in the temperature, but in these the disappearance of the mental obscuration which accompanied the fever was much more gradual and the convalescence more tedious. In both the cases under consideration a symptom was present not observed in any of the other cases which ended by crisis—viz., a few hours after the injection a copious sweating occurred over the whole body.

The next three persons treated by serum suffered from a milder type of the disease; in only one was the prognosis doubtful. The first, Mrs. B—— (Case 1), was a case with right inguinal bubo from which on puncture a pure culture of bacillus pestis was obtained. The patient on admission did not seem sufficiently ill to require an injection of the serum, but two days later, as the symptoms had considerably advanced, 20 cubic centimetres were injected subcutaneously into the abdominal wall. The next day the symptoms had somewhat abated. The pain in the bubo was less and the reddening of the skin over the swelling was not so marked. In the evening, however, the patient's condition was again not so good, and by the following morning the temperature had again risen. The local condition had advanced and the infective process had extended so as to involve the lymphatic glands above Poupart's ligament and also the deep inguinal glands. A further injection of 20 cubic centimetres of the serum was then given, this time into one of the veins of the right arm. An immediate improvement was noted. Six hours after the administration of the serum the temperature had become normal and on this occasion no subsequent rise took place such as had occurred after the former dose administered subcutaneously. In a second instance the result was equally interesting. The case was that of Mary M—— (Case 2). This patient, a girl, 14 years of age, suffered from a bubo in the left axilla. The point of entry of the infection was evidently located in the back, where, as described in the full report, a small pustule was situated, which was proved bacteriologically to contain the plague bacillus. The external local condition afforded a visible index by which the therapeutic effect of the remedy could be gauged. Here again a subcutaneous injection of the serum was followed by a temporary improvement as regards the bubo, the pain being considerably less on the next day, but no improvement could be seen in the pustule above mentioned. A recrudescence of the disease occurred likewise in this case, with a rise of temperature to 102°F. A second pustule began to form on the back, while the erythematous zone surrounding the first occurring pustule became rather larger. Here again the intravenous injection of the serum in a dose of 20 cubic centimetres was followed by an immediate improvement. Within 24 hours a slough in the centre of the original pustule had separated and the inflammatory zone had almost disappeared, while the second commencing pustule had completely aborted The patient six hours after the administration of the last dose of serum spontaneously expressed herself as feeling very much better. The temperature by the same time had fallen to normal and, as in the other case just mentioned, it remained so without subsequent rise. Convalescence from this point was rapid and uninterrupted. The third case belonging to this group was that of Mrs M—— (Case 3) This patient, the mother of the preceding one, was aged 41 years She had a right inguinal bubo. On admission the temperature was 102.4° F., the pulse was 104, and the respirations were 24 The patient was evidently ill, though a fatal issue was not expected. A subcutaneous injection of 20 cubic centimetres of the serum produced almost no effect, but there was, if anything, next day a lessening of the pain in the bubo. Thirty-six hours later a second injection of 20 cubic centimetres was given intravenously. As in the other two cases just noted, there was observed an almost immediate improvement, the patient expressing herself as being much better six hours after the remedy had been administered. The temperature fell to normal within 24 hours and remained there.

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[1] For particulars of these and other cases of plague in Glasgow see THE LANCET of Sept 8th (p. [illegible]), 15th (p. 827), 22nd (p. 877), and 29th (p. 904), 1900.

The points to be noted with regard to all these cases are that the subcutaneous injection of the remedy produced little effect, and that of a temporary nature, while the administration of the serum intravenously was followed in each case by an improvement which was easily seen in the subsidence of the signs of illness and which besides was spontaneously borne witness to by the patients themselves.

The serum was also administered to four persons in whom the disease progressed to a fatal issue. One of these needs no mention, as he did not come under treatment till the fourth week of the illness, at which period an extensive secondary pyogenic infection of the sloughing bubo had occurred. Each of the other three require special notice. The first of these in point of time was Mrs. M—— (Case 4). This patient was the daughter of the last-mentioned patient and the sister of M. M——, also already referred to. She had for some time prior to the onset of illness experienced considerable privation. On admission she was extremely ill and premature labour was in progress. No apparent benefit resulted from the administration of the remedy, the patient dying within about three days from the commencement of the illness. In this case serum was administered on the evening of admission—20 cubic centimetres into a vein of the right arm and 20 cubic centimetres into the subcutaneous tissue of the flexure surface of the left thigh, so that it might drain directly into the bubo, which was situated in the left groin. Next day 20 cubic centimetres additional were administered nto the subcutaneous tissue of the abdomen. Though only the plague bacillus was obtained on culture from the bubo in this case both before and after death, yet in the retroperitoneal glands it was demonstrated that the infection was a mixed one, as considerable numbers of colonies of a diplococcus, staining by Gram's method, were seen in sections of these. This patient was so enfeebled by the privation which she had undergone that she would in all probability not have survived her confinement apart from the attack of plague. So that, both because the case was not uncomplicated and because of the patient's weakness, the result cannot be said to weigh one way or the other in appraising the value of the serum treatment. But it must be noted, as indicating that the serum had some considerable influence on the organism, that the bubo revealed on examination after death no plague bacillary forms which did not bear evidence of the most profound degeneration, while those obtained from the other organs of the body showed no evidence of being in any way altered. On the same day the brother of this patient was admitted (R. M——, aged 11 years, Case 5). His history, which is recorded below, indicates that the infection here also was from the first of a mixed nature. When in the course of the second week of observation one of the buboes had proceeded to abscess the only organism recovered from the discharge after incision was the staphylococcus pyogenes aureus, and that in great numbers. As there were no means of infection of this bubo prior to its incision, it is highly probable, considering the septic course of the temperature, that the double infection was primary. Of all the cases treated with serum early in the course of the illness this is the only one in which no effect of any kind was noted. The only other case in which the serum was administered was that of M. G—— (Case 6). This was, though fatal, one of the most interesting in some of its features. The patient was a child, six years old. (Puncture of the bubo in the right groin on admission resulted in the discovery of the plague bacillus in its typical forms.) On admission she was profoundly ill and in a state of almost complete unconsciousness. When disturbed she cried out harshly and struggled to be let alone, but otherwise took no notice of her environment. As recorded in the report, intravenous injection was attempted without success, but in the first 48 hours after admission she received 100 cubic centimetres of the serum into the subcutaneous tissue, chiefly of the lower part of the abdomen. On the morning of the fourth day after admission a marked improvement was noted, insomuch that the child for the first time recognised her mother and smiled to her. From this point, however, there was a rapid advance in the gravity of the case, and death supervened with the usual symptoms of heart failure on the eighth day of illness. The same appearance was noted in this case as in that of Mrs. M. (Case 3) above referred to—viz., that the bacilli found in the bubo which received the drain of a large part of the serum administered were markedly degenerated, while those in the deeper organs of the body were unaffected and very virulent.

A general review of the action of Yersin's serum falls to be considered under two heads—firstly, the prophylactic action; and secondly, the curative action.

1. *The preventive action of the anti-plague serum.*—Of the healthy persons who had been in contact with plague and who received a prophylactic injection of the anti-plague serum two developed the disease. One of these was a maid attached to the service of the plague wards. From her buboes the specific bacillus of plague was recovered, and at the appropriate time after the disease was over her blood gave the typical agglutinative reaction in a marked degree. The other (Mrs. G——, Case 7) was the mother of one of the patients who died and who is noted above (M. G——, Case 6). During the course of the disease the pyrexia was fairly high, but she never gave the impression that she was dangerously ill. The three factors which might have contributed to produce this high temperature are noted in the annexed report. These two cases prove that a dose of 10 cubic centimetres of Yersin's serum administered subcutaneously does not afford complete protection, yet it is a fair presumption that a certain degree of immunity is afforded, as the symptoms in both cases were of great mildness. This corresponds with what has been frequently observed with regard to the action of diphtheria antitoxin when used as a prophylactic. Immunity is not a certainty, but if the disease becomes established the attack is almost certain to be slight.

2. *Curative action.*—A general review of the facts given above and a consideration of the reports of the individual cases will, I think, justify the following conclusions: First, that subcutaneous injection of the serum is not of any great curative value. This is probably not due to the blocking of the lymphatics during an attack of plague, as has been suggested by some, in view of the fact that absorption of the serum by healthy persons is no more rapid than that seen in the plague patients. The failure in action is therefore much more likely the result of the lymphatic system exercising a distinct action as a biological filter on the serum, such as exists in other organs. In this way the antitoxic substances of the serum are retained largely in the glands which drain the area into which the injection is given, so that only the more inert portions of the serum reach the general circulation. It was noticed that the lymphatic glands connected with the area into which the injection was made in healthy persons enlarged for some days thereafter. This is not a proof that such a filtering action as above indicated takes place, yet it shows that some constituent of the serum having an irritant action is retained, and if the glands possess the power of filtering out certain ingredients of the serum there is no reason to doubt, in the light of what has gone before, that this may include the active antitoxin. The case of Mrs. M—— (Case 4) lends some clinical support to this view. The inguinal bubo, into the drainage area of which the serum had been injected, showed post-mortem evidence of a potent local effect in the marked degeneration of the bacilli, while the organisms found in other parts of the body were quite normal. It is therefore evident that subcutaneous injection of the serum can be efficient only in cases where the infection is localised to a bubo and has not become general. Secondly, the intravenous injection of the serum seems, in most cases, to produce a most marked therapeutic effect, even when given late in the disease. This is exemplified in the case of T. H——. In those cases, on the other hand, where double infection has existed from the beginning, its action is greatly lessened. In conclusion, it is probable that the doses given were in general too small, and should an opportunity again arise of using this remedy large initial doses of 60 cubic centimetres and upwards would be given intravenously. Probably it would be advisable, if using the serum subcutaneously at all, to inject it only into the area drained by the lymphatic system which leads directly to the bubo.

CASE 2.—Mary M——, aged 14 years, was admitted on Sept. 15th, 1900. The patient on the night prior to admission became gradually very ill with severe frontal headache. On the day of admission sickness and vomiting were the most prominent symptoms, but she also complained of a tender swelling in her left axilla. On admission the temperature was 99.8° F., the pulse was 120, and the respirations were 28. The face was of an earthy colour with an anxious look, the lips were dry, and the skin was hot to the touch. The tongue was dry over the dorsum, but the edges were red and moist. There was no rash. Four inches from the base of the axilla there was a single small, hard, tender gland which was freely moveable; at the border of the latissimus dorsi behind there was another gland rather more obvious, but not so tender. No other complaints were made at the time of admission. No serum was given as the patient did not appear to be particularly ill. Next evening the temperature had risen to 101.5°. It was then noticed for the first time that the patient had on the back, about the level of the spine of the eighth dorsal vertebra, a small pustule. This pustule showed certain distinctive features. It was about a quarter of an inch in diameter, the centre being depressed and covered by a scab while the edge was raised and formed of a ring of minute pustules. An inflammatory zone of about two and a half inches surrounded this pustule. Direct microscopical examination of the material obtained from the pustule showed the presence of numerous quite characteristic plague bacilli, whilst in many of the leucocytes degenerating forms of the same organism were apparent. Cultures were made and a characteristic growth of the organism was obtained. Twenty cubic centimetres of serum were injected subcutaneously. Next day (Sept. 17th) the temperature had fallen to normal and the patient was somewhat better, but although the gland in the axilla was a little less tender the pustule showed no signs of diminishing. In [illegible] appeared on the left [illegible] it's temperature was [illegible] worse. The second area of inflamed skin had now a yellowish centre, as if of commencing pustulation. At mid day 20 cubic centimetres of serum were in[illegible] In the evening the [illegible] very much better an[illegible] day (Sept. 19th) the patient felt very well. The slough in the centre of the pustule had separated, leaving a healthy granulating surface, and the second erythematous area in the flank had almost completely disappeared. From this point convalescence was uninterrupted.

CASE 4.—Mrs. M——, aged 20 years, was admitted on Sept. 15th, 1900. The duration of the illness was a little doubtful, owing to the difficulty of obtaining an accurate history of the patient from her friends. It was, however, certainly under 48 hours. The onset had apparently been very severe, headache, pain in the back, diarrhœa, and great prostration being the most marked symptoms. The patient was very much emaciated, and had undergone great privation for some time prior to admission. The face was pallid, the lips were dry and covered with sordes, and the tongue was likewise dry with a brown fur. The temperature was 102.6° F., the pulse, which was soft and rapid, numbered 140, and the respirations were 40. The patient was eight and a half months pregnant, and on admission labour was already in progress. The only physical signs observed in the lungs were some subcrepitant râles at both bases. There was a large, indurated, and very tender bubo in the left inguinal region. No rash was observed. On the evening of admission 20 cubic centimetres of serum were injected intravenously and 20 cubic centimetres into the area immediately below the left groin, so that it might drain directly into the bubo. At the time of the injection the temperature had fallen to 99.6°, and the patient was much collapsed. At 4 A.M. the os was found to be fully dilated, and as by this time the patient's general condition was one of extreme gravity instrumental delivery was at once effected. The child was born asphyxiated, and after much trouble was resuscitated. No gross lesion of the placenta could be observed. After the birth of the child the patient rallied a little. The temperature rose to 103.8°, the tongue and lips became cleaner and moister, and the patient expressed herself as feeling a little better. On Sept. 16th 20 additional cubic centimetres of serum were injected subcutaneously into the abdominal wall. During the day the patient's state became more and more grave, and she died at 11.50 P.M. A pure culture of the plague bacillus was obtained from the bubo on admission, and also from the blood. On examining the bubo after death no plague bacillary forms which did not bear evidence of the most profound degeneration could be discovered, though in the spleen and other organs of the body typical unaltered forms were easily seen.

CASE 3.—Mrs. M——, aged 41 years, was admitted on Sept. 16th, 1900. The history of the illness was a little difficult to obtain accurately as the patient was considerably out of sorts for some weeks, but it probably began two days prior to admission. The chief symptoms were severe headache and general malaise; on the day prior to admission she noticed a small tender swelling in the right groin. On admission the temperature was 102.4° F., the pulse was 104, and the respirations were 24. The patient complained of very severe headache. The tongue was dry and the face was very anxious looking. In the right groin there was a small bubo of about the size of a pigeon's egg which was exceedingly tender. There was also some induration in the tissues round the gland, but the skin was not adherent. The bowels were constipated. The patient was evidently ill. On the evening of admission 20 cubic centimetres of serum were injected into the abdominal wall. Next day there was no change in the patient's condition with the exception of the fact that the bubo was, if anything, less tender, and as on the 18th no further improvement had taken place 20 cubic centimetres of the serum were injected into a vein of the right arm. In the evening great improvement had taken place in the patient's sense of well-being and she expressed herself as feeling very much better. The tongue was more moist, the headache had gone and the pain in the bubo was much less. From this point convalescence was good, no rise of temperature occurring subsequently.

CASE 1.—Mrs. B——, aged 29 years, was admitted on Sept. 14th, 1900. The patient was the wife of one of those who were engaged in the removal of plague infected clothing and was probably infected by her husband. The illness began on the day prior to admission with severe frontal headache and rigor, pains in the limbs, and severe pain in the back. There was no sickness, vomiting, or diarrhœa. On the morning of the day of admission pain was felt in the right groin and on examining this region she perceived a small lump, which was very tender to the touch. The temperature on admission was 100.8° F., the pulse was 96, and the respirations were 32. On admission the patient did not look very ill, but the face was somewhat flushed and anxious. The eyes were slightly injected and the pupils were normal. The tongue was moist and slightly furred. The heart and lungs, on physical examination, showed nothing noteworthy, with the exception of a few wheezing râles. A bubo was present in the right groin, chiefly involving the horizontal chain of lymphatic glands below Poupart's ligament. The vertical chain was only slightly involved, and there was some œdema in the surrounding connective tissue. The skin in Scarpa's triangle was reddened. This bubo was exceedingly tender. Next day the patient was somewhat better and as the temperature had fallen no serum was given. On the 16th the temperature was still normal, but the symptoms advanced during the day, and in the evening the temperature rose to 101.2°. The bubo was now considerably larger, the connective tissue more œdematous, and the skin more inflamed. 20 cubic centimetres of serum were therefore injected into the skin of the abdomen. Next day the temperature had fallen and the pain in the bubo considerably abated. On the morning of the 18th, however, the local conditions had again advanced, with extension above Poupart's ligament to the deep inguinal glands. The œdema was much increased and the redness had extended down the side of the thigh. Consequently 20 cubic centimetres of serum were injected into a vein of the right arm. Towards evening a great improvement in the patient's condition had taken place and she both looked and felt very much better. Next day the temperature was normal and falling to slightly sub-normal in the evening remained so. Improvement was rapid, the bubo softened and ruptured spontaneously on Sept. 23rd. Convalescence was good. A pure culture of the plague bacillus was obtained on admission from the bubo. On rupture the discharge proved sterile but contained many degenerate forms of bacilli, some being free and others contained in the leucocytes.

CASE 5.—R. M——, aged 12 years, was admitted on Sept. 16th, 1900. The patient became ill on the evening of Sept. 14th with slight headache. Next morning he was much prostrated and the headache had become very severe. He also made complaint of acute pain in the left axilla, and this seems to have been from that time up to his admission to hospital his most clamant symptom. No history of rigor, sickness, or vomiting could be obtained. On admission his temperature was 102·4° F., the pulse numbered 130, and the respirations were 36. The patient looked very ill. The face had the characteristic ashy pallor, with drawn brows. The lips were dry and fissured; the tongue was dry and brown on the dorsum, but moist and red at the edges. The eyes were clear and the conjunctivæ were not injected. There was some mental obscuration, dependent partly on the grave prostration, but partly, also, on his continual dread of the pain consequent on his being even carefully handled. The slightest movement caused the most acute pain, referred chiefly to the left axilla. Palpation in this region revealed the presence of a small indurated gland, which was very tender. Unlike, however, what had been observed in other cases, the tenderness was not limited to the immediate neighbourhood of this bubo, but extended to the outer portion of the pectoral region. Physical examination of the lungs revealed nothing noteworthy beyond a few localised patches of crepitant râle. There was no dyspnœa and no evidence of pulmonary engorgement. The heart's action was very feeble, and the apex impulse was widely diffused. The pulse was full and bounding, but of very poor tension. The spleen was not enlarged. The urine contained no albumin. The bowels were constipated. Twenty cubic centimetres of serum were injected subcutaneously and also 20 cubic centimetres into the right median cephalic vein on the evening of admission. On Sept. 17th the patient's general condition seemed rather better, the tongue being moister and the expression of the face less anxious. There was also less tenderness in the left axilla. On the 18th his condition was worse and an additional dose of 20 cubic centimetres of serum was injected subcutaneously in the afternoon. On the 19th 20 cubic centimetres were injected intravenously. Next day there was no apparent improvement, the respirations were more frequent, and an increased amount of crepitant râle was audible over both lungs. There was, however, no cough and no sputum could be obtained. At the outer part of the left pectoral region was an indefinite swelling, feeling, on palpation, as if situated under the pectoral muscle, suggestive of deep abscess formation. The axillary bubo was no longer tender. As the temperature since admission seemed to indicate a pyogenic infection, and as the serum had no effect on its course, no more serum was given, on the assumption that the patient was now suffering from the effects of a double infection rather than from plague alone. This supposition was borne out by the alleviation of the pain and tenderness at the site of the bubo and the recent swelling under the pectoral muscle. By the 25th this swelling gave definite signs of deep fluctuation and was incised after freezing the skin, giving exit to a sero-purulent fluid which, on cultivation, gave a pure culture of the staphylococcus aureus, but no bacillus pestis was isolated. The abscess was found to be situated under the pectoralis minor. From this time the patient's condition became rapidly worse and he died on Sept. 28th. The respirations were very rapid, but the patient was so ill that he was not disturbed by physical examination. Throughout the urine remained free from albumin, except on Sept. 22nd and 23rd, when the specimens obtained showed a faint trace.

CASE 7.—Mrs. G——, aged 24 years, was admitted on Sept. 19th, 1900. The patient became ill on the day prior to admission. The initial symptoms were not of great severity, slight headache and a feeling of general malaise only being complained of. Coincident with these symptoms a tender swelling was discovered by the patient herself in the right groin. It is to be noted, however, as accounting, perhaps, for the comparative mildness of the onset, that seven days prior to the commencement of illness she had received a prophylactic injection of 10 cubic centimetres of Yersin's curative serum. On admission she did not look as if she were very ill. Frontal headache of moderate severity was complained of, and in the right groin involving the vertical chain of glands the above-mentioned swelling, which was of about the size of a walnut, was observed. The glands were more or less adherent to one another and also to the subjacent tissues, but the overlying skin was freely moveable and not inflamed. The tongue was moist and clean; the bowels were constipated. The illness had interrupted the suckling of a three-months-old child, and on this account the breasts were enlarged and tender. The course of the illness, however, was short, lasting in all about five days, and the only clamant symptom complained of was the frontal headache. The fever was maintained at a high level for two or three days, ranging between 100° and 104° F., but other symptoms were not present in like severity. The pyrexia might be regarded as due to three factors—first, the attack of plague, probably the most important; secondly, the condition of the breasts, which became very large and tender; and thirdly, serum fever. The maximum temperature occurred on the ninth and tenth days after the prophylactic injection of serum—i.e., at the period when the pyrexia due to serum usually made its appearance. On Oct. 4th spontaneous rupture of the bubo took place and from the discharges obtained on that day virulent plague bacilli were recovered. From this point onwards convalescence was rapid and complete.

CASE 6.—Mary G——, aged six years, was admitted on Sept. 19th, 1900. This patient, who was the daughter of Mrs. G—— (Case 10[2]) and the niece of Charles McM—— (Case 1[2]), became ill on the day prior to admission with severe prostration and headache. On admission the patient's temperature was 101·2° F., the pulse was 146, and the respirations were 44. The aspect was that of a person acutely ill. The face was pale and somewhat cyanotic; the lips were dry and blue. The tongue was dry over the dorsum, but the edges were moist and clean. The child lay in a semi-comatose state and did not even recognise her mother who lay in the next bed. The right inguinal region was the seat of a swelling of about the size of a hen's egg and on examination this was seen to consist of a mass of enlarged and tender lymphatic glands. There was also some periglandular infiltration but no reddening of the skin. Examination of the lungs failed to detect anything noteworthy. On the evening of admission intravenous injection of the curative serum was attempted, but without success as the veins were very thin-walled and deeply embedded in a thick layer of adipose tissue. Twenty cubic centimetres of serum were therefore injected subcutaneously into the wall of the abdomen. Next evening the child was rather worse; the temperature was somewhat higher and the pulse was softer and more compressible. A second attempt to inject serum into a vein failed, and accordingly 40 cubic centimetres were again injected into the wall of the abdomen. The following morning the patient's condition was, if anything, slightly better, though she was still more or less unconscious. The pulse, however, was firmer, and the respirations were somewhat slower. A third attempt at intravenous injection having failed, 40 cubic centimetres of serum were injected for the third time into the abdominal wall. In the evening a very marked improvement was observed, the child having regained her natural colour, and being now quite conscious for the first time. She smilingly recognised her mother. The improvement, however, was not maintained beyond the following morning. On the evening of the 22nd the temperature again rose, and the pulse became very feeble. From this point onward the patient sank steadily. Death was associated with marked hypostatic congestion of the lungs, and was directly due to heart failure. No additional serum was given on account perhaps of undue timidity, for, as by this time moderately severe constitutional disturbance following on small doses of the serum had been frequently observed in healthy persons it was not deemed advisable to persevere with the treatment.

Glasgow.

A CASE OF PRIMARY HÆMORRHAGIC OTITIS MEDIA.

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THE patient was a very intelligent hospital nurse, aged 35 years, who had just been enjoying a three months' holiday and had not resumed work. She had not been exposed to cold and had not suffered from earache, otorrhœa, or ear trouble of any kind until Nov. 13th, 1900, when at 8 P.M., two hours before retiring for the night, she began to suffer from noises which were referred to the back of the head, and which were about equally distinct on both sides of the middle line at about the level of the lambdoid suture. The noises were like bells ringing or water boiling. When the patient went to bed and lay down the sounds were no longer noticed. Excruciating pain was now for the first time experienced in the occipital region exactly where the noises had previously been. The patient was kept awake owing to the severity of the pain which became worse and worse for four hours, when at 2 A.M. the next day she experienced a feeling of something bursting inside the head at a point distinctly located just to the left of the occiput, no pain or other disturbance having been felt during all this time in either ear. The patient was therefore much surprised to observe that the sensation of something having given way in the back of the head was followed at once by a rapid flow of blood from the left ear, nothing coming from the right side. The blood was bright red at first and then darker. Two handkerchiefs were used to stanch the blood, though these were not saturated right through. The bleeding continued from 2 to 11 A.M., but by 9 A.M. the discharge had become as pale as serum, and between 9 and 11 A.M. only a few drops of this pale serum escaped. After the bursting sensation described the pain was at once considerably relieved, but though it became less severe it did not completely terminate. The patient could stand and there was never any giddiness until syringing of the left ear was ordered, thrice daily, by the medical attendant on the same day that the hæmorrhage ceased. Syringing was continued for two more days and then no further treatment was applied until the case came under my immediate care on Nov. 29th, 16 days after the onset of the symptoms. The pain in the back of the head had continued up to this date, being referred to the mid-line of the occiput and not being more marked on one side than on the other. The pain—except on the first night of the attack—had never been acute, but was dull and aching in character, and recently it had become decidedly less marked. Occasionally, especially on rising, the patient suffered from sensations of "swimming" in the head. Though she was not liable to catch cold she had suffered from relaxed throat when "run down." There was no family history of tuberculosis. She had never suffered from scarlet fever or measles.

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[2] THE LANCET, Sept. 29th, 1900, p. 964.

Examination on Nov. 29th showed the hearing for ordinary conversation to be very good; the ticking of a watch, however, was heard by both ears at a distance of two and a quarter feet, only about half the normal distance for this watch. The left membrana tympani showed a large perforation involving most of the postero-superior quadrant and being almost occluded by dark blood-clot, Shrapnell's membrane also being dotted over with dried fragments of clot. The membrane elsewhere was somewhat opaque, retracted, and over-cupped. The right membrana tympani was rather thicker and more opaque than normal and over-cupped. A line of congestion was evident along the posterior border of the handle of the malleus. There was no sign of any previous perforation. Examination of the nasal fossæ, naso-pharynx, fauces, &c., showed both inferior turbinates and the right middle turbinate to be hypertrophied; there were chronic naso-pharyngitis with secretion and large granules on the back of the pharynx, &c., and a relaxed uvula, and the tonsils were a little enlarged. A specimen of urine obtained on the fifth morning after the initial attack was clear, of normal colour and odour, moderately acid, and of specific gravity 1027. No blood or trace of albumin or sugar was present. A well-marked indican ring was given with nitric acid; no bile was present. Examination of the chest showed that the heart and lungs were normal and that the pulse was quite normal in rate, force, and rhythm. Ophthalmoscopic examination showed both discs to be perfectly normal. Menstruation was scanty but fairly regular, seven-weekly, occurring never more frequently; there had been no periods of amenorrhœa recently.

By way of treatment gentle syringing with warm boric lotion twice a day to remove the blood-clot, &c., was ordered and rest for some days advised. When seen a week later (Dec. 6th) the patient reported that she had suffered from occipital headache and "singing" or "frying" noises in the left ear four days previously, but since that date there had been no headache or giddiness. She felt perfectly well. Examination of the left membrana tympani showed the blood-clot first noticed to have largely disappeared, leaving pieces of it thinly scattered about and allowing easier inspection of the interior of the middle ear through the perforation now rapidly closing. The head of the malleus, the incus, and apparently the chorda tympani were visible, as well as fragments of blood-clot lining in the inner wall of the tympanum. A watch was heard at a distance of 27 inches on the left side, compared with 41 or 42 inches on the right side. Self-inflation of the membranes by Valsalva's method could not be obtained on either side.

The patient was seen again on Feb. 27th, 1901. She was then perfectly well, but had had four attacks of headache located just above the external occipital protuberance. These had occurred quite suddenly, twice in December and twice in January. She attributed them to unusual exertion and anxiety in nursing cases of influenza. As well as suffering from headache the patient was giddy and vomited. She said that she very often felt slightly giddy apart from the onset of headache. She had also suffered from severe attacks of toothache lasting 12 hours or less. There had been no attacks of pain anywhere during February, but though the teeth were not painful she was confined to bed for four days with the left side of the face very much swollen, the temperature one night rising to 103° F. Examination of the left ear now showed that the perforation in the membrane was rapidly closing and all traces of clot had disappeared. There had never been any escape of blood or discharge since the initial attack on the night of Nov. 13th, 1900. The hearing remained unaltered.

The patient has been seen on several occasions since and she remains—it is now some 10 months since the initial attack—perfectly free from the symptoms described. The hearing has improved and is practically normal on both sides, as tested by watch.

Remarks.—The sudden onset of subjective noises referred to the occiput, followed by rapidly increasing pains also referred to the occipital region far away from the ear, occurring in the dead of night, was naturally most alarming, particularly as there had been nothing to direct attention to the mischief in the ears. Though there was quick relief from the excruciating pain with the escape of blood from the ear, the rapid evacuation of bright red blood enough to soak two handkerchiefs, following upon a sensation of something bursting in the head, would necessarily at first give rise to considerable anxiety as to whether there was grave intracranial mischief, aneurysm, softening sarcoma, &c. The normal fundi and the rapid recovery to perfect health without subsequent hæmorrhage or other discharge from the ear would exclude such grave mischief. The condition of the urine (with that of the optic discs) and the menstrual history would, respectively, serve to exclude renal trouble or the possibility of vicarious menstruation. The patient, who was of florid type, was at the time of the attack in excellent health after a three months' holiday, and there was nothing to suggest unusual anæmia as a possible cause for the hæmorrhage. The nasal and naso-pharyngeal condition, only brought to notice by my investigation after the onset of the acute hæmorrhage from the ear, serves to explain the mode of origin of the trouble, which had evidently followed long-standing but unsuspected Eustachian catarrh. For some as yet unknown reason acute otitis media appears to have occurred on the first day of symptoms. No history of exposure to cold could be obtained, though this is one of the common causes of this not very common condition, which Roosa first described (McBride). Owing probably to the diminished air pressure within the tympanum, as McBride suggests,[1] consequent upon previously existing Eustachian catarrh, rupture of vessels in the congested mucous lining of the tympanic cavity occurred, thus cutting short the inflammatory process at the stage of vascular engorgement, before inflammation had proceede [illegible] noteworthy that at no pe [illegible] pain and hæmorrhage [illegible] m the middle ear. The [illegible] one of primary hæmo [illegible] the disease, only four hours elapsing between the onset of intense pain and rupture of the tympanic membrane, with evacuation of almost pure blood at first and then serum, being typical.

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[1] Diseases of the Nose, Throat, and Ear, p. 512, third edition, 1900.

COCKLES AND TYPHOID FEVER.—At the meeting of the Kingsbridge (Devon) Urban Council held on August 7th the medical officer of health reported a case of typhoid fever which he attributed to eating cockles caught in the estuary of the river. He added that the sewage was carried where the cockles were caught and at his suggestion it was decided to issue handbills immediately warning people of the danger of eating shell-fish caught at the mouth of the river.

EXPERIMENTS WITH THE DANYSZ RAT BACILLUS.

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AND

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THAT the rat has been instrumental in spreading and communicating bubonic plague to the human subject is a statement which has been well established by past experience, and it has therefore become a matter of great importance to all medical officers of health, notably those connected with seaports, to find means by which rats in docks, harbours, sewers, warehouses, &c., could readily and quickly be destroyed on a large scale without any deleterious effects on other animals. As is well known, Danysz maintains that the bacillus which is known as the Danysz rat bacillus achieves this by giving to rats an acute, fatal septicæmic disease which, by ingestion of the bodies of infected and dead animals, rapidly spreads amongst them and consequently readily destroys them or causes them to migrate from the locality. Experiments were instituted both in the laboratory and on a large scale in one of the warehouses of a dock in the Port of London in order to test this alleged destructiveness of the Danysz cultures and of animals dead after injection with such cultures.

TABLE SHOWING THE RESULTS OF EXPERIMENTS OF FEEDING RATS ON MATERIALS MIXED WITH DANYSZ BACILLUS.

Date.	Material used.	How used.	Remarks.	Result.
1901.				
April 23rd	24 tubes of Dr. Danysz's rat virus.	Mixed with bread and laid on floors of warehouse.	April 24th, bread laid down on previous day eaten.	Negative.
,, 26th			,, 27th, ,,	,,
,, 30th			May 1st, ,, ,,	,,
May 3rd			,, 4th, ,, ,,	,,
,, 8th	24 tubes ditto.	,, ,,	May 10th, bread eaten.	,,
,, 11th		,, ,,	,, 13th, ,, ,,	,,
,, 15th		Mixed with water and placed on floor in tins.	May 16th, water not drunk by rats.	,,
,, 16th		Mixed with bread and laid on floors of warehouse.	May 17th, bread eaten.	,,
,, 22nd	12 tubes ditto.	,, ,,	May 24th, bread eaten.	,,
,, 25th		,, ,,	,, 26th, ,,	,,
,, 28th		,, ,,	,, 29th, ,,	,,
,, 31st		,, ,,	June 3rd, ,,	,,
June 14th	Five guinea-pigs dead after subcutaneous injection with Danysz culture.	Laid on floors of warehouse.	June 15th, four guinea-pigs eaten; June 17th, one guinea-pig eaten.	,,
,, 26th	22 mice dead after subcutaneous injection with Danysz culture.	,, ,,	June 27th, nine mice eaten.	,
,, 27th			June 28th, nine mice eaten; June 29th, one mouse eaten; July 1st, three mice eaten.	,,
July 15th	Four guinea-pigs and one rat dead after subcutaneous injection with Danysz virus.	,, ,,	July 16th, three guinea-pigs eaten; July 17th, one guinea-pig eaten; July 19th, the rat was found on this date to be untouched and being putrid was burnt.	,,
,, 17th	Eight guinea-pigs dead after subcutaneous injection with Danysz virus.	,, ,,	July 18th, two guinea-pigs eaten; July 19th, one guinea-pig eaten; July 20th, the remaining five guinea-pigs were found untouched and full of maggots, they were therefore burnt.*	,,

* July 31st: The warehouse has been visited daily since July 17th and no dead rats have been found August 3rd: The warehouse has been visited with the same result. There is abundant evidence that it is frequented by large numbers of rats; but there is no smell to be observed as there would be if rats had died in any number under the flooring. August 12th: Large numbers of rats in warehouse.

The Danysz bacillus by its morphological and cultural characters belongs to the tribe of virulent coli bacilli. It differs from the typical bacillus coli communis by its great motility, its not coagulating milk or forming indol in broth, and its high degree of virulence on rodents; but by its aspect in surface and plate culture, its formation of gas in shake culture, and its acid production in broth and in litmus milk it is clearly a coli bacillus. When inoculated subcutaneously or intra-peritoneally into rodents it causes death, the rapidity of the fatal issue depending on the amount and virulence of the dose. Gelatine culture and serum culture of recent date act more virulently than those of other media (e.g., broth, agar) and the virulence of the former is greater when the culture is derived from a rodent (guinea-pig, mouse) which has died from the acute disease. As an example of a culture possessing a high degree of virulence the subcutaneous injection of from five to 10 divisions of a Pravaz's syringe of a slightly turbid emulsion of the growth into the groin of a guinea-pig of from 200 to 300 grammes weight should cause death of the animal in between 20 and 46 hours. In this case the subcutaneous tissue of the abdomen is swollen and infiltrated with a gelatinous, sanguineous, fluid densely filled with the bacilli, the infiltration extending generally also into the subcutaneous tissue of the thigh and chest. The viscera are much congested and the blood contains also the bacilli in great numbers. Animals dead after being fed on mice or rats which have been killed by subcutaneous injection of cultures of Danysz bacilli show congestion of the viscera, especially the intestines, the bacillus being found abundantly in the spleen and blood.

The point to be determined was whether, as Danysz maintains, the culture of this bacillus is capable of causing death in a large percentage of rats fed on it. On this point the opinions of various observers differ; while, for instance, Kister and Köttgen of Hamburg[1] to a certain extent confirm Danysz's statement, others, like Krausz,[2] failed to confirm it.

1. *Experiments in the laboratory.*—There is no difficulty in showing the high virulence of the Danysz bacillus for rats, mice, and guinea-pigs if inoculated subcutaneously or intra-peritoneally, but it is different when the material is administered by ingestion. While it is a fact that virulent culture injected subcutaneously in a five-division dose into each of 24 mice caused death of all the animals in between 20 and 48 hours, when administered to other mice by ingestion in large doses it caused death of these animals in three, five, and eight days respectively. But the results were different with rats, for in these the feeding experiments with culture produced death in only 33 per cent. between eight and 14 days. There appeared, however, to be a chance of causing death of a larger percentage of rats by feeding these on rodents dead of the disease after subcutaneous injection. Rats were

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[1] Deutsche Medicinsche Wochenschrift, May 2nd, 1901, p. 275

[2] Ibid., May 30th, 1901, p. 351.

fed on mice which had died in 48 hours after being subcutaneously injected with virulent culture None of these rats became ill or died A number of rats were fed on guinea pigs which had died after inoculation with virulent culture, *and here the percentage of dead rats was certainly* increased Of six rats fed with the material from the guinea-pigs (subcutaneous fluid, peritoneal fluid, and spleen) four died from the disease in 11, 12, 11, and 18 days respectively; and of three rats fed with one whole guinea pig two died from the disease in seven and 11 days respectively. So far the laboratory experiments

2. *Experiments in the warehouse* —The accompanying table *gives the results of* experiments *of feeding on a large scale* carried out in a dock warehouse in the Port of London, instituted by Dr W Collingridge, the late medical officer of health, and continued by the present medical officer of health It ought to be stated in explanation of this table that the 60 tubes of Danysz rat virus used between April 26th and May 31st were culture tubes (on agar) which had been directly obtained from the Pasteur Institute of Paris, and that the guinea pigs, mice, and rat used for the feeding experiments from June 14th to July 17th had all been inoculated subcutaneously in the laboratory with virulent culture of the Danysz bacillus and immediately after death from the typical disease were laid on the floors of the warehouse We would also draw attention to the fact that one rat which had died after subcutaneous injection of the typical disease was offered to the rats in the warehouse but was not touched by them, whereas all the mice and the majority of the guinea pigs were readily eaten by the rats of the warehouse

The table shows that unlike the laboratory experiments those carried out in the warehouse were wholly negative, and therefore the expectation of the medical officers of health of a wholesale destruction of rats by Danysz rat bacillus as a preventive measure against plague cannot be considered from the results of the experiments to be of a promising nature

It should be also stated that several rats that had not become ill after feeding with mice or with guinea pigs or directly with culture were afterwards subjected to subcutaneous inoculation with small doses of virulent culture They promptly became ill and died with the typical disease, thus showing that the susceptibility of the rat to the disease by subcutaneous injection is incomparably higher than by feeding

It should be further stated that all laboratory experiments on rats kept in captivity must be conducted with care, since these animals, according to our experience (confirming that of Krausz), are liable to succumb spontaneously In our experience 25 per cent of the animals die in captivity within the first week or 10 days On the other hand, those that remain alive and well after the first week or fortnight of captivity may be considered fit subjects for the experiment It is possible that the great mortality of the laboratory rats observed by Kister and Köttgen may be due to this fact and not to their having been fed with the Danysz culture

A CASE OF SO-CALLED "FŒTAL (OR CONGENITAL) RICKETS"[1]

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THERE can be no doubt that many of the cases reported in past times as "congenital rickets" were, as a matter of fact, not rickets at all, but achondroplasia or, in other words, chondrodystrophia fœtalis In many of such cases at least the superficial likeness to rickets is great, the long bones are stunted and bent and the epiphyses enlarged Stoeltzner has recently examined a fœtus with a condition which he calls "fœtal myxœdema"., it appears from his description that it resembled rickets, and though the myxœdema seems doubtful it certainly was not rickets It seems certain, also, that there are various pathological processes which may take place during intra uterine life which produce deformities and stunting of the bones quite apart from rickets

In looking over the recent literature of the subject the cases which most resembled fœtal rickets that I can find are two reported by Osgood Mason[2] and Townsend.[3] Both of the patients in these instances died when a few days old, and unfortunately no post-mortem examinations were obtained In each case there were imperfectly calcified bones, both the cranial bones and long bones; the ribs were beaded and bent, the bones of the limbs were curved, the curvature being curiously like the curves produced in acquired rickets, and the epiphyses were enlarged and several fractures were present It is certain in these cases that there was a condition of "osteogenesis imperfecta" with a proliferation of the cartilage at the epiphyses In one of the cases the mother had suffered privation during pregnancy, in the other she had been well fed and cared for.

The following case clearly resembles the two just related and presumably was of the same nature The mother was 46 years of age and the infant in question was her fourteenth child The other children were strong and healthy with the exception of two who had died in infancy from some wasting disease No history could be obtained of syphilis in the mother or in the other children The mother had suffered from some form of jaundice both before and after the birth of the infant and there had been a good deal of vomiting during the pregnancy The infant was well nourished when he was born, and he took food well When a fortnight old he was brought to the Manchester Children's Hospital and admitted under Mr Joseph Collier as he had sustained various fractures, though there was no history of anything like violence The fractures involved the right humerus and radius, and the left humerus, ulna, and femur were also fractured. It was noted at this time that there was marked cranio-tabes, the occipital and parietal bones especially being in a backward condition as regards calcification The ribs also were abnormally soft, as they bent inwards during inspiration on each side of the sternum, forming the broad shallow grooves on each side so commonly seen in rickets There was slight beading of the ribs but no enlargement of the epiphyses of the long bones or any marked curvature The infant was well nourished and had apparently been born at term He was fed on cow's milk and water, the fractures were put up in splints, the fractured femur being treated by vertical suspension The fractures mended up well but when he was six weeks old the right femur fractured This also repaired well, and the infant apparently throve and was sent out of hospital It was noted that in consequence of the softness of the occipital bone it became very much flattened by the pressure of the head on the pillow when the infant was lying on his back When seen at nine months of age the infant had cut two teeth and was bright and intelligent, without any signs of rickets or deformity of the bones The occipital had a normal shape, the chest wall was well expanded, and there were no enlarged epiphyses

What was the nature of these cases? They can hardly be classed as osteomalacia, as in this disease the patient goes from bad to worse, and it is doubtful if it occurs in infants, though in rare instances it seems to have occurred in children Neither can they be said to be cases of fragilitas ossium—in this disease the bones are simply brittle and there is no tendency to bend. Syphilis produces an osteochondritis or epiphysitis but not, as far as I am aware, a tendency to bend as well as to break In the case I have just narrated I cannot help connecting the condition of the infant's bones with the fact that the mother was 46 years of age, had [illegible] child bearing, and had [illegible] the pregnanc[illegible] the infant of malnutrition except in the bones In connexion with this it is interesting to note that Charrin and Gley[4] claim to have produced congenital rickets in rabbits by inoculating the parents with the toxins of diphtheria and blue pus Certainly the cases *here recorded suggest rickets*, but I think a certain amount of caution is required in asserting they were true rickets in the absence of a post mortem examination and a careful examination of the bones by modern methods Cranio tabes may be present in rickets, but it is present also in premature and in badly nourished infants Slight beading of the ribs and abnormal softness of the ribs may be seen under similar circumstances On the other hand, enlarged epiphyses and fractures with curvatures are much more characteristic of rickets or of some intra-uterine disease.

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[1] A paper read before the Society for the Study of the Diseases of Children

[2] A Case of Congenital Rickets Archives of Pediatrics, September, [illegible]

[3] Ibid October [illegible]

[4] Comptes Rendus de la Societe de Biologie 10e iii, 200 [illegible] (quoted by Ballantyne)

The experiments and observations of Stoeltzner[5] still further impose caution in coming to a conclusion without having first had an opportunity of a histological examination of the bones. Thus Stoeltzner fed a puppy for eight weeks on a diet consisting of horse-flesh, bacon, and distilled water—a diet which was poor in lime salts. The animal gained in weight and also in length during the experiment, but on the tenth day it was noticed to have a waddling gait and there was swelling of the epiphyses of the bones of the foreleg, and later the ribs became beaded and bent. The bones also became tender (?scurvy). At the examination of the bones after death they were noted to be light in weight and very hyperæmic. Their naked-eye resemblance to rickets was very close. According to Stoeltzner, however, they were found on examination to be not true rickets, but simply spongy or in a condition of osteoporosis (*osteoporöse*). According to this author, an enlargement of the epiphyses, accompanied as it is with softening and swelling of the columnar zone of the cartilage, is not pathognomonic of rickets, as it is present in osteoporosis produced by a deficiency of lime salts in the food, and perhaps also in other conditions. In true rickets, though there is no deficiency of lime salts, the cartilage matrix does not undergo temporary calcification as it does normally; also the osteoid tissue built up by the osteoblasts remains uncalcified. In rickets much preparation is made for calcification, but the tissue formed for some reason or other is in a state unfit for the deposit of lime present in the blood. In osteoporosis comparatively little preparation is made for the deposition of the lime salts, but what osteoid tissue there is formed is completely and perfectly calcified. In rickets there is clearly a pathological state; in osteoporosis there is only a shortage of materials. Mr. F. C. Abbott's case, the post-mortem preparations of which by his courtesy I had the opportunity of seeing at the meeting of the British Medical Association this year, was one of undoubted rickets at the time of death at 14 months of age. There was a history of the deformities being present at birth, but the infant did not come under observation till some time later.

What is really wanted before the question of intra-uterine rickets can be finally settled is a careful pathological examination of an infant of the class in question made shortly after birth.

Manchester.

A CASE OF TYPHOID FEVER WITH RELAPSE; PERFORATION AND OPERATION.

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NOTES BY DR. THORNTON.

THE following case may be of interest in view of the increasing number of cases where recovery has followed an operation for perforation of a typhoid ulcer. Although the patient here referred to died eventually, yet from a surgical point of view a success may fairly be claimed.

A woman, aged 27 years, was admitted into the Civil Hospital, Pretoria, on April 20th, 1901, this being about the twelfth day of an attack of typhoid fever. Rose-coloured spots, an enlarged, palpable spleen, and a more or less typical temperature range were to be observed. The fever pursued a normal course and ended about 14 days later by a rapid fall of the temperature. The temperature remained normal for another 15 days and then a definite relapse with a fresh crop of "spots" developed. Constipation, as is common in typhoid fever in this country, was present during both the first attack and the relapse.

The patient on admission was a feeble, emaciated, and anæmic woman, and during the course of the relapse the emaciation and general weakness became very pronounced. In addition, there were signs of bronchitis and hypostatic congestion of the bases of both lungs. Nevertheless, the patient was of the most optimistic disposition and always said she was "doing very well," so that good hopes were entertained of her recovery. Unfortunately, on the eighteenth day of the relapse perforation occurred. The symptoms pointing to this occurrence were pain of moderate severity, colicky in character and much aggravated by coughing, felt chiefly in the right lower quadrant of the abdomen; a rise of temperature of 3° and quickening of the pulse-rate from 100 to 130; thoracic type of respiration; and total disappearance of the liver dulness even in the posterior axillary line, and this without any distension of the abdomen which remained hollow as it always had been. The patient was seen and examined within an hour of the occurrence of pain in the abdomen. A diagnosis of perforation was made and the aid of my surgical colleague was asked for.

With regard to the symptoms diagnostic of perforation I would venture to point out from the experience of several cases seen within a very few hours of the occurrence of this complication that it is frequently to be observed—(1) that the temperature first rises and does not fall with signs of collapse until some hours later; (2) that perforation may occur in cases where instead of tympanites the surface of the abdomen is quite hollow, and that the occurrence of distension in these cases only follows the onset of the consecutive peritonitis and paralytic distension of the gut; (3) that the absence of liver dulness in the mid-axillary line where there is no tympanites is an almost conclusive proof of the presence of free gas in the abdominal cavity, and that even if there be tympanites the liver dulness, although it may be absent in the mammary and anterior axillary line, is never absent in the mid and posterior axillary line without perforation having occurred; and (4) that in perforation there is usually a marked increase in the rate both of the pulse and the respiration. This and an obviously thoracic type of respiration should suggest perforation in a case of typhoid fever and lead to a careful examination of the abdomen. In the particular case here recorded a marked "crack pot" sound was observed on firm percussion in the eighth interspace in the mid-axillary line—a feature which I have never met with before or seen recorded.

My colleague, Mr. Godwin, deals with the surgical aspect of this case, but I may here draw further attention to the good effect which followed the use of calomel and saline purges freely given for the relief of paralytic distension of the gut which came on about from 30 to 36 hours after the operation. The results of the post-mortem examination showed that death was to be entirely attributed to the effects of the fever leading to marked fatty degeneration of the cardiac muscle and the occurrence of hypostatic pneumonia. From a surgical point of view the operation performed was successful, as the patient lived for eight days after it and the sutured gut was found air-tight and water-tight and there were no signs of peritonitis. Considering that the patient was exhausted by a long illness, being in the third week of a relapse, recovery was hardly to be expected; nevertheless the case presents many features of encouragement and fully warrants the belief that early diagnosis followed by suitable operative measures will lead to many recoveries from an otherwise fatal complication of this disease. Success will, above all, depend on early diagnosis, since operations, performed as they frequently are when the symptoms are not those of perforation only but of peritonitis following perforation, can only lead to failure and to condemnation of a thoroughly sound surgical procedure.

NOTES BY MR. GODWIN.

Taking into consideration the length of the patient's illness and her general weak condition I decided with Dr. Thornton that local anæsthesia would be preferable to giving ether or chloroform.

Operation.—The patient having been prepared in the usual manner the extremities were wrapped in cotton wool and two-thirds of a grain of eucaine were injected into the skin of the abdomen five minutes previously to her entering the theatre, and a hypodermic injection of 10 minims of solution of strychnia was administered. She was placed on a hot-water bed on the table and a nurse held a mask over her face so that nothing was visible to the patient. The incision was made in the middle line between the umbilicus and pubes. No gas escaped on opening the peritoneum. The intestinal coil looked very healthy, there was no lymph or fæcal matter to be seen or smelt and no signs of peritonitis, either local or general, were present. On gently pulling out a few inches of small intestine a dark, highly infected patch was found which was the base of an ulcer formed only of peritoneum and apparently on the point of rupture. The intestines were gently passed on through the fingers and a few inches further up a perforation of the size of a pea was found, from which gas and a little yellowish, watery fluid could be expressed. Both ulcers were situated opposite the attachment of the mesentery, there were no signs of any lymph formation. The hole in the bowel was closed by inverting a portion about one inch long by means of Lembert sutures in the long axis of the bowel. Six sutures were introduced and the surface was sealed with collodion. The ulcer lower down, which was on the point of perforation, was then sutured in a similar manner for safety's sake, four sutures being introduced. No toilet of the peritoneum was made. The abdominal wound was closed with silkworm gut sutures, all layers, including the peritoneum, being taken at once and the dressing was applied. The operation was performed two hours after the onset of the abdominal symptoms. The patient stood it well and showed no signs of pain either during the incision through the abdominal wall or during the handling of the gut. She spoke several times during the operation and said that she felt no pain or discomfort. The pulse kept quite as good during the operation as it was previously to it. One hour after the operation the temperature was normal and the pulse was 100, thready, and thin, but regular. Five minims of solution of strychnia and a quarter of a grain of morphia were given hypodermically. On June 6th (the day after the operation) the temperature was normal and the pulse was from 120 to 130, regular, and fairly full. There was no distension of the abdomen and no flatus was passed. The patient remarked that she felt much better. A rectal injection of four ounces of brandy and milk was given every six hours and 10 minims of solution of strychnia were given hypodermically morning and evening. On the 7th the nurse reported that the patient's cough had been very troublesome during the early part of the morning which caused her a good deal of abdominal pain. At 10 A.M. I found the abdomen distended so I removed the dressings. The wound looked healthy, there was considerable tenderness on pressure all over the abdomen, the liver dulness was still absent, and no flatus had been passed. In consultation with my colleague (Dr. Thornton) we decided to give three grains of calomel with sulphate of magnesia every hour until the bowels were moved. After washing the rectum out with quantities of warm water a fair amount of semi-solid fæces and a good deal of flatus were got rid of. On the 8th the patient had had a fair night. The cough was less troublesome and the abdomen was scarcely at all distended. The long rectal tube was passed and the bowel was washed out with warm water, this brought away a large amount of solid fæces. The bowels acted once naturally in the afternoon and in the evening all distension of the abdomen had disappeared. The patient took her nourishment well by the mouth. From this date up to the time of her death, which took place on June 13th, eight days after the operation, the chief trouble to contend with was the condition of the heart and lungs. The pulse gradually got quicker, rising to from 150 to 160 daily in spite of all treatment and the patient was much disturbed with cough and accumulation of secretions in the bronchi and inability to cough them up.

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[5] Das Fœtale Myxodem und Die Pseudorachitische Osteoporöse infolge von Kalkarme Fütterung. Beiträge zur Pathologie des Knochenwachsthums.

Necropsy.—A post-mortem examination was made 16 hours after death. On opening the abdomen there were no signs of peritonitis or even fluid in the peritoneal cavity. The omentum was slightly adherent to the incision in the abdominal wall, but there were no adhesions of the coils of the intestines either to each other or to the abdominal wall. The sutured portions of the gut were found to be quite air-tight and water-tight. The ulcer that had perforated was about three feet from the ileo-cæcal valve, several healed ulcers from the first attack and also other fresh ulcers of the relapse were found. On opening the chest a little clear fluid was found in both pleural cavities and also in the pericardial sac. Both lungs showed marked hypostatic pneumonia, nearly the whole of both lower lobes being consolidated. The heart muscle, even to the naked eye, was obviously much degenerated, the wall of the right ventricle being specially affected. The valves were normal.

Remarks.—The results of the post-mortem examination show that as regards the intestinal lesion the operation may be considered quite successful. It will be noticed that no general anæsthetic was given, but an injection of eucaine was made in the line of the incision. The patient felt no pain or discomfort and it is obvious from the critical condition in which all such patients must necessarily be that the giving of a general anæsthetic adds materially to the risk of these operations.

Pretoria.

THE COMPARATIVE VIRULENCE OF THE TUBERCLE BACILLUS FROM HUMAN AND BOVINE SOURCES.

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(From the Laboratory of the State Live Stock Sanitary Board of Pennsylvania.)

(Concluded from page 35[illegible].)

PART II.—TESTING THE PATHOGENIC POWER OF TUBERCULOUS MATERIAL OF HUMAN AND BOVINE ORIGIN.

IN addition to the study of a number of pure cultures obtained from man and cattle we have examined the pathogenic power of tuberculous material from the two sources, also making a series of inoculations which are as nearly parallel as possible. The results of these tests are shown in Table V. and Table VI. The plan was to inoculate a series of animals with tuberculous tissues rubbed into a smooth suspension and at the same time and with the same material to inoculate a number of guinea-pigs which on their death would furnish material for another series of inoculations parallel with those made directly from the human and bovine tissues. It was believed that the material from guinea-pigs would more nearly represent pure cultures of the respective organisms than would be obtained from the tuberculous organs of man and cattle, and that the two sets of animals would lend themselves to an interesting comparison, besides fulfilling the primary object of comparing the virulence of human and bovine material. The plan was carried out for the bovine material but failed for the human, as all the guinea-pigs died within 48 hours after inoculation. The second series of animals were inoculated with human material from another source and obtained at a later date. The results while not entirely comparable are nevertheless interesting and valuable.

Objections to the use of tuberculous material.—There are several disadvantages in using tuberculous material which were not overlooked in planning this work. 1. It is impossible to give accurate doses, for although our suspensions may be made of an equal opacity, and counts of equal amount [illegible] the same number of bacilli, there is [illegible] hat proportion of these bacilli [illegible] 2. Material from man almost always contains other bacteria. Our knowledge of mixed infections is too scanty to enable us to estimate the part played by the other species in determining the result, whether they inhibit or aid the action of the tubercle bacillus. The same is true of bovine material, although to a less extent, the tuberculous foci being more apt to remain inclosed. On the other hand, infection under natural conditions is always through such mixed material and this method of inoculation approaches in some degree the conditions we meet in practice.

Source of bovine tuberculous material.—The bovine tuberculous material was obtained from a cow six years old which had shown symptoms of tuberculosis for a long time and was finally condemned and killed. At the necropsy the animal showed a generalised involvement of the thoracic cavity with some involvement of the abdominal organs. In the lungs but little tissue approaching normal was found. The pleuræ were studded with small nodules. Many of the tuberculous areas in the lungs had undergone caseation.

TABLE V.—SHOWING RESULT OF INOCULATION OF ANIMALS WITH TUBERCULOUS MATERIAL FROM BOVINE AND HUMAN SOURCES.

Material	Reference number.	Animals.	Date of inoculation.	Method of inoculation.	Dose in cubic centimetres	Initial weight.	Weight at death.	Loss or gain in weight.	Died.	Killed.	Length of life Days.	Average. Days
Bovine	9338*a*	Horse.	July 14th	Intra pulmonary	10	1205 pounds.	1010 pounds.	195 pounds loss.	Sept. 6th.	—	54	60
"	9340*a*	"	" 30th.	"	10	1075 "	1015 "	60 pounds loss.	—	Nov. 14th, 1899.	66	
"	9701	Pig.	" 14th	"	4	130 "	78 "	52 pounds loss.	August 23rd.	—	40	50½
"	9702	"	" 14th	"	4	131 "	103 "	28 pounds loss.	Oct. 19th.	—	97	
"	9708*a*	"	" 30th	"	5	94 "	86 "	8 pounds loss.	Sept. 12th.	—	44	
"	9706*a*	"	" 30th	"	5	85 "	72 "	13 pounds loss.	August 21st.	—	22	
"	9697*a*	Sheep	" 14th	"	5	66 "	49 "	17 pounds loss.	" 27th.	—	44	88
"	9696*a*	"	" 30th	"	5	71 "	49 "	22 pounds loss.	" 31st	—	32	
"	9341*a*	Dog	" 15th	"	5	34½ "	24 "	10½ pounds loss.	Jan 15th, 1899.	—	184	214½
"	8010*a*	"	" 30th	"	5	28 "	—	—	—	March 20th, 1899	245	
"	8089*a*	Cat	" 18th	"	2 5	2508 grammes	1695 grammes	813 grammes gain.	August 18th	—	31	25
"	8001*a*	"	" 30th	"	5	1150 "	1043 "	107 grammes loss	" 19th.	—	20	
Human	8003	Horse	August 27th	"	10	1205 pounds	1225 pounds	20 pounds gain	—	March 14th, 1899.	199	183½
"	8088	"	Sept 27th.	"	10	1200 "	1370 "	170 pounds gain.	—	March 14th, 1899.	168	
"	9704	Pig	August 27th.	"	5	80 "	100 "	20 pounds gain.	Dec. 9th.	—	104	58⅓
"	9842	"	" 27th	"	5	91 "	91 "	—	Nov. 8th.	—	73	
"	9844*b*	"	Nov 9th	"	5	70 "	71 "	1 pound gain	Dec. 14th.	—	35	
"	8095*c*	"	Dec 14th.	"	5	—	193 "	—	—	March 21st, 1899.	97	
"	9705*b*	"	Nov 9th	"	5	87 pounds	107 "	20 pounds gain.	Dec. 7th.	—	28	
"	8094*d*	"	Dec 7th.	"	5	—	—	—	" 20th.	—	13	
"	9698	Sheep	August 27th.	"	5	70 pounds	74 pounds	4 pounds gain	—	March 17th, 1899.	202	202
"	9699	"	" 27th	"	5	58 "	79 "	21 pounds gain.	—	March 17th, 1899.	202	
"	12179	Dog	Sept 8th	"	5	55 "	28 "	27 pounds loss.	—	March 25th, 1899.	229	146
"	12180	"	August 27th	"	5	29 "	32 "	3 pounds gain	Oct. 29th	—	68	
"	10023	Cat	" 27th	"	2 5	2190 grammes	—	—	August 29th	—	—	
"	10060	"	Sept 8th	"	5	—	—	—	March 20th, 1899	—	193	
Human sputum	5934	Calf	July 29th	Intra peritoneally.	10	108 pounds	258 pounds	150 pounds gain	—	Jan. 14th, 1899	169	132½
"	8499	"	" 29th	"	10	131 "	265 "	134 pounds gain	—	Jan 14th, 1899.	169	
"	8049	"	May 16th.	"	10	—	340 "	—	—	August 1st, 1898.	77	
"	8050	"	" 16th	"	10	—	190 "	—	—	August 1st, 1898.	77	
"	8074	"	Oct 18th	Fed 11 times	30 to 60	224 pounds	385 "	161 pounds gain	—	Feb 18th, 1899	123	
"	8096	"	" 18th	"	30 " 60	230 "	350 "	120 pounds gain.	—	Feb 18th, 1899	123	
"	9843*e*	"	August 2nd	Intra peritoneally.	20	103 "	—	—	—	Jan 10th, 1899	161	
"	9846*f*	"	" 2nd.	"	20	132 "	—	—	—	Jan 10th, 1899	161	

(*a*) These animals were inoculated with the tissues of guinea pigs which had died from general tuberculosis due to inoculation with material from a tuberculous cow. This material was the same as that used for the inoculation of the other animals. (*b*) Inoculated from tissues of pig 9842 (*c*) Inoculated from tissues of pig 9844 (*d*) Inoculated from tissues of pig 9705. (*e*) Inoculated from tissues of calf 8049. (*f*) Inoculated from tissues of calf 8050.

The mediastinal glands were enormously enlarged and were caseous Scattered over the peritoneum were many nodules The liver was considerably involved and the portal and mesenteric glands were enlarged and caseous Other abdominal organs showed no microscopic lesions Nodules were taken from the pericardium mediastinal and mesenteric glands, the lung and the pleura. After thorough trituration in a mortar, each part separately, they were mixed, sterile water was added and the whole was strained through cheese cloth With this material a series of animals was inoculated and at the same time a number of guinea pigs These all contracted tuberculosis four dying on the fifteenth day Portions of their organs were prepared in the same way and were used for the inoculation of a second series of animals (See Table V)

Sources of human tuberculous material —This material was obtained from three bodies, the lungs only being used Two of the three were cases of well marked acute miliary tuberculosis the other a case of chronic phthisis , all adults The material *was prepared for injection in the same way as described* for the bovine, the suspension being made as nearly of the same thickness as possible The first series of animals was inoculated with the tissues from one of the cases of acute miliary tuberculosis on August 27th A number of guinea pigs were also inoculated with the object of having their tissues for a second series of inoculations, as with the bovine material, but they all died from septicæmia within 48 hours, preventing the execution of this plan With the exception of the pigs and the calves inoculated with sputum the other animals were inoculated from the two cases mentioned above (See Table V)

Method of inoculation —In all the animals the injection was made into the lung the field of puncture being shaven, washed with soap-and water, next with alcohol and ether and lastly with a 1 in 1000 solution of bichloride of mercury The site of puncture was for *the horses between the eighth* and ninth ribs , for the pigs, sheep, and dogs between the sixth and seventh ribs , and for the cats between the fifth and sixth ribs

The following are condensed post-mortem notes of the animals which were inoculated —

Horses —Two animals were inoculated with bovine material. One died after 54 days, with a loss of 195 pounds , the other was killed after 66 days, having lost 60 pounds In both the disease was mainly in the thoracic cavity In the one inoculated with material direct from the cow both lungs were involved throughout. In the other the tuberculous process was confined to the lung into which the injection was made and was marked only near the site of inoculation Two animals were inoculated with human material Both had to be killed One was entirely normal, not even the point of inoculation being discernible In the other the tuberculous process was confined to an area five cubic centimetres in diameter, with the point of inoculation as a centre

Pigs —Four animals were inoculated with bovine material. All died in an average period after infection of 50¾ days The two which received the bovine material direct lived 68½ days as against 33 days for those inoculated from the guinea pigs In all of them the lungs were the chief seat of the disease all showing an acute miliary tuberculosis of both organs In the two inoculated directly from the cow the abdominal cavity was invaded to a limited extent, tubercle being seen only in the mesenteric glands Six animals were inoculated with human material. Five died and one was killed The average length of life of the two inoculated directly from man was 88½ days , for the three inoculated *with tissues* of other pigs which died the average was 22 days In the first two the lungs were invaded throughout with miliary tubercles and one showed areas of pneumonic character In neither was the abdominal cavity involved Of the four pigs inoculated with material from the other pigs which had succumbed to inoculation with human tissues three presented a diffuse tuberculous pneumonia, rapidly fatal one living only 13 days The remaining animal was normal with the exception of the right lung and pleura. Both visceral and parietal pleuræ were largely covered with nodules from two millimetres to 12 millimetres in diameter, many of them caseous The lung was dense throughout and contained many caseous areas most marked near the surface

Sheep —Two animals were inoculated with bovine material Both died the one inoculated directly with bovine material *in 44 days and the other in 32 days* Both were considerably emaciated and in both the disease was confined almost entirely to the thoracic cavity, the spleen being the only abdominal organ involved, and this only slightly so In both the lungs showed hepatisation, more marked in the one inoculated with the tissue of the guinea pig Two animals were inoculated with human material. Both were killed 202 days after inoculation One was entirely normal with the exception of an area in the right lung five centimetres in diameter at the point of inoculation in the centre of which was a caseous abscess the pus containing many tubercle bacilli The second animal was normal throughout

Dogs —Two animals were inoculated with bovine material The dog which received the bovine material direct became markedly ill much emaciated and died after 184 days The pleural surfaces of both lungs were covered with minute nodules and were almost completely consolidated In the right lung at the point of inoculation was a small abscess 2 5 centimetres in diameter The dog inoculated with tissues [illegible] effect from it and was killed [illegible] found was an abscess cavity [illegible] point of inoculation in the right lung scrapings from the wall of which contained many tubercle bacilli Two animals were inoculated with human material One was killed after 229 days The only evidence of disease was the presence of numerous minute nodules on the pleural surfaces of both lungs and a few on the pericardium The lungs were otherwise normal The second dog began to cough after six weeks, lost flesh rapidly, and died on the sixty third day Both pleuræ contained six ounces of sanguinolent pus The lungs were the seat of an extensive miliary tuberculosis and at the point of inoculation in the right lung was an abscess cavity seven centimetres long by 2 5 millimetres in diameter The abdominal organs were not involved.

Cats —Two animals were inoculated with bovine material Both became rapidly ill one dying in 20 days and the other *in 31 days In both the lungs were the seat of an acute* miliary tuberculosis In the one which received the bovine material direct the spleen contained a number of cheesy areas In the other the mesenteric glands were enlarged and cheesy The more rapid progress of the disease in the latter was probably due to its smaller size and the larger dose Two animals were inoculated with human material One cat died after two days and has not therefore been included in the averages The second was killed after 193 days and was found to be normal throughout Not even the point of inoculation could be determined

Summarising these cases 12 animals were inoculated with bovine material 10 of these died while two survived—the horse and the dog which received the tissues of the guinea pigs 14 animals were inoculated with the human material, of which eight died and six were killed For most of the *animals the tuberculous material* direct from the cow seemed to be the more virulent The sheep and pigs were exceptions to this—the pigs notably so those receiving the tissues of guinea pigs dying in 33 days, as against 68½ days for the others The averages of life after inoculation given in the table as well as the greater mortality, show strikingly the increased potency of the bovine material over that from man. This difference is further brought out by the extent and character of the lesions produced by the one and the other, as shown in the post mortem notes above and in Table VI

Infection of calves with human tuberculous sputum —The results of this experiment are included in Table V , the details which are of considerable interest being supplied here

A calf (6984) aged five weeks weight 108 pounds was inoculated intraperitoneally with 10 cubic centimetres of *sputum from an advanced* case of tuberculosis at the University Hospital on July 29th 1898 The patient from whom the sputum was obtained was a young adult who had been ill for about one and a half years and had been expectorating freely for one year A cavity had been observed in the left lung about eight months before the sputum was obtained Death occurred soon after Beyond some slight elevation of temperature this calf showed no effect whatever from the inoculation On Nov 3rd it was tested with tuberculin but gave no reaction When it was killed on Jan 14th 1899 it weighed 256 pounds an increase of 150 pounds It was in good condition and showed no tuberculous lesions in any part of the body The site of inoculation could not be determined

A calf (8493) aged five weeks weight 131 pounds was inoculated on July 29th 1898 with 10 cubic centimetres of sputum of a patient at the University Hospital This patient was an adult male a miner by occupation He

TABLE VI.—SHOWING COMPARATIVE EXTENT OF LESIONS PRODUCED BY INOCULATION OF HUMAN AND BOV MATERIAL.

	Bovine material direct.	Bovine material passed through guinea-pigs.	Human material direct.	
Horses ...	Extensive disease of thoracic cavity.	Extensive involvement of lungs.	One horse limited involvement one lung. The other was normal throughout.	
Pigs ...	Extensive disease of thoracic cavity.	Extensive disease of thoracic cavity.	Extensive disease of thoracic cavity.	Rapidly fatal; very acute process confined mainly to lungs. Slower process in one, confined to lung and pleura of one side.
Sheep ..	Extensive disease of thoracic cavity.	Extensive disease of thoracic cavity.	Limited involvement of one lung and pleura of same side in one animal. The other normal throughout.	
Dogs ..	Extensive disease of thoracic cavity.	Limited involvement of one lung,	Limited involvement of pleura and pericardium in one animal. In the other extensive disease of thoracic cavity.	
Cats ..	Extensive disease of thoracic cavity and spleen.	Extensive disease of thoracic cavity and mesenteric glands.	Normal throughout.	

had been under treatment for nine months. At this period the apices of both lungs were consolidated. He had a cough for two years, lost flesh, and had one severe hæmorrhage. He expectorated a large amount of muco-purulent sputum. This calf showed an elevation of temperature which continued almost without intermission for three months, reaching as high as 105·8° F. in August and September. On Nov. 3rd it was tested with tuberculin and gave a reaction. It was killed on Jan. 9th, 1899, weighing 265 pounds—an increase in weight of 134 pounds. It was in fair condition. There was a nodule in the peritoneum at the site of inoculation. In the omentum were numerous calcareous nodules of the size of a hazel nut and one softened nodule of the size of a hen's egg, which contained inspissated purulent material, and five smaller ones of the same character. The lungs, liver, and spleen were normal, but on the pleural surface of the diaphragm there was a deposit of fibrin which contained several well-defined nodules. On the abdominal surface of the diaphragm was a small amount of grape formation.

A calf (8049), aged about four weeks, was inoculated on May 16th, 1898, intra-peritoneally, with 10 cubic centimetres of sputum from an advanced case of pulmonary tuberculosis at the University Hospital. The sputum contained many bacilli. Beyond a slight cough, which was noticed in July, it showed no symptoms of discomfort and grew rapidly. It was tested with tuberculin on July 30th and gave good reaction. It was killed on August 1st; its weight was 340 pounds and its condition was good; there was a large amount of fat. On the surface of both lungs and on the pleural surface of the diaphragm was a fibrinous deposit. In the cervical lobe of the right lung a few small nodules were found on section. The mediastinal and bronchial glands were somewhat enlarged. The omentum contained a few nodules, and one, about one inch in diameter, which had undergone softening, the contents being rich in tubercle bacilli. The spleen showed a number of nodules. About one-half of the mesenteric glands were enlarged and showed cheesy degeneration. An emulsion from the centre of the softened nodule in the omentum and from portions of the spleen was made and 20 cubic centimetres injected intra-peritoneally into another calf four weeks old, weight 108 pounds, on August 2nd. Beyond a slight cough, noticed on Oct. 10th, the animal showed no ill-effects from inoculation. It was killed on Jan. 10th, 1899; its condition was good. The omentum was adherent to the peritoneum at the point of inoculation and contained some 10 nodules of about the size of a pea. In every other respect the animal was entirely normal.

A calf (8050), aged four weeks, was inoculated on May 16th, 1898, with sputum from an early case of pulmonary tuberculosis at the University Hospital. The sputum contained a large number of tubercle bacilli. Soon after inoculation the temperature of the calf rose and continued high, with some remissions, until it was killed. Its appearance was bad, the coat was dry and rough and the respiration was rapid. It was tested with tuberculin, but the temperature was too high for results. It was killed on August 1st, weighing 190 pounds. On the surface of both lungs there was a slight deposit of fibrin and on section a number of hemorrhagic areas were observed in both. The mediastinal and bronchial glands were enlarged and congested. The abdominal cavity contained about 12 ounces of bloody serum. The peritoneum was thickly studded over its entire surface with nodules from one millimetre to 12 millimetres in diameter, fibrous in character. In many places these nodules had massed together, forming tumours, some five centimetres in diameter, which were dense and fibrous. The spleen contained many [illegible] both on the surface and throughou [illegible] The whole omentum was thickly stud [illegible] two millimetres to 12 millimetres [illegible] these there were three large masses, [illegible] character, two of which were 15 centi [illegible] y seven centimetres wide, and 12 millim [illegible] e third seven centimetres long, [illegible] centimetres thick. The [illegible] was thickly studded with [illegible] mesentery was thickened [illegible] small size. The appeara [illegible] grape or pearl disease. [illegible] mediastinal glands were enlarged an [illegible] at caseous. 20 cubic centimetres of an emulsion made from these glands, which contained a large number of tubercle bacilli, were injected on August 2nd into the peritoneal cavity of another calf, four weeks old, weight 132 pounds. The animal showed no ill-effects whatever from inoculation and was killed on Jan. 10th, 1899. A careful post-mortem examination showed it to be normal in all respects.

Summarising these cases, four calves of nearly the [illegible] age received intra-peritoneally 10 cubic [illegible] tuberculous sputum from different [illegible] containing a large number of tube [illegible] One showed no ill effect from the injection except a slight rise of temperature, and when killed the necropsy was entirely negative. Of the other three, two had persistent high temperature following the injection, but only one showed marked illness otherwise. Post-mortem examination proved that all had become infected with tuberculosis, the lesions in two being quite extensive. From each of these two a second calf was inoculated intra-peritoneally with an emulsion made from well-developed nodules. In both cases the emulsion was rich in tubercle bacilli and a large dose—20 cubic centimetres—was injected. The result was absolutely nega [illegible] animal and practically so in the other. [illegible] received a much larger number of tube [illegible] emulsion than those injected with the spu [illegible] we are led to conclude that the result in the latter was due to a mixed infection which operated to the advantage of the tubercle bacillus. The attempt to infect calves with human sputum by the digestive tract failed wholly. Two young calves (Table V., Nos 8074 and 8096) were given from 30 cubic centimetres to 60 cubic centimetres of sputum containing many tubercle bacilli on 11 days. Some disturbance of digestion resulted at the time, but when killed no trace o tuberculosis was detected.[1]

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[1] This experiment was conducted by Dr. W. G. Shaw, to whom all the credit is due.

Indications for further investigation.—In the further elucidation of this question cultures should be isolated from as many cases of primary intestinal tuberculosis as possible, and especially those cases in which there is reason to suspect infection by meat or milk. Having obtained the cultures it may well be asked whether or not we are in a position to determine positively the origin of the offending organisms. Are the differences which have been noted in culture, morphology, and virulence sufficiently marked and persistent to make differentiation possible? This I doubt. In my judgment much more work must be done before we are able to determine the origin of a given culture of the tubercle bacillus by examination of it in cultures. At present we know practically nothing of the influence of the human body on the tubercle bacillus, nor what changes may be induced in its morphology, cultural peculiarities, and virulence by residence in the human tissues, nor what length of time is necessary to induce such changes, if induced at all. In my studies I have, as shown in Table III., recovered the tubercle bacillus, both human and bovine, from horses, dogs, swine, goats, and in one instance had the rare, if not unique, opportunity of recovering the bovine organism from man after accidental inoculation. These recovered cultures have all been carefully compared with the originals, and while some differences have been observed and noted in the remarks following the table, with possibly one exception, they have not been of a marked or distinguishing character. In the case of the man the bacillus remained in his tissues from Jan. 1st to Feb. 27th—58 days. The recovered culture was practically identical with the original. This is, however, a shorter time by a great deal than elapses between intestinal infection in children through food and their death, and does not enable us to draw conclusions as to these cases. Like the culture recovered from animals it indicates that the tubercle bacillus is, as a rule, quite tenacious of its characteristics. We have noted constantly that the bacilli found in scrapings from the various organs of the animals inoculated with bovine cultures have been long and beaded, though the culture used was of the short and unbeaded type. The recovered cultures, however, on blood serum have always resembled the original. In a series of examinations of material coughed up by cows I failed, in every case, to find bacilli of what has been described as the bovine type. In fact, the longest tubercle bacilli I have ever observed, except in old cultures, were seen in some specimens of this material. The virulence of this material was considerably greater than human sputum ordinarily is, though the comparison was not made with accuracy.

Retention of characteristics in culture.—On blood serum with 5 per cent. of glycerine the tubercle bacillus from bovine sources will, as a rule, retain its morphological and cultural characteristics for a long time. Culture H has now been grown for two years (July 6th, 1901) and is of the sixteenth generation. Beyond an increased vegetation no marked change can be detected in it. With a single exception (Culture F) the same may be said of all the cultures isolated. This culture was isolated with some difficulty, and so scant was the growth for six generations that I was several times on the point of abandoning it. Only in the sixth generation was growth enough obtained for experimental inoculation. Considerably more growth took place in the seventh, and the eighth grew luxuriantly, since which all sub-cultures have been abundant. From the eighth generation on serum cultures were made on 5 per cent. glycerine agar, and an abundant growth obtained on this medium in the first transfer. Coincident with this increase of vegetative power came a marked change in the morphology. From being short, thick, and staining evenly, it is now long, more slender than in the early growth and shows marked beading. In other words, from being a typical "bovine" culture, it has during the past ten months so changed that it can now pass as a typical "human" culture. It will be observed, by reference to Table IV., that its pathogenic power for guinea-pigs and rabbits was not as great as is usually found in bovine cultures.

Culture in collodion sacs.—The method of culture in the body of living animals, which has been productive of such brilliant results in the hands of the French, offers much assistance in the solution of the problem before us. It has enabled Nocard[2] to demonstrate the possibility of so modifying the mammalian tubercle bacillus that it becomes like the avian organism in culture and pathogenicity. We are now attempting to modify two feebly virulent human cultures by residence in the peritoneal cavity of cattle. Culture M was kept for seven months in the abdominal cavity of a heifer inclosed in collodion sacs, two sacs being used. On removing the sacs but little multiplication of the bacilli was noted. Cultures were recovered directly from the sacs. In the first transfer the cultures grew more rapidly and abundantly than the original culture, but the morphology of the individual bacilli cannot be said to have changed to a noticeable degree. The virulence was not increased. Rabbits were not killed by subcutaneous inoculation. Guinea-pigs died after an average of 42½ days. A calf *inoculated intra-peritoneally showed no ill-effects* and gave no reaction to tuberculin after seven weeks. Culture Nasua narica (coati) of Dr. Theobald Smith, inclosed in collodion sacs, was kept in the peritoneal cavity of a yearling heifer for 11 months. On removal there was considerable increase in the growth, especially in one sac. Cultures were recovered from the sacs and showed some marked changes, especially in the manner of growth. On both blood serum and glycerine agar the growth was most rapid, at least twice as rapid as usual for this culture. On serum it covered the surface in from seven to 10 days, as a thick, white, moist layer, almost cottony near the water at the bottom. On glycerine agar the growth was more dry and wrinkled, but very rapid. The bacilli stain more evenly and are, on the whole, shorter, though long forms are seen. Guinea-pigs and rabbits inoculated subcutaneously are still living after four months. A calf which received four cubic centimetres of a milky suspension in the jugular vein reacted to tuberculin after 10 weeks. The experiment is being continued, the culture recovered from the capsule having been placed again in the peritoneal cavity of another calf. No conclusions can be drawn as yet, though the indications are that both cultures have become less strictly parasitic rather than more so by the procedure.

AS TO THE INTERPRETATION OF THE RESULTS OF THE EXPERIMENTS.

Accepting it as proven that the bovine tubercle bacillus has, as a rule, considerably greater pathogenic power than the human bacillus for a large majority of experimental animals, how should we interpret this in regard to man? Is it fair to conclude that this increase of virulence will hold good for man also? Until the contrary is proven, or until good reason for believing the contrary is shown, it is, in my judgment, right that this conclusion be held, at least as a working hypothesis. I am aware of the objections to this view that will be raised by some and acknowledge freely that it cannot be accepted as conclusive. Virulence is no doubt a factor which is relative to the subject, and exaltation of virulence for one species does not necessarily prove an increased virulence for other species. Indeed, the reverse is true in some instances.[3] However, it cannot be denied as a general rule that when the virulence of a pathogenic organism is increased for one animal it is increased for all that are naturally susceptible to its action.

The tubercle bacillus is unique in the extent of its pathogenic activity, both by direct experimental inoculation as well as by infection under what may be considered more or less natural conditions. The list of animals in which tuberculosis has been observed in parks and zoological gardens is appalling, the discoveries of Dubard[4] and others showing that not even the cold-blooded animals are exempt from this universal scourge. While it may be said of the tubercle bacillus that in cultures in the laboratory it is unusually tenacious of its characteristics, it is certain that in nature it has a wide range of adaptability as a pathogenic agent. Hence for the tubercle bacillus perhaps more than for any other known microbe we are justified in believing that an exaltation of virulence for practically all experimental animals will hold good in the case of man also.

The question can be determined definitely only by direct inoculation of man. To do this experimentally is of course impossible, consequently we are forced to rely for evidence of this nature on those accidental cases which occur from time to time. It has been my fortune to have three such cases come under [illegible] in each of which the infecting organism was known positively to be of [illegible]

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[2] Annales de l'Institut Pasteur, vol. xii., No. 9, September, 1898.

[3] The strep[illegible]

[4] La Revue de la Tuberculose, April, 18[illegible]

[5] Phila[illegible] Medical Journal, July [illegible], 19[illegible]

Similar cases have been reported by Tscherning[6] and Pfeiffer,[7] the latter ending in general infection and death. To these may be added two cases observed by Dr. M. B. Hartzell[8] of the University of Pennsylvania, though in both absolute proof of the bovine origin of the offending organism is lacking. Both occurred in healthy men employed by one of our large American railways to clean and repair cars used in the transportation of cattle In both a well-developed tuberculosis of the skin followed slight wounds of the back of the hand inflicted by broken timbers. In one case the local disease was soon cured and no further trouble resulted. The other, however, ended fatally after about a year, through the infection becoming generalised, with involvement of the lungs. This patient was a robust man, 44 years old, weighing 175 pounds, with a good family and personal history. Dr Hartzell felt able to exclude with reasonable certainty any other source of infection.

Cases such as these permit us to deny with authority the claim which has been made by certain persons that by long residence in animals of the bovine species the tubercle bacillus becomes so changed as to render it incapable of successful residence in the tissues of man. In all of these instances the bovine bacillus grew and multiplied under conditions known to be most unfavourable to it with the production of characteristic lesions and in two of the seven cases gained access to the internal organs causing death, a result which is unusual when the local lesion is due to infection from human sources While the number of cases is too small to enable us to draw sweeping conclusions the indications are that by this mode of inoculation the pathogenic power of the bovine bacillus is at least as great as that possessed by its human congener

Infection through food.—It will not be necessary here to review at length the reported instances of infection through the digestive tract following the use of food products from tuberculous cattle. Most of these of necessity lack precision and are not absolutely demonstrative, though some of them have, as Nocard has said, "almost the value of an experiment." The well-known observations of Stang,[9] Demme,[10] Gosse,[11] and Ollivier[12] leave little doubt of the power of the bovine tubercle bacillus to infect man through the digestive tract.

The evidence derived from the statistics of tuberculosis on this point is purely circumstantial yet of such strength as to be most convincing The compilations of Dr. Tatham bring out most strikingly the fact that in early life some potent factor is at work in causing tuberculosis. In the Harben Lectures for 1898 Sir Richard Thorne speaks of this as follows: "So, also, if you will compare the rates in Tables A, B, and C (pages 5, 6, and 7), and contrast the reduction of 27 9 per cent. which has taken place, under five years of age, during the last 45 years in all forms of tuberculous disease and that of 66 per cent in phthisis with the corresponding one from tabes mesenterica, which only reached 3 0 per cent., you will see that in considering the latter cause of death we are dealing with a totally different state of affairs. . . The matter, too, assumes a still more serious aspect if we limit ourselves to the first year of life when milk is most largely used as food, for then we find that the reductions in the rate of death from the various forms of tuberculosis, which reduction has been going on at 'all ages' for about half a century, not only disappears but is actually transformed into a large increase, reaching no less than 27 7 per cent This in itself is grave enough, but its significance is still further emphasised when we remember what are the circumstances under which this increase in the rate of death from tabes mesenterica has gone on synchronously with a decrease in that from other forms of tuberculosis" Evidence of a similar nature is given by Dr. G. F. Still[13] of the Hospital for Sick Children, Great Ormond-street, in his analysis of 769 consecutive necropsies of children under 12 years of age, 269 of which showed tuberculous lesions. Of these, 117, or 43 5 per cent., were in children under two years old, while in the first three years of life 56·6 per cent, or more than a half of the total number, occurred From his study of the lesions in these cases Dr. Still believes that in 153, or 56·8 per cent., the respiratory tract was the channel of infection, while in 63, or 23·4 per cent., the alimentary canal was responsible, the remaining 53 cases being uncertain or otherwise accounted for. Accepting these figures as given they indicate strongly that milk, the most largely used food, has a considerable part in the spread of tuberculosis, and justify the conclusion quoted from a report made the Council of the British Medical Associa mortality from tuberculosis in early childhoo ing as it is at other ages in the United Ki , and the opinion that this great prevalence of the disease in childhood is due to infection through the alimentary canal by milk from tuberculous cows appears to be well founded. From Germany come further confirmatory facts. Widerhofer gives an analysis of 418 cases of tuberculosis in children, showing among them 101 with involvement of the intestine. Of these, 43, or 42·5 per cent., were between the ages of two and five years, the period of life when cow's milk forms a large part of the food for children.

CONCLUSIONS.

In view of the foregoing experiments, and of the evidence quoted it seems justifiable to conclude:—

1. That the tubercle bacillus from bovine sources culture fairly constant and persistent pec and morphology by which it tiated from that ordinarily foun

2 That cultures from the tw pathogenic power, affording furt the bovine bacillus being very the human for all species of ex with the possible exception of s ceptible to both.

3 That tuberculous material fr cattle and from man corresponds closely in comparative pathogenic power to pure cultures of the tubercle bacillus from the two sources, all animals tested.

4 That it is a fair assumption from the evidence at ha and in the absence of evidence to the contrary, that t bovine tubercle bacillus has a high degree of pathogen power for man also, which is especially manifest in the earl years of life.

ATYPICAL EMPYEMA IN GENERAL PRACTICE, WITH ILLUSTRATIVE CASES AND CRITICAL NOTES.[1]

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THE very frequency of empyema invests the condition with a special interest to the general practitioner—an interest which is emphasised by its perversity in arising when it is least expected and its vagaries in running courses and achieving results which, to say the least, are disrespectful alike to teachers and text-books. The associated operation which is generally performed by the practitioner himself is not always followed by the expected result. Cases sometimes rapidly recover where we had little hope of such a result or, alas, they sometimes disastrously end where we were confident of a happy result. The following cases illustrate the varying behaviour of pleural effusions and the difficulties incident to their diagnosis and management.

CASE 1.—A boy, aged seven years, with satisfactory family history and a previous record of good health, came under my care in March, 1900. His malady for the first five days presented the usual signs and ran the ordina course of a sharp broncho-pneumonia. Resolution on th right side took place, but fluid appeared in the le pleural sac. On the eighth day an exploratory puncture disclosed some pus. On the tenth day the usual resulted in the withdrawal of half a of which was more suggestive of is origin. An interval of three weeks fo scharge copious and fœtid, the temperature unpleasantly hectic behaviour, the cough paroxysmal, and the expectorati fœtid and purulent The lad's general state was an incomprehensible contradiction to the local condition. He ate well and slept well, and he had put on flesh Washing out the pleural sac has been an abhorrence to me since the time when, as a student, I saw a patient bid a hurried farewell to things mundane while having an empyema cavity swilled out with boric lotion Efficient drainage and the injection of glycerines charged with antiseptics but followed by no beneficial results tempted me to risk washing out. The procedure resulted in paroxysmal cough and the escape of the lotion by the mouth. I desisted and, fortified by a consultant's approval, I returned to my former treatment. The end of another fortnight found things unaltered and I had to thank a careless dressing for the ultimate result One evening, on removal of my morning dressing, the nurse found the tube out and was unable to introduce it Next morning I found the patient to be no worse and I did not re introduce the tube The patient made a rapid and perfect recovery, the cough and expectoration gradually disappeared and in a month he was running out and has enjoyed robust health since

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[6] Congrès pour l Étude de la Tuberculose, first session, 1888.

[7] Zeitschrift für Hygiene, Band iii., 1898

[8] Journal of the American Medical Association, April 16th, 1898.

[9] Nocard Les Tuberculoses Animales.

[10] Ibid

[11] Ibid

[12] La Semaine Medicale, Feb 25th, 1892, Paris Academy of Medicine.

[13] Brit. Med Jour. August 19th, 1899, and Journal of Comparative Pathology and Therapeutics, vol xii, Part 4.

[1] A paper read before the Bradford Medico-Chirurgical Society o June 18th, 1901.

CASE 2.—A man, aged 29 years, came under my care in 1899 He had been taken ill at his work seven weeks previously, his symptom being pain in his abdomen The village barber (an anachronism) attended to him The appearance of a lump in three weeks followed by rupture and discharge of pus made the barber a proud man and the demand for his drawing salve straightway much increased The patient, however, kept getting worse and his relatives thought "that they had better have a common (*sic*) doctor" in case he died. Most practitioners have experience of this procedure I found him a seven stone wreck of a 12-stone man. His appearance and the thin discharge from a sinus in the lumbar region outside the erector spinæ made him the presentment of a man in a far-gone case of sacro-iliac disease Diagnosis at sight and leading questions framed accordingly are bad habits which are easily acquired I concluded that I had to deal with a case of nephritic or perinephritic trouble His urine was albuminous and contained pus, and he had slight cough and dulness over the lower part of the right lung I slit up several radiating sinuses and introduced a tube to the bottom of what I thought was the main channel which ran in towards the kidney The lapse of a few days brought no improvement and I discovered another sinus branching off from the other This ascended up under the ribs to a point just below the inferior angle of the scapula. The introduction of a fine drainage-tube, replaced from time to time by a larger, was followed by encouraging results A fortnight found the sanious discharge replaced by a creamy pus His skin had lost its ominous earthy hue, the night sweats had gone and his appetite had returned His subsequent health has been all that could be desired

CASE 3.—The patient was a boy, aged 10 years, whom I was called upon to attend in June 1900 The lad presented the classical signs of peritonitis The account of the onset the previous history, and the progress of the case led me to believe that I had to deal with an acute tuberculous peritonitis grafted on to one of a chronic character The state of the lungs and the cerebral symptoms pointed strongly to a concomitant general tuberculosis Opening the abdomen could not in the face of things be entertained and my hopeless prognosis was endorsed by a medical brother who was called in in consultation. After a few days the patient's umbilicus protruded and as the swelling evidently contained pus I incised and inserted a tube The patient was relieved and picked up for a few days, but then proceeded to develop numerous subcutaneous abscesses over the head and the trunk There was marked dulness over the lower left lung and a hypodermic puncture revealed the existence of an empyema. His relatives had not been at all pleased with the recurring trouble incident to opening the subcutaneous abscesses, and even if I had felt justified in recommending a formal operation it would assuredly have been met with the familiar "Don't put him to any more pain, doctor One morning while he was under an opiate administered the previous night I plunged a knife between the sixth and seventh ribs into the sac and inserted a tube. A tardy convalescence resulted in his being sent to school out of the way as a nuisance He immediately contracted diphtheria and was removed to the infectious disease hospital where between renal troubles and paralyses he ought to have died but did not

CASE 4.—The history of this case is brief and tragic I was called in recently to see a boy 15 years of age, whom I found suffering from an effusion filling the left pleural sac up to the sixth rib There was a history of three days' illness and the lad's general condition was very fair I purposed seeing him in the evening and making an exploratory puncture, but had scarcely got home when an urgent message recalled me to his bedside. I found him livid and collapsed and with a barely perceptible pulse, and he died five minutes after my arrival. A post mortem puncture established the purulent nature of the effusion.

In recording these cases I have mentioned the outstanding features only and have no doubt omitted many particulars which ought to have been furnished. We learn by our own mistakes and those of others, as witness my erroneous primary diagnoses We often attain an undeserved *kudos*, as was shown by the results of the first three cases We are often visited with unmerited censure, as would assuredly have been my lot had I had with me an exploratory syringe when I first visited the fourth case *Post hoc, propter hoc*, constitutes the average layman's logical horizon in medical matters

In Case 1 the oscillating temperature after the operation is noteworthy, after establishing an external drain in an empyema a normal temperature is usually run There were no physical signs indicating communication between a bronchus and the sac previously to the introduction of fluid The communication was, I think not present *ab initio* The effusion was tuberculous and doubtless resulted from the rupture of a caseous gland in the root of the lung—a very frequent cause of effusion Subsequent progressive changes in the vicinity of the original lesion effected the communication I cannot pretend to e
tube three-quarters of an inch
chest wall should effect such
Case 2 illustrates the dictum t
abscess, may open anywhe
assurance that his pain was confined to the abdomen directs attention to the importance of determining whether pain is indicative of immediate local trouble or is a peripheral manifestion of a more central lesion How often in chest troubles does the patient complain of his abdomen, and this is especially observable in pleural affections The root communications and abdominal distribution of the terminations of the lower intercostal nerves explain this phenomenon. An analysis of Case 3 suggests that the empyema may have been secondary to a subphrenic abscess This view may be dismissed as the pus was sweet throughout, there was no admixture of gas and pus at either the abdominal fistula or the thoracic fistula the mischief was on the left side and the age and previous history negatived the presence of any of the usual hepatic, gastric or enteric antecedents of subphrenic abscess

Case 4 is a forcible reminder of the fact that patients suffering from pleuritic effusions sometimes die suddenly, without warning without apparent cause and when such a catastrophe is least expected "I think you might have told us, doctor," is not a pleasant salutation from the relatives of the deceased The advice of an old teacher, "When there is a possibility of sudden disaster in a case let your prognosis be Delphian in its ambiguity," has been a blessing to me in those cases The approval of relatives and the comments of neighbours, whether they are justified or otherwise affect the general practitioner's success in a way which he cannot ignore and a few words of ante mortem warning far outweigh hours of post mortem explanation Thrombosis in the right heart, propagated pulmonary thrombosis and pulmonary embolism account for a few of these deaths Various theories have been advanced to explain that majority where no satisfactory cause is revealed on post mortem examination. I think that consideration of intra pleural physics and a recognition of the vagal reflexes clear the matter up The fatal syncope is invariably preceded by disturbance of the patient: auto-disturbance as in a fit of coughing or from external causes such as in my own patient where I believe that the ordinary necessary movements incident to chest examination were the cause In cases where the chest has been examined immediately before and the then area of dulness contrasted with the condition during the syncope the sudden and vast increase in the area of dulness is very manifest

The study of intra pleural physics is fraught with weariness and vexation of spirit Authorities agree in nothing except in contradicting each other but from the mass of conflicting statements one may gather the following facts The pressure of intra-pleural effusions may vary from a negative of five to a positive of 19 of mercury. The amount of fluid does not always determine the tension, which may be high in the limited effusion or low in a copious effusion. A thick layer of fluid associated with a very high tension may be present, although there exists *no obstacle* to a uniform diffusion in the sac. Neither gravity nor posture will account for this. A sudden and entire collapse of one lung would seem only to represent an abolition of half the respiratory capacity; it is, however, a much graver misfortune. Displacement of the mediastinum and the factor of "unsatisfied elasticity" of the sound lung which is thus introduced reduce its functional efficiency to one-fourth or one-fifth of the normal dual respiratory capacity.

These premisses warrant, I think, the conclusion that many of these sudden deaths admit of explanation as follows. That untoward disturbance of a patient results in a generalisation through the pleural sac of a previously localised pressure. As a result of the attendant pulmonary collapse a previously impaired respiratory capacity of $\frac{4}{5}$ or $\frac{7}{8}$ is suddenly reduced to $\frac{1}{5}$ in an already debilitated subject. Further, an appreciation of the great sensitiveness of the cardio-inhibitory centre in the medulla and the countless afferent paths from the thorax available for transmission of unauthorised stimuli establishes the absurdity of advancing such anatomical and physiological absurdities as "twisting of the vessels," and so on.

The significance of sudden alterations in pleural effusions and the parts played by adventitious cardio-inhibitory stimuli are shown by the deaths and collapses which are incident and subsequent to opening the sac in operating on empyema, when washing out the pleural cavity, when aspirating, or when simply making a diagnostic puncture.

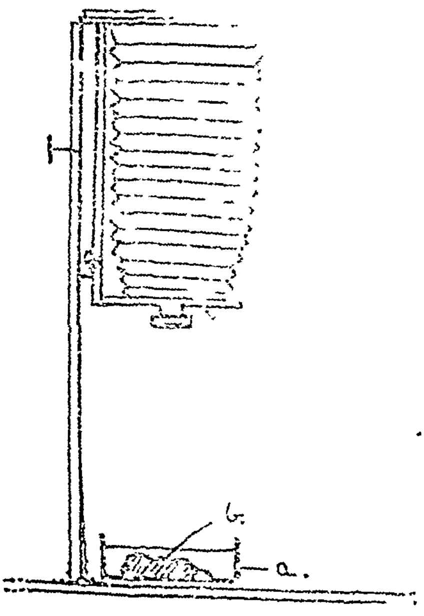
Keighley.

AN IMPROVED METHOD OF PHOTOGRAPHING PATHOLOGICAL SPECIMENS.

BY J. EFFIE PROWSE, M.B., CH.B. GLASG.

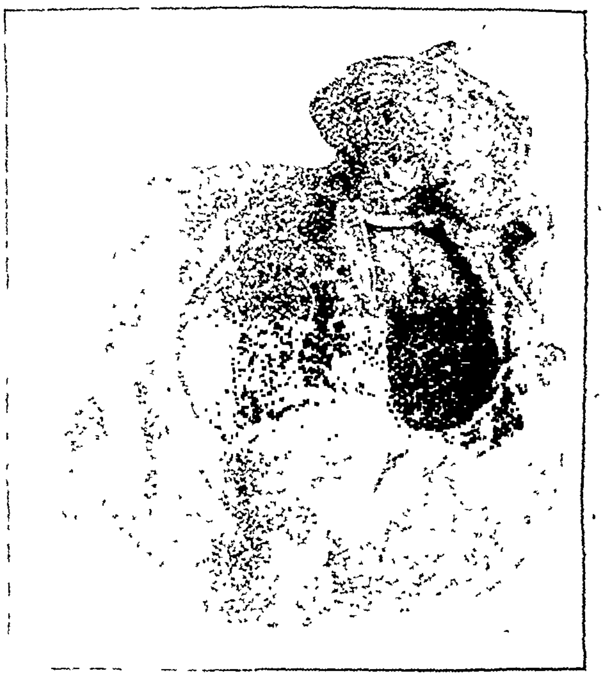
IT *is generally admitted that* to obtain a permanent and accurate record of pathological conditions photography is the most reliable method available to most workers. The results, however, point to much that is unsatisfactory. Specimens, whether removed at operations or post mortem, when viewed on the ground glass appear singularly deformed owing to the patches of light which are always in evidence where there is any moisture. Much difficulty is experienced in getting the object fixed in such a position as it occupied during life. Pinning down to boards, arranging backgrounds, &c., take a considerable time and it is disconcerting to remember that while this is being done, the tissue is probably being irreparably damaged by drying. The finished picture is flat, harsh, and lacking in depth and contour, cystic structures have collapsed, delicate filaments are matted together, cavities are lost, and the original specimen is almost unrecognisable.

FIG. 1.



Showing arrangement of camera.

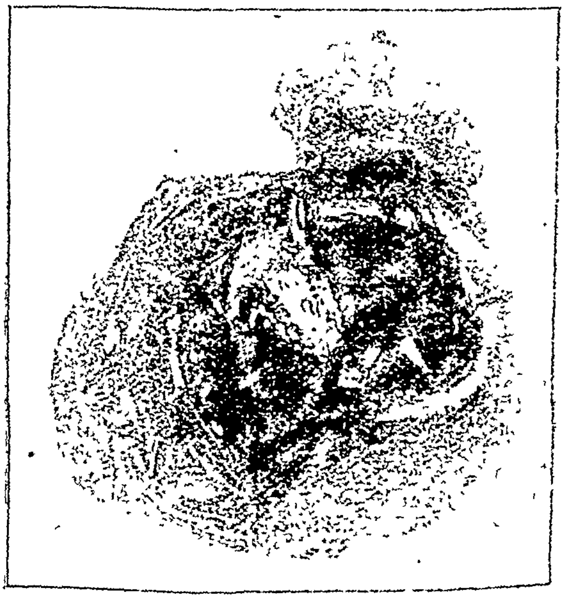
FIG. 2.



From a photograph taken in water.

A very simple method by which all these disadvantages are removed is to photograph all specimens *under water*, but not through glass. The camera is placed in the vertical position, screwed on to an upright, which is attached at right angles to a base board (see Fig. 1). A large glass jar (*a*), with a plain bottom and straight sides, is placed immediately below. In this is placed the specimen (*b*) and water is then added until the former is well covered. Care should be taken that the water is perfectly clean and free from air-bells. A piece of white blotting-paper or a dark piece of wood slipped under the jar forms an excellent background.

FIG. 3.



From a photograph taken in air.

No difficulty will be found in placing the object in a natural position, this is assumed quite mechanically in most cases Cavities expand to their right dimensions, cysts float out in a way quite impossible to imitate when dry, the most delicate lines and hairs are faithfully represented, and the picture when complete shows the specimen as it was originally seen *in situ* with soft delicate outline and marked contrasts

The illustrations speak for themselves The one taken in air (Fig 3) was the best result obtained after several attempts, the one in water (Fig 2) was taken at the first trial

Liverpool

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias tum aliorum tum proprias collectas habere et inter se comparare —MORGAGNI *De Sed et Caus Morb*, lib iv, Procemium

ROYAL HANTS COUNTY HOSPITAL, WINCHESTER

TWO CASES OF GASTRIC ULCER FATAL THROUGH HÆMORRHAGE

(Under the care of Dr H E WINGFIELD and Mr T C LANGDON)

THE mortality from gastric ulcer is difficult to estimate as in all probability many cases are never diagnosed Grünfeldt in 450 post-mortem examinations of patients over 60 years of age found the scars of healed ulcers of the stomach in 92, these figures show a frequency of over 20 per cent in these cases over 60 years of age [1] It is obvious, therefore, that gastric ulcer often escapes diagnosis If we consider only those cases in which a definite diagnosis has been made a high mortality appears which has been given by different authors as between 10 and even 50 per cent The two cases which are recorded below are remarkable in that the presence of the gastric ulcer was overshadowed by other morbid conditions present In the former of the two cases it is not improbable that the gastric hæmorrhage was venous in origin. The latter case demonstrates clearly the importance of necropsies in all obscure cases of death after injury and shows how valueless from a scientific point of view is the verdict "Accidental death" For the notes of the cases we are indebted to Dr T W Letchworth, house physician

CASE 1 —A man aged 45 years, was admitted into the Royal Hants County Hospital on May 5th 1901, complaining of shortness of breath and swelling of the feet On a previous occasion he had been treated for aortic incompetence for several months, but he dated his present symptoms from Christmas 1900 He had been obliged to leave off work a month before admission. He had been a heavy drinker, but had never complained of more gastric pain or discomfort than this and the condition of his circulation would account for On admission he was deeply cyanosed and his face and lips presented a blue and bloated appearance There was œdema of the feet and legs The area of cardiac dulness was increased on either side of the sternum and the apex beat was displaced outwards and downwards There was a double murmur over the aortic area and there was a systolic murmur at the apex conducted into the axilla. The pulse was rapid, irregular, and collapsing and flushing of the forehead with each systole was very marked The liver dulness was slightly increased A diagnosis of aortic regurgitation with secondary mitral regurgitation was made The urine was scanty, of high specific gravity, and loaded with albumin He was bled with temporary relief on several occasions He started to develop ascites about the beginning of June and during the last few days of his life there was evidence of fluid at both bases rapidly increasing in amount. On the morning of June 16th he suddenly vomited about two pints of blood, he vomited blood again twice In all about six pints were brought up, and he died within four hours, evidently from hæmorrhage

Necropsy —At the post-mortem examination the body was found to be œdematous and very pale A large amount of fluid was present in the abdomen and both pleuræ The heart weighed 22 ounces Both ventricles were dilated and hypertrophied. The aortic valves were contracted and were covered with calcareous masses being practically functionless as valves The aorta was very atheromatous The mitral valve was thickened and incompetent The stomach was full of blood On the posterior wall near the lesser curvature and the pylorus, there was an ulcer of the size of a shilling which had penetrated the whole thickness of the stomach wall, which was here adherent to the pancreas behind. Its edges were undermined and enormously thickened There were numerous vessels exposed on the floor of the ulcer, but the vessel whence the hæmorrhage had proceeded was not apparent The liver was cirrhotic and the kidneys were cardiac.

CASE 2 —A man, aged 49 years was taken to the hospital on July 1st, having been upset with a cart which he was driving and which fell down an embankment The horse was supposed to have rolled over him He had sustained a Pott's fracture of both ankles and had broken one of his ribs, about the tenth on the left side He also complained of pain in his back 36 hours after admission he suddenly vomited about one pint of blood On inquiry it was ascertained that he had frequently suffered from pain in the back and epigastrium, especially after meals, had vomited often, and had brought up altered blood The day before the accident he had been laid up with pain and vomiting Copious hæmatemesis continued for about three days and then stopped He died from the effects of hæmorrhage on July 8th

An inquest was held The coroner refused to order a post-mortem examination although he had been informed that it would be essential in order to arrive at a satisfactory conclusion as to the cause of death The house surgeon, in giving evidence stated that death was due to loss of blood but was unable to tell the source. The coroner, having told the jury that in such a case he did not consider a post-mortem examination necessary, advised them to return a verdict of "Accidental death" which was done

Necropsy —With the permission of the relatives a post-mortem examination was then performed. No injuries further than those recognised during life were found The fractured rib had not penetrated the peritoneum and there was no evidence of injury to any viscus There were numerous adhesions about the stomach and great omentum, otherwise all the organs were normal save the stomach Besides the scars of two small ulcers there was on the anterior surface, near the lesser curvature and pylorus, a recent and very superficial ulcer of the size of a sixpenny bit In the centre of this could be seen standing out above the level of the floor of the ulcer a small artery which had been eroded and whence undoubtedly the hæmorrhage had proceeded

Remarks by Dr LETCHWORTH —The peculiarity of the above cases is that in the first the patient seemed when the fatal hæmorrhage occurred, to be actually dying from heart failure due to aortic incompetence and in the second that the hæmorrhage commenced 36 hours after a serious accident involving a crush of the chest and a fractured rib, but in which it seemed impossible to attribute the hæmorrhage in any way to the injury

STATION FAMILY HOSPITAL, CLIFFDEN, MURREE, INDIA

A CASE OF ACUTE VOLVULUS OF THE SIGMOID FLEXURE; LAPAROTOMY WITH FORMATION OF AN ARTIFICIAL ANUS CLOSURE RECOVERY

(Under the care of Lieutenant Colonel H R WHITEHEAD R A M C)

VOLVULUS of the sigmoid flexure is practically the only morbid condition of the large intestine which gives rise to acute intestinal obstruction In most cases simple reduction of the volvulus is insufficient to remedy the obstruction as the volvulus has a great tendency to recur Colotomy is generally needed, at least for a time In the following case the volvulus appears to have persisted owing to the distension of the bowel and to have disappeared as soon as that distension was relieved by emptying the intestine above. Sufficient time appears to have elapsed since the operation to demonstrate the permanence of the relief.

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[1] THE LANCET, Jan 27th, 1894, p 203

The wife of a sergeant in the Royal Artillery, aged 36 years, was suddenly attacked on Oct. 7th, 1900, at 1 A.M., with most acute abdominal pain and vomiting. For some years the patient had suffered from flatulence, dyspepsia, and colic. She was seen in the morning by Captain F. M. Mangin, R.A.M.C., who was then in charge of Cliffden. She was at this time in great pain, the pain being chiefly referred to the umbilicus. She was vomiting constantly, the vomited matter being the contents of the stomach and mucus. The abdomen was distended and the course of the ascending colon was visible through the abdominal walls. The abdomen was very painful on palpation; the pulse was 100 per minute, thin, and wiry, and the tongue was slightly coated. No purgatives by the mouth were administered, but she was given large enemata. The first enema brought away a small amount of feculent matter from the lower bowel, but no regular action of the bowels took place and no flatus was passed. Captain Mangin diagnosed acute intestinal obstruction and asked Lieutenant-Colonel Whitehead to meet him in consultation on the case. At 3 P.M., when Lieutenant-Colonel Whitehead first saw the patient, she had a typical abdominal expression, her pulse was rapid and wiry, and she was constantly retching and attempting to vomit. The abdomen was acutely painful to touch and was very much distended. Nothing had passed per anum since the night before. The case was evidently one of acute obstruction, and in spite of the short time which had elapsed since the commencement of the attack, her condition was very bad. Lieutenant-Colonel Whitehead recommended immediate operation, and having obtained the patient's consent he proceeded to open the abdomen by a median incision. Captain Mangin rendered valuable assistance and chloroform was administered by Assistant Surgeon Johnstone, I.S.M.D. All aseptic precautions were taken.

The preliminary incision commenced about an inch above the umbilicus and extended in a vertical direction for three inches; this had to be extended at a subsequent stage of the operation. On opening the abdomen a good deal of peritoneal fluid and inflammatory lymph escaped. The cæcum and ascending colon presented in the wound; these were enormously distended. The hand was passed into the abdomen and the course of the large intestine was followed. The upper part of the rectum could be felt empty and collapsed and the sigmoid flexure above full and distended; apparently the gut was bent or kinked on itself at the point of constriction. No constricting band could be made out and the case appeared to be one of this form of volvulus of the sigmoid flexure. As the large intestine was so enormously distended it was feared that any manipulation might rupture the gut and it was determined to evacuate the contents of the bowel. Two stout silk ligatures were passed through the lumen of the gut, just above the cæcum, as in ordinary lumbar colotomy and the bowel was then drawn forward and opened; the sutures were divided and brought out. The gut was pulled as much as possible out of the wound, but owing to the anatomical conditions at this situation this could not be done to any great extent. Lieutenant-Colonel Whitehead then attempted to examine the descending colon in order to untwist the volvulus, but he could not now feel any kink or twist and was afraid that the peritoneal cavity would be much fouled by continuing this procedure. It appeared to him that the relaxation of the intestinal tension by evacuating the contents of the intestine had probably allowed the volvulus to subside, but as he could not be certain that this had occurred, or that the condition might not relapse, he determined to stitch the gut to the skin and to form an artificial anus, which might be closed by a later operation. Before stitching the gut to the skin the abdominal cavity was well flushed by hot boric lotion (2 per cent.) which had been boiled before use.

The patient made an uninterrupted recovery. No signs of peritonitis developed and no rise of temperature occurred after the operation. On Oct. 13th after a simple enema the patient passed a copious formed motion by the natural passage, and almost daily after this a motion was passed per anum after enemata. On the 16th the bowels acted spontaneously, a normal motion being passed. A good deal of feculent matter and intestinal discharge continued to come through the artificial anus. However, from this date the bowels usually acted normally. On Nov. 4th the patient was transferred to the Station Family Hospital, Rawal Pindi; she continued to do well but had occasional attacks of eczema around the artificial anus, although under the influence of resinol ointment the skin kept in very good condition generally. The artificial anus steadily contracted and nearly all feculent matter was passed by the rectum.

On the patient being seen again in January, 1901, the condition was as follows. The patient was in good health and had gained flesh and strength. The artificial anus had contracted very much, the opening in the abdominal walls being now only just large enough to admit a No. 12 catheter. The bowels acted regularly and naturally and nothing in the nature of a spur could be detected. The skin around the fæcal fistula was healthy, but she had suffered from occasional attacks of eczema which were troublesome and painful. The edges of the fistula were cauterised to see if further contraction would follow, but no appreciable change took place. On Feb. 25th the patient was placed under chloroform, the edges of the fistula were pared, and the skin around the edges was freed. The edges of the deep part of the fistula were then brought together by chromic gut sutures, which were cut short and buried, the skin being brought together superficially by salmon-gut sutures. A good deal of vomiting followed the chloroform and on the second day some fæcal discharge forced through the wound and the operation failed to secure direct union, but from this date the opening steadily contracted and on April 15th it had completely healed. When the patient was seen at the end of May the cicatrix was firm and complete recovery had taken place.

Remarks by Lieutenant-Colonel WHITEHEAD.—I have to thank Major B. F. Zimmermann, R.A.M.C., Captin Mangin, R.A.M.C., and Captain T. H. J. C. Goodwin, D.S.O., R.A.M.C., for their care and skill in the after treatment of the case which contributed very materially to the satisfactory result, also Assistant Surgeon Johnstone and Assistant Surgeon Bowder, I.S.M.D.

Reviews and Notices of Books.

Lehmann's Handatlanten: Band VIII., Atlas der äusseren Erkrankungen des Auges. Von Professor O. HAAB in Zürich. Zweite stark vermehrte Auflage, mit 80 farbigen Abbildungen nach Aquarellen von Maler Johann Fink und 7 schwarzen Abbildungen im Text. (*Atlas of the External Diseases of the Eye.* By Professor O. HAAB. Second edition, greatly augmented, with 80 Coloured Illustrations after water-colour drawings by the painter Johann Fink and seven Woodcuts in the text.) Munich: J. F. Lehmann. 1901. Pp. 256. Price 10 marks.

WE have had on several occasions to draw attention to this useful and well-illustrated series of atlases. No less than 18 volumes have been published and several of them have been repeatedly re-edited. The price is reasonable and many of the illustrations are really excellent. The plan adopted is to give in the text which accompanies the plates a description of a group of diseases—as, for example, those of the lacrymal organs. A typical case is then added with a chromo-lithograph of the appearances presented. In the present instance the chromo-lithographs include one of dacryocystitis, a second of lacrymal abscess which has burst without surgical interference, a third showing a lacrymal fistula, and a fourth showing ectasia of the lacrymal sac and incidentally the condition termed "epicanthus." In the text the author lays stress upon the advantage, both as a diagnostic and therapeutic means, of injection of a 0·8 per cent. solution of common salt, but the piston of the syringe must not be made of leather or of asbestos. The diseases with which phlegmonous inflammation of the lacrymal sac is most likely to be confounded are a boil in the immediate neighbourhood of the sac and dental abscess. The treatment succeeds best when the case has not been probed by unskilful hands and when false passages have not been made. When injected by an expert a solution of from 5 to 10 per cent of protargol or a 1 per cent. solution of silver nitrate is very effective Every experienced surgeon will agree with the author in the opinion which he expresses that the treatment of stenosis of the lacrymal passages by means of sounds should only be undertaken by those who are familiar with ophthalmic work, for it presents great difficulties, and more harm than good is often done by incautious sounding The mucous membrane is very tender, the passages are long and tortuous, and the liability to makes false passages is very great It is always painful to the patient, and the pain is not removed even by the previous injection of a 5 per cent. solution of cocaine The author thinks the retention of a sound in the duct after slitting up the canaliculus of doubtful efficacy and prefers excision of the sac He makes a kind of apology for holding these views but there can be no doubt that they are sound Other drawings exhibit the chief affections of the lids, one being a papular syphilid , another blepharitis eczematosa, or as it is named in this country, "ciliary blepharitis", and others represent hordeolum , molluscum contagiosum , chalazion , blepharochalasis ; sugillatio palpebræ, or black-eye, as a result of fracture of the base of the skull , dermoid of the conjunctiva , purulent ophthalmia of infants , diphtheric inflammation of the lids , granular lids , ecchymosis conjunctivæ , follicular and papillary trachoma, spring catarrh , and pemphigus Then follow pterygium, marginal eczematous ulcer of the cornea, or, as we term it, "phlyctenular ophthalmia", wounds and burns of the eye , herpes zoster ophthalmicus , eczema of the head and eyes, various affections of the cornea and sclerotic iritis and it, consequences , affections of the lens , sarcoma of the globe , strabismus , and there are still some others It will be observed that the list is tolerably complete. The atlas is published at a very moderate price and will be very useful to students and to practitioners who have rarely the opportunity of seeing diseases of the eye in the living subject

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A Practical Treatise on Medical Diagnosis for Students and Physicians By JOHN H MUSSER, M D , Professor of Clinical Medicine in the University of Pennsylvania , Physician to the Philadelphia and the Presbyterian Hospitals, &c. Fourth edition. 250 Woodcuts 49 Coloured Plates London Henry Kimpton. 1901 Pp 1118 Price 28*s*

THE purpose of the author in writing this work has been to deal with the whole subject of diagnosis in its present state of development in clear language and with abundant illustration Dr Musser may be congratulated upon the outcome of his labours A most valuable text book is the result, containing a vast amount of information set forth in a manner to which no exception can be taken The practitioner is thus afforded a work of reference upon which he can rely and the facts and principles are presented so as to give to the undergraduate and post graduate student a rational grasp and practical knowledge of this fundamental part of the science and art of medicine The book is divided into two parts, the first dealing with the "general" and the second with "special diagnosis

The author thoroughly carries out the old dictum "Tota ars medici est in observationibus.' The data to be obtained by inquiry and by observation are detailed at great length, upwards of 400 pages being occupied in the consideration of such matters as the inspection of the face, limbs, skin, conclusions which may be derived from a study of the temperature chart, &c By a careful perusal of these pages a student may hope to become a veritable Sherlock Holmes in the deductions to be arrived at by mere observation of a patient

The chapter on Pain is an excellent disquisition on the recognition and clinical value of this symptom , the points to be remembered in distinguishing between the real severity of the pain and the patient's capabilities of bearing it and the conclusions which may be arrived at from its location, mode of onset, operation, time of occurrence, character, distribution, &c., are stated in plain and explicit terms, and will well repay careful study

A very good description is given of the changes which occur in the hands in the course of various diseases, such as rheumatoid arthritis, nervous affections, &c., and the numerous illustrations aid considerably in the description of the numerous appearances which may be presented

The chapter on the Examination of the Blood is fully up to date The various methods adopted are carefully described and the variations in the corpuscles are commented on and illustrated by numerous plates The remarks on the specific gravity of the blood are scarcely so full as might have been expected, considering the many researches which have been made in this part of the subject

The second part of the book, Special Diagnosis, is also worthy of high praise By means of a plentiful use of ingenious diagrams the physical signs which may be elicited on examination of the different systems of the body are well explained and the student should have no difficulty in at once grasping the meaning which the author intends to convey The diagrams are especially useful in describing the normal and abnormal signs heard on examination of the heart and lungs, and they are also valuable in indicating the deviations from the normal which may be noticed in the palpation and percussion of the abdomen in cases of dilatation of the stomach, ascites, &c. Not only are physical signs thus explained, but symptoms and differential diagnosis are carefully discussed The illustrations are beautifully produced and add to the value of a trustworthy and instructive manual

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School Hygiene By EDWARD R. SHAW, Professor of the Institute of Pedagogy New York University Teacher's Professional Library London and New York Macmillan and Co 1901 Pp 250 Illustrated Price 4*s* 6*d*

THE method and scope of this work on school hygiene will at once commend themselves to those who take a practical interest in the physical and mental education of young people, since subjects which possess merely academic and scientific interest are relegated to an entirely subordinate position or omitted altogether, while no pains have been spared to supply the fullest and most complete details of the important and essential methods of pedagogy It is mainly from the standpoint of the elementary schoolmaster that Professor Shaw has approached the subject, and although, of course it is to be regretted that matters which exclusively concern higher grade schools fall outside the scope of the work nevertheless from the point of view of higher education, this omission is not of paramount importance, since our own public and high grade schools have little to learn from transatlantic and continental methods except as regards the fundamental principles of hygiene which are common to all varieties of schools , it is these fundamental principles which as above stated, are handled so admirably by Professor Shaw in the volume under review

The opening chapters deal with the subjects of school building, lighting ventilation and sanitation, and what the author has to say on these questions is not with the object of enlightening the architect, the builder, and the plumber, but for the purpose of putting an intelligent schoolmaster in a position to criticise with authority their work as it affects him and his pupils As regards the question of temperature and humidity of the air in schoolrooms Professor Shaw insists that the former should not fall below 60° F and that the latter should be maintained at a level of not less than 50 per cent These figures are of interest because Dr Clement Dukes with the weight of his great authority has suggested that a temperature of from 55° to 60° is the proper one for class rooms, and because when estimations have been made of the humidity of the air in class rooms, it is frequently found to be as low as 30 per cent., and according to the author's personal observations may occasionally fall as low as 20 per cent. Considering the immense importance of the degree of humidity in its effect on the health and comfort of the occupants of a room it is, perhaps, as well to remember that the dry and wet bulb is not a trustworthy instrument for making the determination.

It is difficult to find an opening for criticism in any of the matters dealt with in these early chapters, but perhaps we may be permitted to suggest that if the points of the compass had been appended to the building plans it would not have been without advantage. We would also remark that although *aspect* is admitted to be of importance, in all the plans supplied the class-rooms are arranged completely round the building, so that the light comes indifferently from all quarters; as a rule in modern English schools the class-rooms are carefully grouped in the south and east aspects, leaving when possible the north and west sides for the main hall, kitchens, offices, &c. Again, the hypercritical reader might take exception to a five-foot width of staircase and to the unnecessary allowance of a cloak-room to each class-room, although we believe that this experiment has been made with some degree of success in the Manchester High School for Girls. Further, we cannot altogether agree with the objection which Professor Shaw sees in utilising the basement for a common cloak-room as well as for lavatory accommodation.

What the author has to say on the subject of school furniture will at once command attention. His suggestions as regards design of desk and chair with a view to prevent round shoulders and lateral curvature are admirable in the extreme, but perhaps of less importance in the case of high grade than in that of elementary schools, for in the latter the hygienic home conditions are more liable to favour these physical deformities. It seems almost sacrilege to picture the sixth form of an English public school following in the footsteps of hygienic reform imposed by modern pedagogy, although apart from sentiment it might not be difficult to make out a satisfactory case for improvement. On the question of handwriting Professor Shaw gives rein to a very severe criticism of the methods at present in vogue. He condemns in unequivocal terms the Spencerian script and suggests reforms in the method of teaching and of holding the pen which have so much in their favour that it is possible before long they will be generally adopted. From the bibliography which concludes this admirable little book we cannot understand the omission of G. A. Baginsky's work on "School Hygiene." Previously to the publication of Professor Shaw's own book we had been under the impression that it was about the most important work on the subject.

LIBRARY TABLE.

Typhoid, the Destroyer of Armies, and its Abolition. By LEIGH CANNEY, M.D. Lond. London: Baillière, Tindall, and Cox. 1901. Price 1*s.* net.—King Edward VII., many years ago when Prince of Wales, in opening the proceedings of the International Congress on Hygiene took occasion to put the very pertinent question with reference to preventable diseases that if they were preventable why were they not prevented. Dr. Canney has with great enthusiasm thrown himself into the work of attempting to devise a plan for the abolition, as he believes, of that terrible scourge of armies—typhoid fever. It is the aim and object of his little monograph—after setting forth in a summary fashion the devastations which this fever and some other etiologically allied diseases, such as dysentery and cholera, have caused in all armies of which we have any historical record—to show that these diseases are water-borne and to describe how they can be abolished. Dr. Canney would create a distinct branch of the service with the sole and special object of carrying out his proposals for preventing the recurrence in future of enteric fever, to be known as the Royal Water Corps, and would furnish it with all the necessary transport and appliances for the purpose. Dr. Canney has no difficulty in establishing his first position, for we all know what a dreadful pest this fever has proved itself to be in wars past and present. The long lists of sick grouped together under the heading of "Dangerously ill, enteric where not otherwise stated," which have appeared in the daily newspapers during the war in South Africa would alone suffice to stamp the fact on the memory. It is needless to add, therefore, that Dr. Canney will have everybody's sympathy and best wishes for the success of his scheme. So far, then, all are agreed, but when we come to the discussion of disease-causes and the way to remove them the case is different. Contentious matters arise and the ground becomes much less secure. We are not sure, for example, that it would be universally accepted that contaminated water is so exclusively the source of typhoid fever as he would apparently wish us to believe, although most people would agree with him in thinking that explosive outbreaks of an epidemic nature usually resolve themselves into cases of wholesale water-poisoning, and once this is admitted the importance of the measures advocated by Dr. Canney becomes obvious. There are many who nevertheless hold that the concentration of attention on the search for microbes in the water-supply as the *sole* cause of enteric fever is apt to divert attention from other conditions which may have an important influence in determining outbreaks of the disease. Recent investigations into the sources and methods of infection and pathology of typhoid fever have tended to enlarge and to modify our views in several respects and to introduce some new difficulties in the way of prophylactic hygiene. To enter into these and other points connected with typhoid fever would, however, lead us a long way and we cannot pursue them now. Our readers may have already perused Dr. Canney's letter in the *Standard* of Sept. 10th, 1900, and if they will refer to pages 20, 21, *et seq.*, of the author's present monograph—which only consists of 31 pages altogether and therefore does not take long to read and will repay perusal—they can ascertain for themselves the practical details of his scheme brought up to date of publication. Whether the scheme which Dr. Canney has so ingeniously and industriously worked out is likely to prove a practicable and efficient one under the conditions of war is a matter which requires a good deal of careful consideration to determine. Whether, for example, the estimated amount of mule transport will prove sufficient or whether the demand made on human nature not to drink any water except that supplied by the Royal Water Corps will prove to be too severe and exacting under the conditions of service we cannot say. But it may be possible to apply the words of John Hunter to the matter—namely, not to talk about it but try it.

Lip-reading, or "Hearing by Sight." By Miss G. F. BOULTBEE.—This is a little pamphlet that will be welcome to all those unfortunate people who have become more or less deaf. Miss Boultbee, as the result of long experience, writes in a very sanguine way of the possibilities of lip-reading. Her method is simple and rational, and, as she says, learning to lip-read is a simple process that need not daunt anyone, the only conditions required being the knowledge which a teacher can supply, patience, and perseverance. One useful observation too commonly neglected is made by Miss Boultbee, "when speaking to a deaf person, naturalness and distinction of enunciation are all that is required." Lip-reading has been taught in this country for more than 30 years, and the report for 1900-1901 of the Association for the Oral Instruction of the Deaf and Dumb now before us demonstrates the increasing usefulness of the method and the permanent claim that its teachers have upon public support.

THE LANCET.

LONDON: SATURDAY, AUGUST 17, 1901.

The Employment of Lead Compounds in Pottery.

THE *raison d'être* in regard to the employment of raw lead compounds in the art of glazing pottery has vanished. To our mind Professor THORPE'S latest communication to the Government on this subject is perfectly conclusive and completely justifies this seemingly startling statement. It would be rash, however, to suppose that the vexed question has ended with the results of Professor THORPE'S *exceedingly interesting experiments. Obviously there is no* justice in depriving the potter of the essential materials of his art unless he can be compensated with another material which is equally effective and equally workable. He must have straw wherewith to make his bricks. Fortunately this material has been found in the shape of fritted lead—although not all fritted lead is innocuous; and this latter point is perhaps the most important feature in Professor THORPE'S report which was published last week and presented to the Government.

As is well known, in fritted lead the raw lead (red lead, white lead, or litharge) is fused or fluxed with silica or other material, a definite compound, silicate or boro-silicate of lead, being formed in accordance with the relative proportion of the materials employed. "Fritts" may thus be obtained which may be either soluble or nearly insoluble in acids. The "fritt" insoluble in acids is comparatively innocuous, but "fritts" may be produced which must be rejected as being little less poisonous or soluble than raw lead itself. Any legislation, therefore, to be effectual in preventing lead-poisoning must ensure in the first place that all the lead used in the processes shall be fritted and in the second place that the lead in addition to being merely fritted shall be so fluxed as to produce a "fritt" which is practically insoluble in dilute acids. Professor THORPE'S experiments in the Government Laboratory have made the issue perfectly clear. The members of the trade admit that fritted lead can be substituted for raw lead without prejudicing the industry. Professor THORPE has shown, however, that not all "fritts" are insoluble in acids, and therefore that not all "fritts" are innocuous, while, still more important, he has brought to light the conditions—the facts as to chemical composition which are accessible to manufacturers—determining the solubility of the lead in "fritts." Moreover, these conditions admit of a wide margin as to the proportion of ingredients, for the amount of lead oxide may vary from 15 to 65 per cent. or more without any necessary increase in the solubility of the lead. The compulsory adoption of "fritts" of a standard formula would thus appear to offer a satisfactory solution of the question, and to this intent two special rules were proposed by the Home Office in 1899—(1) that lead shall be fritted; and (2) that the lead shall be properly apportioned with the other materials in the "fritt" so as to secure a "fritt" practically insoluble in acids and comparatively without prejudice to health. The latter rule necessarily involves the adoption of a standard of insolubility, and a maximum of 2 per cent. of soluble lead was suggested as a criterion of safety upon which glazes might be judged.

After nearly a year's consideration the pottery manufacturers proposed an amplification of Rule 1 by the addition of the words "with some silicious substance" after the word "fritted," but this would cast a vagueness of meaning upon the requirements and, as Professor THORPE points out, would allow of raw lead being used with a minimum or even a merely nominal quantity of silica when a "fritt" would be obtained wholly soluble as regards lead and scarcely distinguishable from fused litharge. But while the principle of Rule 1 is accepted by the manufacturers they object *in toto* to Rule 2 which requires that the "fritt" produced must be practically insoluble in acids and that it must conform to a standard of insolubility. This objection is logically absurd. The danger of raw lead, as the manufacturers admit, is its high solubility and the object of fritting is to reduce this solubility to a negligible quantity. It is surely, then, essential that fritting should be placed on a scientific basis, that the ingredients should be properly apportioned in order to attain the highest degree of insolubility possible, and finally that a test should be adopted whereby the insolubility and innocence of the "fritt" can be determined and placed under control. The complaint of English manufacturers is that they are being asked to accept conditions "never before employed by any potters in the world." They would be much more correct in saying "never before enforced upon any potters in the world," for, as Professor THORPE pertinently points out, the standard is reached without the slightest difficulty in large works abroad, and whether it has been attained by voluntary effort or by the pressure of general regulations does not affect the question of practicability. Evidence is being daily gathered that the proportion of highly soluble glazes and "fritts" is becoming smaller as the manufacturers gain greater experience in compounding them.

The truth is that the anti-progressive habit of the average British manufacturer is hard to break. We are convinced that if only a fair trial with an ordinary amount of patience and intelligence be given to the recommendations so aptly drawn up by Professor THORPE neither the art nor the industry will in any way be injured, but rather *their position and dignity will be raised* by removing one of the most terrible stigmas on industrial conditions in modern times. One important omission appears to have been made in this otherwise excellent contribution to the subject—and that is the possibility of lead being dispensed with altogether. In a previous report presented to the Government in 1899 on this subject Professor THORPE, with whom Dr. THOMAS OLIVER was associated, was enthusiastic over the advantages of leadless glazes, expressing "no doubt whatever that leadless glazes of sufficient brilliancy, covering power, and durability, and adapted to all kinds of table, domestic, and sanitary ware, are now within the reach of the manufacturer." The inference is that Professor Thorpe's added experience has led him to the conclusion that lead cannot be omitted without disadvantage either to the industry or to the art.

The Presidential Address to the Members of the British Pharmaceutical Conference.

The British Pharmaceutical Conference met recently at Dublin when the Presidential Address, given by Mr. George Claridge Druce, F.L.S., proved to be of considerable interest to medical men. The President took a somewhat gloomy view of the present condition of British pharmacists, and he stated amongst other things that during the last 40 years the average amount which could be obtained in payment for the goodwill of their businesses had on the whole diminished to the extent of 50 per cent. Pharmacists had therefore several distinct grievances, some of which would be extremely hard to overcome, and he strongly urged members of the conference to unite in facing the difficulties which beset them. No one who is acquainted with life in a country town can doubt that during the last half century the position of a dispensing chemist has by no means improved, and that as a body they have cause for complaint. Forty years ago in a country town there is no doubt that as a rule the dispensing chemist and, perhaps, the bookseller occupied the most prominent positions amongst the tradesmen. The dispensing chemist was, as a rule, better educated than his fellow-townsmen, and so from the first had the advantages which are given by a sound preliminary training; the bookseller was more often a self-educated man, but his constant contact with books and with book-buyers, and the use of his own library, usually made him one of the most interesting men in the town. No one can deny that of late years other tradespeople have to a very great extent taken away the predominant position occupied by the dispensing chemist and the bookseller. This has been greatly due to the general spread of education and somewhat, unfortunately, to the increased and increasing power of money apart from culture.

Mr. Druce gave a *résumé* of the progress made during the last century in those sciences which are of the greatest interest to the dispensing chemist. He sketched briefly the discoveries which have been made in regard to photography, and pointed out that the sale of photographic materials was a branch of business well within the scope of pharmacists, because it deals with the sale of materials where scientific knowledge and accuracy of manipulation should be possessed by the purveyor. A brief review was given of some of the chief discoveries which have been made in pure chemistry, and a number of interesting facts were brought together in regard to the commercial use now made of the by-products of manufactures which had previously been wasted, but which of late years have been more and more utilised. A considerable part of the address was taken up with a review of the progress made in biology, in botany, and in bacteriology; but the most interesting part of the discourse was that dealing with matters more intimately connected with the trade of pharmacy. Mr. Druce pointed out with some emphasis the fact that from a commercial point of view dispensing chemists are, taken as a body, in a much less satisfactory state than was the case during the earlier and middle parts of the last century. He regretted that at the present time there was a falling off in the interest in science which had been shown by pharmacists 20 or 30 years ago, a state of things made evident by the diminution in the number of those who now meet at the conference. This apathy he ascribed in no small part to the loss of income from which the members of the trade are suffering. In regard to the state of the trade at the early part of the last century Mr. Druce thought that it was difficult to form a clear idea as to the position occupied by the chemist and druggist, but that the trade was a many-sided one was not open to doubt. But surely the conditions under which medicine, surgery, and pharmacy were practised during the first half of the last century in London are not mysterious. A great deal of the work fell to the apothecary, and this was the case not only in the City of London but also in the poorer parts of the town and amongst the well-to-do and leisured classes who lived in Soho, in St. James's, and in Mayfair. The physician saw and prescribed for the patients and the active treatment which he ordered was carried out as a rule by the apothecary—in many cases rather a subservient individual who, in the treatment of the upper classes, confined his attention strictly to carrying out the instructions given to him by the physician either by word of mouth or in writing. In those days bleeding was part, and no small part, of the work of an apothecary. It was his function also to cup patients, to supply leeches, to call for the physician's prescription, and, finally, to make up and to deliver the medicine. Many of the apothecaries had open shops and sold other articles of merchandise besides drugs. Of the successors to these apothecaries some became general practitioners as we now know them and some dispensing chemists. The majority of dispensing chemists at the present time doubtless confine their attention to making up prescriptions as ordered and to selling drugs and various other articles more or less intimately connected with pharmacy; though it cannot be denied that here and there may be found gentlemen who add considerable medical and surgical duties to their day's work. It is an unfortunate fact that not only such charlatans as the man Purdue, referred to on page 501, prescribe for and treat the public medically: many respectable dispensing chemists have large counter practices, as we understand they are called. This, in the interests of everybody, should not be.

Mr. Druce said that after the inauguration of an examination by the Pharmaceutical Society an Act of Parliament was passed which gave to the society power to examine and also made the examinations compulsory. As the result of this he believed that the examinations became too purely scientific and that the more practical part of pharmacy was less insisted upon than it should have been. A certain scorn of knowledge of business routine and an undue cultivation of the scientific side of the subject have, therefore, gradually grown up. It is now seriously suggested that the best method to educate a pharmacist would be to send him to college to attend a certain number of compulsory lectures on biology and botany, and then to allow him to pick up a sufficient knowledge of practical pharmacy without any more systematic teaching Mr DRUCE thought that this suggestion, if carried out, *would have a disastrous result, for a man so educated* would be unable to compete with a person brought up in regular business routine in the way in which the draper's apprentice is trained, and in the general struggle for existence the more highly educated pharmacist would be unable to hold his own Mr DRUCE, in enumerating the causes which prevent pharmacists from the profitable carrying on of their businesses, did not omit to mention the position arising out of the fact that it is legal for a company of persons possessing no pharmaceutical knowledge to carry on the business of pharmaceutical chemists He pointed out that when the legislature called the Pharmaceutical Society into being "and insisted that every chemist before commencing business should be qualified" it "out-Gilberted GILBERT by allowing seven people—not one of them qualified—to open a chemist's business and to call themselves chemists" Undoubtedly there is room for reform here

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The Case of Concealment of Infants' Bodies at Birmingham.

AMONG other cases dealt with at the assizes recently held in Birmingham was one of great importance from a medico-legal and sanitary point of view, affording as it does another illustration of the defects of our registration system so far as it affects the deaths of infants occurring shortly after birth and the burial of their bodies and of those of still born infants EMMA KNOWLES, aged 32 years, who was *described as an undertaker, pleaded guilty before* Mr Justice PHILLIMORE to committing a nuisance by neglecting to bury the bodies of certain infants entrusted to her for that purpose in May last The case created a great sensation at the time in Birmingham and all over the kingdom, being known as "the Birmingham Scandal" In consequence of complaints having been made of an offensive smell arising from the prisoner's residence the police were informed and the officers on searching the cellar found no fewer than 31 bodies of newly born infants Dr J F CRAIG, *surgeon to the police, was called in* and examined the bodies, most of which were in a very decomposed state. One was that of a deceased infant, but most, if not all, of the others were those of still-births, though it was impossible to give a definite opinion in consequence of their advanced state of decomposition No supposition of foul play was entertained, and the prisoner's excuse was that she, being a widow in very poor circumstances, had taken the money she had received to bury the bodies to buy bread for her starving children She had since May last given up the undertaking business The learned judge observed that the case had its serious aspects It was contrary to public decency and dangerous to public health to treat bodies in this way, and such a practice would facilitate foul play Having regard, however, to her poverty and other circumstances *he would not send her to prison,* but would merely bind her upon her own recognisance to come up for judgment when called upon He trusted that the fact of the conviction would deter other undertakers from doing anything of the kind.

Much credit is due to the Birmingham coroner for the full and searching manner in which the inquest was conducted by him It was stated at the time in a local paper which dealt *severely with the police and mildly with the prisoner* that it was a common practice for undertakers to be asked to take charge in their premises of dead bodies awaiting burial We cannot believe that any respectable undertaker would take upon himself so unpleasant and dangerous a duty in these days, when the providing of public mortuaries is imposed upon all sanitary authorities Moreover, mortuaries open to the public are to be found in all cemeteries Such a scandal as that to which we refer ought to be impossible A glance at the course pursued by those who observe the decencies of life and fulfil the requirements of the law may help to find a remedy *In all cases of infants dying soon after* birth both the birth and death are registered and a burial certificate is given In the case of still-births there is no registration required, but the body is given to an undertaker with a medical certificate of still birth and it is buried in the unconsecrated portion of the cemetery The 18th section of the Births and Deaths Registration Act, 1874, *imposes a penalty of £10 upon anyone who buries or procures to be buried the body of a deceased infant as that of* a still birth, and it is probable that such irregularities are less frequent than they used to be But so long as there is a sliding scale of fees for the burial of deceased infants and of still births so long will there be an inducement to fraud The difference in the two cases varies from half a crown upwards—a very serious consideration to persons who are poor and especially to those who live from hand to mouth Again the sum of half a crown is surely more than is required to pay for the ground occupied by the body of a newly-born infant, whether deceased or stillborn Is it hopeless to ask the Government to bring in legislation requiring the registration of still births? Possibly it would not be wise to propose that undertaking of burials in this country should be by the Government as it is in France and elsewhere on the continent In any case we may reasonably suggest that all burial boards and others having control over churchyards and burial grounds should afford every facility for the reception of the bodies of infants awaiting burial, that the sliding scale should be abolished, and that the burial fee should be reduced to the smallest proportion

Annotations.

"Ne quid nimis"

FACTORY LEGISLATION AND LAUNDRIES.

IT is curious that there should be so many difficulties in respect to factory legislation affecting laundries Considering that laundresses wash precisely those articles which are worn nearest to the skin it would be but natural to anticipate that such an occupation should be subjected to specially strict surveillance We have demonstrated that, in the absence of such control linen after it has been washed, may be contaminated by unhealthy surroundings and brought into contact with the germs of disease. As a result of our revelations[1] on this subject many laundry companies were floated which professed to have established sanitary steam laundries. This helped forward the evolution that has largely assimilated laundry work to factory work. Yet there has always been a great reluctance to apply the same laws to laundries as are applied to factories and workshops. It was said that the Factory Acts required modifications so as to adapt them to the special circumstances of laundries. There is no difference, however, between laundry work and other kinds of repair that require to be done quickly. Of course, the enforcement of the Factory Acts is not a direct guarantee against the contamination of the linen, but the more thoroughly a trade is inspected and regulated the easier it is for the sanitary inspector to complete the work of the factory inspector. Then, again, there is laundry work considered as a domestic industry with which no interference is proposed, but it is precisely in the small cottage or tenement building that linen may be hung out to dry in proximity with cases of infectious disease. It is also in the privacy of a small dwelling that women and children can best be made to elude the law by working more than the number of hours allowed. It seems as if it will be a long time yet before we are able to put on clean linen with any sense of security. Domestic laundries are not inspected at all and even if such inspection were established by law it would be extremely difficult to carry out in practice. So-called model steam and sanitary laundries seem to offer greater security. But of course a far larger quantity of linen is taken to these large establishments and therefore there is a greater chance that some of the linen may be specifically contaminated. Though it is illegal to send contaminated linen to a laundry, this may often be done unwittingly. Both at Marseilles and in Brittany the last cholera epidemic commenced among laundry women. Linen may well be sent to the wash before the presence of infectious disease is discovered. It will be said that boiling kills the germs, but flannels and sanitary woollen underwear should not be put in boiling water. Then the great danger is the manipulating and sorting of dirty linen in the presence of clean linen, the distribution of germs from the one to the other. Laundries ought to be organised on the same principle as are disinfecting stations. On one side should be one set of carts, baskets, and employés for the unwashed linen; on another and well-separated side should be other employés, baskets, and carts for the linen that has been washed. We seem to be a long way from this ideal. But if laundry work in all its phases were assimilated by factory legislation to other trades and occupations, then as these trades were rendered safer and more wholesome by constant inspection and by special regulations, so also might the condition of the laundries be improved. Since the above was written we regret to see that Mr. Ritchie, acting under pressure from the Irish Members and others, moved successfully to omit Clause 103, which contained the special provisions affecting laundries, from the Bill.

THE ARMY MEDICAL SERVICE.

There seems to be a good deal of uncertainty about everything appertaining to the medical service of the army at the present time. The delay in the declaration of the intention of the authorities must, we should imagine, be detrimental to the interests of the public service and also be productive of a good deal of, as it seems to us, inconvenience to all concerned. No one knows for certain, for example, whether Surgeon-General W. Taylor is to be recalled from India to take up the post of Director-General in succession to Surgeon-General J. Jameson, although everybody believes that such will be the case. It is confidently rumoured that Mr. Brodrick has no intention of issuing any definite order on the subject until the meetings of the Departmental Committee now sitting at the War Office have come to an end. If Surgeon-General Taylor is to be the new Director-General, the post he occupies as Surgeon-General and Principal Medical Officer of His Majesty's Forces in India will have to be filled and the selection of his successor will have to be made. That is an appointment which requires a good deal of consideration, for whoever is to fill the post must have had Indian experience and must be an officer of rank and administrative ability with the prospect of sufficient length of service before him to fulfil, or nearly to fulfil, his tour of service in the appointment; for nothing is worse for the service than frequent changes of the head of it. But this is not all; for other changes must occur in the event of Surgeon-General Taylor being suddenly ordered home and possibly having to be replaced by an officer from this country, when the post vacated by the latter will in turn have to be filled and so on. Any sudden order means, therefore, a great deal of trouble, inconvenience, and expense, which would be avoided by giving to the officers concerned some warning beforehand. No one has any right to complain, or ever thinks of complaining, of sudden and urgent orders when necessity occurs, but it becomes a different matter when no such excuse can be urged, and where a process of "hustling" all round could have been avoided. Whoever the new Director-General is to be we cannot understand why some intimation—of a strictly confidential character if need be—should not be made to the head of the medical service, be he merely an acting or temporary head, in order to anticipate those changes which must occur. The appointment of Director-General of the Army Medical Service was for seven years when Surgeon-General Jameson was nominated to fill it. This period was curtailed to five years, but on the late Director-General's retirement he was awarded the rate of pension that he would have received had he served the full time. Still, he was fairly and honestly entitled to occupy the post for two years more than he did, and we have already expressed the feeling—which was not by any means limited merely to his department—that existed, and still exists, as to the circumstances attending his retirement without any recognition of the great and responsible services which he had rendered. The question of the amalgamation of the two medical services —the Royal Army Medical Corps and the Indian Medical Service—has naturally been strongly, but prematurely, taken up and debated in the Indian press; for, as we announced last week, there is, we believe, no intention on the part of the Home Government or of the Government of India to entertain the proposal in this respect of a sub-committee of the Parliamentary Bills Committee of the British Medical Association, nor will any such scheme for amalgamation be considered.

DIPHTHERIA IN COLCHESTER.

At the early part of this year[1] and on one or two previous occasions we called attention to the prevalence of diphtheria in Colchester. The matter was brought into particular prominence because the medical officer of health of Colchester did not believe in the antitoxin treatment of diphtheria, which he termed "bowing the knee to medicinal Baal," while he claimed for his own particular way of dealing with the patients under his charge in the hospital for infectious diseases, that it achieved "results incomparably superior and more satisfactory than those given by the serum treatment." While we admitted that it was as impossible for a sanitary authority as for us or for anybody to dictate to a qualified medical man that he should use a certain remedy for a certain disease, we were constrained to point out that the attitude of the medical officer of health towards accepted medical teaching was very inconvenient. The Colchester

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[1] The Lancet, August 18th, 1877, p. 240.

[1] The Lancet, Feb. 9th, 1901, p. 426.

Town Council seem now to have arrived at the same conclusion, and not, we think, much too soon. Diphtheria has been present in the city for at least nine months, while there were seven deaths from this cause in May, eight in June, and six in July. In the middle of July the Sanitary Committee resolved unanimously that it was advisable, where antitoxin treatment had not been administered to diphtheria patients before admission to the hospital, that it should be administered on admission. At the end of the month they instructed the town clerk to communicate with Professor G. Sims Woodhead and as a result Dr. Louis Cobbett's services were placed at the disposal of the Town Council as a consulting bacteriologist. Dr. Cobbett lost no time in getting out a report upon the position. In this he attributes the persistent presence of diphtheria in Colchester to spread by personal contact, and points out that isolation of the infected is the only efficacious way of stamping out the disease, and that bacteriological examination must be employed to detect the foci. Dr. Cobbett's report concludes with the following recommendations:—

1. That a practical bacteriologist be appointed to make the necessary examinations and that he be provided with a suitable laboratory and laboratory servant (while this is being arranged swabs might be sent to Cambridge and examined there).

2. That a house and garden be taken, put in charge of a trained nurse and opened as an isolation home for healthy infected persons. (The house might be situated on the outskirts of the town.) All persons admitted to the home should have a prophylactic injection of antitoxin.

3. That a circular letter be sent to all private medical [illegible] of what it is intended to do [illegible] examination for their poorer [illegible] ll as a free supply of anti[illegible] m to submit swabs from all cases which are in the least suspicious, as well as from those which they notify, and from all children and young persons living in houses where these cases occur.

The Town Council of Colchester may not adopt Dr. Cobbett's report entirely, but they will have behind them the solid backing of all the wiser citizens in the town if they follow the majority of his recommendations. It will be a reproach to the community if diphtheria remains longer in their midst to endanger the health and to retard the education of their children.

TWO NEW ROMAN OCULIST SEALS

SOME two years have elapsed since any announcement of the discovery of a Roman oculist seal, but at the February meeting of the French Academy of Inscriptions a description of two new ones was given, one of which is probably the finest specimen of these interesting relics found for many years. They were unearthed during the excavation of a Roman villa near the ancient city of Nasium in the Department of the Meuse. The best preserved seal bears a fourfold inscription and belonged to an oculist named Q. Valerius Flavianus, a personage hitherto unknown. The collyria given by, and the contents of, the four texts, omitting the name which is at the commencement of each one, are as follows: Euodes ad veteres cicatrices ex ti(lia); Dialepidos ad veteres cicatrices ex ti(lia); Diasmyrnes post impetum pituitae ex ovo[1]; Diasmisus ad aspritudines. The first collyrium, Euodes, means simply perfume, but of what it consisted we do not know. There are other collyria of the ingredients of which we are ignorant, such as Anodynum and Diatessarum—i.e., the four ingredients. The cicatrices were affections of the transparent cornea and the pupils and are especially referred to by Pliny, Celsus, and Galen. The second, Dialepidos, used for the same remedial purpose, is protoxide of copper and is frequently stated upon the seals to have been applied for aspritudo or trachoma. These two collyria, however, Flavianus tells us contained another ingredient the first letters of which were "Ti," and it is this which will constitute the special value of this signet, for the word is new. M. Thedenat argues that it stands for "tilia," the lime tree. These oculist seals, after denoting the chief medicament, generally give the vehicle in which it was applied, such as "e lacte muliebri," or, as upon this seal, "ex ovo," and there is no reason to doubt that "ti" indicates a decoction of lime-leaves or limes. For of the tilia or lime, Pliny expressly tells us that decoctions of its leaves were used for the same medical purposes as those of the wild olive, "for inflammation of the eyes," and of the latter he singularly says, "Miscentur oculorum medicamentis et decoctum foliorum et succus oleastri." The ex ti(lia) of the Flavianus seal will correspond to the "miscentur oculorum medicamentis" of Pliny and this reading of the text may be accepted. The third collyrium, Diasmyrnes, myrrh, is very common on the seals, especially as a remedy for post impetum pituitæ (lippitudinis)—that is, after the mucous secretion of ophthalmia. The myrrh here is to be mixed with portions of eggs. The fourth substance, Diasmisus (probably sulphate of iron), is a remedy for the palpebral granulations, or trachoma. It was a favourite ingredient with Roman oculists and is spoken of by Marcellus, Dioscorides, Galen, and Pliny. The possessor of the second seal was one Tiberius Claudius Di[illegible], and it also has an inscription upon the four sides, though only three of these name collyria and not any of them inform us for what form of eye disease they were prescribed. The three given are "Stactum, delachrimatorium," that is oil of myrrh to produce tears, "Diasmyrnes," also myrrh, and "Crocodes anodynum," saffron with an anodyne. The fourth text speaks of a sweet or pleasant collyrium of "T. Claudius Di[illegible] and Solon." Who this medical Solon was is uncertain, but Galen mentions a Solon as the author of several aural remedies. It would be easy, by means of the Corpus of Oculist Seals of 1897, to trace all the maladies for which myrrh and saffron are designated in them, but as we are not certain as to which of them the owner of this seal applied them it is hardly worth doing.

THE EXPOSURE OF FOOD FOR SALE IN THE STREETS

IN busy and crowded thoroughfares the practice of exposing food for sale is open to the greatest objection. The air of such places presents a terrible bacteriological history and the contamination of food sold in open places becomes an easy possibility. Street dust is full of tubercle bacilli from the detestable habit of spitting, it also may contain the microbes of pus, malignant œdema, tetanus, and septicæmia. It is true that the taint deposited on food exposed for sale may be parted in the process of cooking and micro-organisms may be destroyed, although it has been pretty strongly asserted that the cookery of fish in particular has not been effectual in destroying the typhoid bacillus, instances of typhoid fever having been traced to contaminated yet cooked fish. The avidity with which certain foods would appear to absorb noxious odours is well known. Milk is peculiarly liable to take up unpleasant odours and so also is fish. The former is employed when exposed in shallow trays to reduce the smell of paint in a house. Fish cannot be placed in the same [illegible] as coffee or other pungent smelling articles of food as it so rapidly absorbs the odoriferous principle. Busy streets are seldom free from offensive effluvia, and it is reasonable to conclude that these would easily affect many articles of food exposed to them. In our own knowledge quite recently complaint was made that a salmon tasted strongly of creasote. The fishmonger might easily have been charged with selling fish brushed over with a powerfully smelling antiseptic. But it subsequently proved that the Strand (as usual) was "up" and that the stacks of black wooden bricks were giving off a strong naphthalene odour corresponding exactly with the taste of the salmon bought in a Strand shop at the very moment when the bricks were being dumped down on the pavements. This explanation was convincing, but we only quote it as a proof of the liability to contamination of food exposed for sale in the streets under an environment which can seldom be described as hygienic. The fish was probably not injurious to health, but it possessed a decidedly unpleasant taste. Butcher's meat might easily get tainted in the same way. It has been recorded that meat exposed to a current of tobacco smoke has proved powerfully toxic, and this again affords a further illustration of the dangers involved when food is indiscriminately left in contact with air of doubtful purity. It is not desirable that food offered for sale should be exposed to the free influx of air from the streets. If it must be presented to view to attract customers it should be exhibited behind a glass screen, and adequate provision should be made for ventilation with pure air.

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[1] A seal found in Hungary reads: "Diasmyrnes post impetum ex ovo."

FATAL INTESTINAL HÆMORRHAGE IN PNEUMONIA.

IT is now well recognised that the pneumococcus, the usual pathogenic agent of acute pneumonia, may attack other parts than the lung and give rise to a pneumococcic arthritis, pericarditis, endocarditis, or peritonitis. These conditions have been observed almost exclusively by continental writers. The first case of pneumococcic arthritis observed in this country was published by Dr. Edward J. Cave quite recently in THE LANCET of Jan. 12th, 1901, p. 82 Professor Dieulafoy has described pneumococcic ulcerative gastritis which is now well known in France, but only a few cases of pneumococcic ulceration of the intestine have been reported. At the meeting of the Société Médicale des Hôpitaux of Paris on July 19th Dr. M. Chauffard and Dr. M. F. Rathery related the following case. A man, aged 51 years, addicted to alcohol, was admitted to hospital in a delirious state on March 4th. He had been ill for six days: There were signs of consolidation at the base of the right lung and characteristic pneumonic sputum. The temperature ranged between 102·2° and 104° F. On March 8th a new focus of pneumonia was observed at the base of the left lung. On March 10th, at 5 P.M., the patient passed a considerable quantity of liquid blood. The hæmorrhage continued until 10 or 11 o'clock in spite of all treatment. At least two and a half pints of blood were lost. On the following day the patient was extremely weak and anæmic, the pulse was uncountable, and the temperature had fallen to 100·6°. The hæmorrhage recurred in abundance, the blood flowing from the bed to the floor. Gelatin solution was injected and ice was applied to the abdomen. The hæmorrhage ceased at 3 P.M. In the night it again recurred and nearly a pint of blood was lost. Death took place at 10 A.M. on March 12th. On opening the abdomen the colon was found to be distended and "marbled" with brownish patches which were due to clots seen through its walls. Two-thirds of the right lung were in a state of grey hepatisation. In the left lung the consolidation was less extensive. After washing away the clots in the colon a number of punctiform hæmorrhages were found in the transverse and descending parts. At the splenic flexure were five or six greyish-red, superficial ulcers, from one to two millimetres in diameter, with irregular borders and bases formed of a granular, greyish substance. At the lower part of the descending colon was a larger ulcer, of the size of a large lentil, which was surrounded by numerous small punctiform ulcers. In the rectum was an elongated ulcer. Sections of the ulcers showed great congestion of the mucous membrane and of the submucous tissue. The capillaries were greatly dilated and some were ruptured. The submucous tissue was infiltrated with embryonic cells. The microscopic examination of the intestine showed amidst the microbial flora, especially in the position of the ulcers, numerous diplococci which took Gram's stain. The pneumococcus was cultivated from the lungs and blood. Widal's reaction was absent. Examination of the few recorded cases of intestinal hæmorrhage in pneumonia shows that the hæmorrhage may be slight or profuse and fatal. The ulcers in the present case corresponded both anatomically and clinically to Professor Dieulafoy's "*gastrite ulcéreuse pneumococcique.*"

STREET NOISES.

AS we write there are seven newsvendors visible from our windows. Six of them are yelling "Three o'clock Winner" and one remains silent. No policeman is in sight and if he were it would make no difference. We pointed out in THE LANCET of June 20th, p. 1848, that the police will only act after a personal complaint, and then only if the applicant will promise to attend at the police-court at some date in the more or less immediate future. We also pointed out that the London County Council by-law on the subject of the yelling of newspaper-sellers was made of no effect and we also suggested that persons annoyed by such noises should worry their Council member. We are glad to see a letter in the *Standard* of August 13th from a gentleman resident in Finsbury-circus, mentioning all the points to which we have so often referred in our own columns, and stating that a petition is about to be forwarded to the London County Council on the subject. We say again for about the fiftieth time that there is no reason why newsvendors should shout. The nuisance is absolutely intolerable and must be put down. We may add that the writer of the letter to which we have referred is Mr. Thomas Bowden Green, 1, Finsbury-circus, London, E.C., and that he asks all interested in the matter to communicate with him.

GENERAL PARALYSIS AND SYPHILIS.

DR. W. H. B. STODDART contributes to the July number of the *Journal of Mental Science* a critical digest on the relation of general paralysis to syphilis, a question of great interest in view of the possibilities of the prevention of general paralysis by limiting the spread of syphilis. The fact that (in 1857) Esmarck and Jessen, and subsequently Kjelburg—all Scandinavians—were the first to suggest the syphilitic origin of general paralysis was in itself a strong point in favour of the view, since syphilis was treated in State hospitals in Scandinavia, and therefore the history of previous infection of general paralytics could be easily obtained. It is said that the clinical signs of tertiary syphilis in the form of affections of the skin, eyes, and liver are rare in cases of general paralysis, and, according to Dr. F. W. Mott, the latter affection is more likely to occur in persons who have had syphilis with few or no tertiary manifestations. The relative prevalence of antecedent syphilis in general paralytics has been variously stated by different authors. Thus, Magnan gives the proportion as 4 per cent., Siemerling as 11 per cent. (in women), Kraepelin as 34 per cent., Westphal as 40 per cent. (in women), Binswanger as 50 to 69 per cent , Erb as 52 per cent., Mendel as 75 per cent., Conolly Norman as 80 per cent., and Savage as 80 per cent. Dr. Stoddart gives reasons for thinking that the higher figures (75 to 80 per cent.) represent more closely the real facts of the case, for it is not always easy to determine the occurrence of antecedent syphilis by inquiry into the patient's past history The presence of a soft chancre does not, according to Erb, permit the total exclusion of syphilis, for that author writes ' There are numerous cases of so called soft chancre which are followed later by secondary and tertiary symptoms I have notes of several cases where after apparently gonorrhœa with or without buboes, (urethral chancre ?) secondary symptoms followed The fact that inherited syphilis has been ascertained to be present in nearly all cases of juvenile general paralysis, about 90 of which are known in medical literature, also strongly favours the view of the syphilitic etiology of general paralysis The hypothesis which has been advanced that syphilis is usually acquired during the early or prodromal stages of general paralysis, when the patient is addicted to sexual excess is, says Dr Stoddart, apparently not supported by the observations of Marandon de Montyel[1] who has shown that sexual excess is not such a common symptom of general paralysis as has been supposed, the sexual instinct being exaggerated in but 37 per cent and diminished in 63 per cent of his cases " These numbers agree in a general way with those of Christiani and Oebeke who only differ in placing sexual excess among the causes instead of among the symptoms of general paralysis The relative prevalence of general paralysis in various professions and occupations is such as accords with the view of its syphilitic origin For example, 90 per cent of the cases of general paralysis observed by Professor Krafft Ebing[2] of Vienna were military officers Moreover, Hirschl found but one Roman Catholic priest among his 200 general paralytics and Krafft Ebing had no instance among his 2000 cases of general paralysis of the disease occurring in a Roman Catholic priest Salaris states that there was only one case of general paralysis occurring in Sardinia in a priest during the years 1891 to 1897, and that that priest had certainly had syphilis Dr Stoddart concludes that " syphilis is so frequent an antecedent of general paralysis that the non syphilitic cases (if such exist) may for the present be regarded as a negligible quantity and that hardly anybody runs the risk of getting general paralysis who has not had syphilis

THE RESIDENCE OF A MEDICAL OFFICER OF HEALTH

IT was recorded in THE LANCET of May 11th, p 1373 that the Gelligaer and Rhigos District Council a rapidly developing mining district in Wales having a rateable value of about £100 000 had imposed a condition upon the re appointment of their medical officer of health Dr W W Jones (Merthyr) that he must reside within the parish of Gelligaer, one of the two constituent parishes of the council's area There has been a lengthened controversy between the council and the Local Government Board on the matter It was argued for the medical officer that Merthyr was a natural centre The whole question reached the crisis at a recent meeting of the council when the following letter was read from the Local Government Board —

> 'I am directed by the Local Government Board to acknowledge receipt of your letter of the 5th inst with further reference to the proposal of the Rural District Council of Gelligaer and Rhigos to require their medical officer of health to reside in the parish of Gelligaer The Board considered the representations made by the district council in this matter but they are strongly of opinion that this is not a case in which the district council should insist upon the proposal The geographical features of the district considered in connexion with the railway communication appear to the Board to point to Merthyr as the most convenient spot for the residence of the medical officer of health as from that town he could more easily visit both the outlying portions of the rural district than if he had resided in one of those portions Having regard to this and to the fact that Mr Jones as possessing a D P H has a qualification for the office of medical officer of health beyond those of an ordinary medical practitioner the Board should be glad if the rural district council could see their way to withdrawing the condition they propose to attach to his re appointment

The section of the council who had imposed the condition desired to adjourn the consideration of the letter, as it was patent to them that in consequence of the absence of three members they would be outvoted The chairman however, submitted that the letter was an olive branch held out to the council by the Local Government Board and that therefore it should be acted upon. On a vote of five to four it was decided to suspend the standing orders and subsequently by the same vote the resolution embodying the condition of residence was rescinded and Dr Jones was re appointed unconditionally for one year During the many discussions at the previous meetings considerable excitement has prevailed, which now, we hope, will be abated. One thing should be mentioned. Neither party to the controversy ever had anything but praise for the work and administration of the medical officer whose residential qualification was in question.

PSORIASIS OF THE NAILS RECURRING WITH PREGNANCY

IN the *Scottish Medical and Surgical Journal* for May Dr W E Foggie has described the following curious case A woman aged 28 years, nine years married was seen on August 9th 1899 She was in her sixth pregnancy At the fifth month in this as in every preceding pregnancy except the first, an affection of the nails began with a hot and painful sensation at the ends of the fingers and thumbs Soon the nails began to separate at their free margins and sides and to be raised from their beds by a scaly accumulation Their surfaces became grey lustreless and longitudinally fluted Within a month or two almost every nail had become separated from its bed By October the nails were mostly broken off and the beds were bare except for a small margin of new healthy nail at the root. Some of the growing nails showed considerable transverse irregularities At the beginning of 1900 the nails were almost normal. In April, 1900 when the patient was again in the fifth month of gestation, she again came under observation with the same sensations under the nails In the two latter attacks there were distinct patches of psoriasis on the left elbow, right knee and back of the left hand The affection of the nails in this case corresponds in most of its features with what Mr Hutchinson has described as "psoriasis of the nails'—a condition characterised by accumulation of scales beneath the nails and separation of the nail from its bed which begins at its free edge Various skin affections such as dermatitis herpetiformis urticaria pruritus and eczema have been observed in connexion with pregnancy But psoriasis to say nothing of psoriasis of the nail does not appear to have been described Dr Radcliffe Crocker however, says that psoriasis may clear up during pregnancy

THE RECORDER OF LIVERPOOL AND INSANITARY PROPERTY

THE Recorder of Liverpool in his recent charge to the grand jury at quarter sessions referring to the presentment of the corporation for the demolition of certain insanitary property, remarked that the Liverpool Sanitary Amendment Act 1864 provided means by which the corporation could get rid of those parts called slums such as often abounded in a great city where owing to insanitary conditions disease and wretchedness became rife It was always fitting in such great measures that they should prevent demolition pressing harshly upon the owners of the property, and in deciding as to whether any of the properties recommended for demolition were insanitary those interested in the property should have the opportunity of adducing evidence, if they thought fit, in opposition to the recommendations of the medical officer of health. Evidence was given by the medical officer of health (Dr. E. W. Hope), Dr. William Carter, and Sir Henry Littlejohn (medical officer of health of Edinburgh) as to the utterly insanitary condition of the various properties which had been scheduled. In reply to remarks by objectors to the demolition of their property, Dr. Hope said that the corporation were providing suitable dwellings within reasonable distance from the houses from which the people were to be dispossessed, some in the same streets and others in contiguous streets. The grand jury, of which a section had visited the houses which the owners contended required only structural alterations, reported that nothing in the way of structural alteration could, in their opinion, make them habitable. With the exception of a few tenements which were capable of being rendered sanitary by converting back-to-back tenements into houses with a through draught, all the remaining properties were condemned in very strong terms by the grand jury, who said that they were in a "villainously" unwholesome condition. It doubtless appears harsh to dispossess poor people of their dwellings, but anyone familiar with certain Liverpool slums could not fail to support the recommendations of the medical officer of health to demolish houses, back-to-back in most instances, utterly devoid of ventilation, and being mostly houses in courts upon which the sun never shines.

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[1] Archives de Neurologie July 1900

[2] Die Progressive Allgemeine Paralyse Wien 1894

HYGIENE FOR THE COW.

THE great public interest which has been quickened, if not for the first time really aroused, by the *British* Congress on Tuberculosis, justifies the hope that the medical profession in this country will have behind it the force of public opinion and of public money in its efforts to lessen tuberculosis, and to stamp out the sources from which it spreads. The new and emphatic line of argument taken up by Professor Koch at the Congress has served to heighten the general interest. Roughly speaking, Professor Koch declares that all phthisis arises by inhalation and that a man may eat tuberculous meat and drink tuberculous milk to his heart's content. If this were true, precautions as to the supply of meat and milk would be matters of comparative indifference. At present, however, Professor Koch's position is not proved, and there is a strong consensus of opinion that though the most important steps of all in checking the spread of consumption are those of hygiene which will reduce infection by contact and inhalation, yet milk and meat must be supplied free from the tubercle bacillus if we are thoroughly to combat the disease. As regards the meat-supply Mr. Shirley Murphy's paper in THE LANCET of August 3rd, p. 271, shows how backward we have been in instituting systematic inspections. The letter of a non-medical correspondent, which we have recently received, points out, what is only too familiar to our medical readers, that as regards milk we have in most cases no criterion at all of the purity of source from which it is derived. If fresh air and cleanliness are necessary for human beings to ensure freedom from the attack of tubercle, so, too, are they for cattle. The cow, as well as ourselves, our correspondent contends, needs open-air treatment, whereas too often that most useful animal practically lives in ill-kept byres, dirty cowsheds, and with tuberculous companions. Any railway journey through a country district in England will teach the traveller how little open freedom there is for the cattle. More time in the open air and much more carefully kept accommodation are the great needs of the cow in the country, and in demanding these our correspondent is laying stress upon one weapon in the campaign against tuberculosis which theoretical and unproven considerations must not allow us to undervalue.

THE ANTI-MALARIAL EXPEDITION OF THE LIVERPOOL SCHOOL OF TROPICAL MEDICINE.

THE Liverpool School of Tropical Medicine received a telegram on August 9th from Major Ronald Ross, late I.M.S., stating that he had reached Accra from Lagos and had had a very satisfactory interview with the Governor of the Gold Coast, who promised every assistance to the expedition of the Liverpool School of Tropical Medicine if another delegate were despatched to carry out operations on the Gold Coast. The committee of the school contemplate sending out at an early date an expert to conduct a campaign against the malarial mosquito and malaria on the Gold Coast.

THE NEW POOR-LAW INFIRMARY AT HALIFAX.

THE Halifax Guardians have recently erected, at an expense of some £100,000, a new workhouse hospital. This hospital naturally wants a staff and the guardians are accordingly advertising for a medical officer. This official is to be the responsible medical officer and the head of the medical staff. There will be in addition another visiting physician and a junior medical officer who will be resident. The salary of the principal medical officer is to be £105 per annum, subject to the usual deduction for superannuation, and the appointment is to be subject to the duties being "hereafter defined." So far there appears nothing unusual in the advertisement except the clause referring to the duties being "hereafter defined," a clause which obviously might mean a great deal. But we learn from the local press that the circumstances which led to the appointment being advertised are somewhat peculiar. Dr. T. M. Dolan has been for 30 years the medical officer to the present Halifax workhouse infirmary. For performing the duties of this office—there are 350 beds and there is no question as to the manner in which these duties have been performed—Dr. Dolan receives a salary of £200 per annum. In fact, so impressed were the guardians with Dr. Dolan's worth that they offered him the post of medical officer to the new infirmary without any addition to his salary. Nothing could have been more advantageous. He was to have a free hand, he was to get the whole establishment into working order, he was to have the oversight of 400, instead of as at present 350, beds, and all for nothing. True, at the end of the first year the guardians were going to think about a salary, "if any, and if so what." Dr. Dolan, however, did not see his way to accept this generous offer and hence the advertisement. It may be said: "Why should Dr. Dolan expect an increase of salary for being put in charge of a new and doubtless much improved building?" For one thing, there are 50 more beds than in the present infirmary and, for another thing, the whole work will have to be organised. Another question we may ask is: "Why should the guardians, who pay Dr. Dolan £200 per annum for looking after 350 beds, now only offer their new medical officer £105 for looking after 400 beds?" Dr. Dolan will apparently continue to draw his £200 per annum as medical officer to the workhouse and will also apparently have next to nothing to do, for we do not suppose that the present infirmary at Gibbett-lane will be kept up as well as the infirmary at Salterhebble. As regards the offer to Dr. Dolan we should like to recall to the notice of the Halifax Guardians a passage in Gilbert's delightful play *Engaged*. We mean the passage where the thrifty Cheviot Hill describes the game of "tailoring" to his *fiancée*. "It's a very good game," he says, "you shall be the clever little jobbing tailor, and I'll be the particular customer who brings his own materials to be made up. You shall take my measure, cut out the cloth (real cloth, you know), stitch it together, and try it on; and then I'll find fault like a real customer, and you shall alter it until it fits, and when it fits beautifully that counts one to you." To the ordinary mind it would seem that the guardians might have offered Dr. Dolan the post of medical officer to the new infirmary at a rise, on his present salary, of £100 per annum. But they did not do this, hence the advertisement.

THE DISTRIBUTION OF PLAGUE.

A TELEGRAM from the Governor of Cape Colony, received at the Colonial Office on August 7th, states that for the week ending August 3rd the cases of plague in the Cape Peninsula were as follows: Malays, 1; Europeans, coloured persons, Indians, Chinese, and natives, 0 Corpses found, 0. The deaths were: Malays, 1; Indians, 1; Europeans, coloured persons, Chinese, and natives, 0; total 2. The total cases up to August 3rd were: Europeans, 186; coloured persons, 330; Malays, 62; Indians, 14; Chinese, 1; natives, 142; total, 735 The total deaths up to August 3rd were: Europeans, 64; coloured persons, 175; Malays, 45; Indians, 12; Chinese, 0; natives, 61; total, 357. At Port Elizabeth for the week ending August 3rd the total cases were: natives, 1; no corpses found and no deaths. The total cases to August 3rd were: Europeans, 7; coloured persons, 7; Indians, 2; Chinese, 1; Japanese, 1; natives, 16; total 34. The total deaths to August 3rd were: Europeans, 1; coloured persons, 4; Indians, 1; Chinese, 1; natives, 6; total, 13. The total cases of plague in all other places were: Europeans, 5; coloured persons, 1; natives, 4; total, 10. The total deaths were: Europeans, 1; natives, 1; total, 2. One case in persons under naval and military control occurred in the person of a native from the remount camp. The Port Elizabeth area of infection remains unchanged. In Mauritius, for the week ending August 8th, no cases of plague had occurred. In all Egypt during the week ending August 4th, 6 cases of plague and 1 death from the disease have been reported. Of these, 5 cases occurred among natives and 1 case and 1 death among Europeans (the latter an Italian fisherman without domicile). 3 cases were reported from Zagazig, 2 cases from Port Said, and 1 case and 1 death from Alexandria

THE OVERCROWDING OF ISOLATION HOSPITALS.

UNDER the heading of "Scarlet Fever in South Shields and Jarrow" a correspondent of a South Shields contemporary draws attention to the overcrowding which limited isolation accommodation may at times cause. He mentions more particularly the much-to-be-condemned admission of too many patients—a practice which is liable, as he points out, to lead to more than one child occupying a single bed In our view, such a proceeding as this is open to severe criticism, and we trust that it but very rarely occurs. The fact that children at their own homes often occupy the same bed does not in any way justify such a course in a public hospital to which parents are often persuaded to send their children for the safety of the public health If it be suggested that under any circumstances children are better at a fever hospital than in their own homes we demur altogether to the proposition. It is probable that in the vast majority of cases children in a fever hospital are better housed and looked after than they would be at home, but this is not an invariable rule, and if two children were allowed to occupy one bed such advantage would be considerably curtailed. It seems to us that it is the duty of a medical officer of health, or of a medical superintendent of a fever hospital, to withstand as far as he possibly can any such overcrowding as is here in question A public official is often placed is a very difficult position in this respect with a sanitary authority which does not recognise sufficiently the difficulties and which sees no reason for adequate air-space for each patient. But it is nevertheless incumbent upon the medical officer to take up a firm stand and to point out that any responsibility with regard to overcrowding must rest with the district council or hospital authority; indeed, there might be advantage if medical officers were compelled to report every case of hospital overcrowding to the Local Government Board, in *order that such officers might relieve themselves of responsibility* as far as relief in this sense is practicable. If the sanitary authority compels or persuades a parent to allow his fever-stricken child to be isolated for the public safety that authority is bound to accord to such child every protection against infection of whatever character. The records of the Metropolitan Asylums Board bear ample testimony to the bad effects of overcrowding in the scarlet fever wards, and we believe that the medical superintendents of the Board have made a stand against undue demands upon their space. Briefly stated, overcrowding means increased risk of infection, a chance of less attention in nursing, and finally, enhanced liability to certain complications.

THE SALARY OF A MEDICAL OFFICER IN THE HIGHLANDS AND ISLANDS.

THE following copy of an advertisement from the *Glasgow Herald* of August 7th, 1901, has been sent to us for comment:—

> MEDICAL.—Wanted, by the Parish Council of Lochbroom, a Medical Officer. Salary at the rate of £125 per annum, exclusive of £10 paid by County Council for services as Medical Officer of Health. Comfortable house and garden, which must be occupied by the gentleman appointed and provided at a reasonable rent. Applications, with testimonials, to be lodged with D. S. Ross, Inspector of Poor, on or before the 10th prox.
> Ullapool, 30th July, 1901.

We do not recommend any medical man to apply for this vacancy without making full inquiry from the previous medical officer as to the work to be done. We are informed that the salary is totally inadequate, while out of the pittance a rent has to be returned to the parish.

THE King has appointed Sir Francis R. Cruise, M.D. Dub., Fellow and ex-President of the Royal College of Physicians of Ireland, to be one of the honorary physicians to His Majesty in Ireland, in the room of Dr. William Moore, deceased.

THE next Congress and Exhibition of the Sanitary Institute will be held in Manchester in the second week of September, 1902, under the presidency of the Right Honourable the Earl Egerton of Tatton.

THE report of the Indian Plague Commission is now on its way to India for presentation to the Indian Government. When this has been done it will be laid before Parliament and issued.

MR. JOHN BROWN, L.R.C.P. Irel., has been promoted from Honorary Associate of the Order of the Hospital of St. John of Jerusalem to be Knight of Grace.

ASYLUM REPORTS.

Dundee Royal Asylum (Annual Report for 1900).—The average number of patients resident during the year was 411, comprising 171 males and 240 females. During the year 125 patients were admitted, of whom 55 were males and 70 were females. Of these, three males and 15 females were not first admissions. Dr. James Rorie, the medical superintendent, states in his report that the number of pauper patients admitted during the year has been greater than during the previous year, but still considerably under the average of the years 1895 to 1897. In connexion with the admissions it is noted that while only one patient was received from another asylum, four were admitted from lunatic wards of poorhouses, 13 from the ordinary wards of poorhouses, 17 from the police office, two from prison, and five from the Dundee Royal Infirmary. "The advanced age of many of the patients on admission is also remarkable, three having completed their sixty-seventh year, one the sixty-ninth, one the seventieth, one the seventy-second, two the seventy-fifth, one the seventy-seventh, one the seventy-ninth, one the eightieth, and one the eighty-third year." During the year 43 patients were discharged as recovered, or 10·46 per cent. of the average number resident. The deaths during the year amounted to 38, or 9·24 per cent. as calculated on the same basis. Of the deaths two were due to epilepsy, six to organic dementia, six to general paralysis, six to phthisis and other forms of tuberculosis, and seven to senile decay and heart disease. The rest were due to other causes. In one case death was due to rupture of the heart, a comparatively rare pathological condition. This patient, a female, had been a resident in the asylum for nearly eight years and was to all appearance in her usual state of health. "While sitting on one of the terrace seats she was seen to fall off, was immediately attended to but found to be dead." Post-mortem examination showed rupture of the heart and hæmorrhage into the pericardium. An important event of the year was the erection of buildings for private patients of the better class. The spot chosen was an admirable one affording extensive views of the Tay and the Fife and Perthshire hills and surrounded by woods in the vicinity. The building itself has been fitted with every regard to the comfort and convenience of patients, "and the avoidance of even the appearance of confinement or restraint has been carefully kept in view." Dr. Rorie points out that changes in the staff of nurses and attendants continue to be greater than is desirable. No accident or casualty has occurred during the year that is worthy of notice. The board of directors of the asylum state in their report dated June 17th, 1901, that the new private asylum will soon be ready for occupation. Various legacies, amounting in all to over £700, have been intimated to the institution during the year. A loan of £30,000 has been obtained from the Scottish Equitable Life Assurance Society, the rate of interest payable being 4 per cent. Annuities and donations have been received during the year amounting to £111. The profit on the farm for the year was £215 2*s.* 7*d.* The Commissioner in Lunacy in his report states that the day-rooms, dormitories, and lavatories are maintained in excellent order and were throughout scrupulously clean and that the beds and bedding were in good order. The behaviour of the patients was, except in a very few cases, contented and orderly. "The personal condition of both sexes, and the tidiness of their clothing, were satisfactory. The industrial employment and amusements of the patients receive due attention."

Wonford House Hospital for the Insane, near Exeter (Annual Report for 1900).—The total number of patients under treatment, including voluntary boarders, was 167. The admissions during the year amounted to 34, not including six voluntary boarders. This is an increase of nine certified patients and of two boarders as compared with the previous year. Dr. P. Maury Deas, the medical superintendent, states in his report that of the admissions 11 were cases transferred from other institutions and therefore not hopeful cases as regards the prospect of recovery. Of the new admissions 15 were considered favourable cases as regards recovery, and of these three were discharged as recovered by the end of the year, while eight more have since recovered or are convalescent. The total number of cases discharged as recovered during the year was 11 (four gentlemen and seven ladies). Seven patients were transferred to other institutions. The deaths during the year amounted to four, being a death-rate of 3 per cent. on the average number resident, which is the lowest rate since 1895 One death was due to senile decay, and one each to general paralysis, heart failure and chronic cystitis, and concussion of the brain. Many of the patients in residence are of advanced age. At the end of the year 50 out of a total of 134 patients were upwards of 60 years of age, and of these 16 were between 70 and 80 years, and seven were upwards of 80 years. The Commissioners in Lunacy state in their report that much improvement has taken place since their previous visit in regard to renovation, painting, and re-decorating the wards. The patients were quiet and well behaved with the exception of some of the lady patients who were noisy and rude. The cost of maintenance is £2 2*s.* 11*d.* per head weekly, so that the institution "continues to do really charitable work, and as long as this is the case we hope it will flourish more and more."

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

A quarterly meeting of the Royal College of Physicians of Edinburgh was held on August 6th, Dr. T. R. Fraser, the President, being in the chair.

The President referred in respectful and feeling terms to the death of Her Imperial Majesty the Empress Frederick of Germany. On the motion of the President it was resolved unanimously to send a telegram of condolence to His Majesty the King in the following terms :—

The Private Secretary of His Majesty the King,
Cowes, Isle of Wight.

Please convey to His Majesty the King the respectful and sincere sympathy of the President and Fellows of the Royal College of Physicians of Edinburgh on the occasion of the sad death of Her Imperial and Royal Highness the Empress Frederick and Princess Royal of Great Britain.

And, further, it was decided to send a telegram of condolence in similar terms to His Majesty's Ambassador at Berlin for presentation to His Imperial Majesty the German Emperor.

Dr. Lewis Campbell Bruce was introduced and took his seat as a Fellow of the College.

Douglas Chalmers Watson, M.B., C.M., M.R.C.P. Edin., was admitted by ballot to the Fellowship of the College.

On a ballot the following candidates were admitted to the Membership of the College after examination. William Edward Home, M.D., C.M. Edin., London; James Burnet, M.B., Ch.B. Edin., Edinburgh; Alexander Goodall, M.D. Edin., Edinburgh; and George Norman Meachen, M.B., B.S. Lond., London.

The Registrar reported that since the last quarterly meeting 67 persons had obtained the Licence of the College by examination.

The Secretary laid on the table the annual statement by the governing board of the School of Medicine of the Royal Colleges in terms of the constitution. The report indicated that the number of classes during the winter session 1900–1901 was 37 and during the summer session of 1901 41, and that the number of students during the winter session was 1160 and during the summer session 1119. The College re-elected the vice-president (Dr. J. Andrew) and Sir John Sibbald, M.D., F.R.C.P. Edin., who retired by rotation as representatives on the governing board of the School of Medicine of the Royal Colleges.

Intimation was made that Dr. G. A. Gibson had, on the nomination of Dr. Alexander Morison, been appointed Morison lecturer for two years, 1901–1902.

Mr. Stuart Macdonald, M.B., C.M., M.R.C.P. Edin., was after examination recognised as a lecturer in pathology, the President conferring on him the certificate of qualification.

A committee of award was appointed in connexion with the Victoria Jubilée Cullen prize. The prize, which was instituted by His Excellency the late Dr. R. H. Gunning, is of the value of £100 and is awarded every four years "for the greatest benefit done to practical medicine." The prize is open to Fellows, Members, and Licentiates of the College. The award will be made in June, 1902.

On behalf of Lady Jenner the President presented to the College a photogravure of Mr. Frank Holl's portrait of the late Sir William Jenner, Bart.

It was agreed unanimously to send a congratulatory address to Professor Virchow on the occasion of the eightieth anniversary of his birthday.

Weston-super-Mare Hospital.—As a result of the recent *fête* held in aid of the funds of this hospital the sum of £570 has been handed over to the institution.

THE BRITISH MEDICAL ASSOCIATION.

MEETING AT CHELTENHAM.

THE GENERAL MEETINGS.

THE THIRD GENERAL MEETING

THE following is the report of the Third General Meeting, at which, as we mentioned in our issue of August 10th the concluding portions of the Report of the Constitution Committee were passed

The first clause discussed was No 16, dealing amongst other matters with the payment of expenses of representatives travelling to attend meetings

Mr R J [illegible] that instead of the words [illegible] the terms should be "first-c[illegible]" But the proposal was withdrawn upon Dr [illegible] WOODCOCK (Manchester) asking how it was possible for medical men from Ireland to cross the Channel in a railway carriage

According to Clause 16 the expenses of representatives were to be defrayed by the Association It was pointed out that this might mean that the Branches were to pay these expenses It was therefore moved by Mr J. S WHITAKER (Yarmouth), seconded by Dr A B RITCHIE (Manchester) and carried that the expenses should be defrayed by the central funds of the Association After various motions had been proposed without success to pay for second-class travelling instead of first, to pay only for third class travelling and not to pay any expenses at all, Clause 16 was then put to the meeting and declared passed as follows —

Annual Meeting, General Business, General and Sectional Scientific, and Representative Meetings

16 That there be held annually, for the transaction of the various affairs of the Association, a general business meeting and general and sectional scientific meetings, all open to all members of the Association and a representative meeting, open only to representatives elected by the divisions and to members of the Council That the general business, general scientific, and representative meetings be held at the same place and time of year, but separately, and on such days and at such hours as not to conflict with one another, and that

Representation of Divisions

[illegible] d the [illegible] d one [illegible] up of [illegible] such [illegible] with [illegible] ected [illegible]

Mode of Election

[illegible] United Kingdom each representative be elected in a general meeting of the constituency held during the three months immediately preceding the annual meeting and in the colonies and India either in the aforesaid manner or by voting papers, as may be determined by the constituency That the [illegible]

Payment of Expenses

[illegible] each such [illegible] meeting [illegible] that he [illegible] meeting [illegible] ncil

Clause No 17 was agreed to as follows down to Subsection II, part A —

Business of Annual Meetings

17 That the business of the annual meetings named in the preceding *recommendation be severally restricted to the following matters*—namely —

General Business Meeting

(A) The general business meeting

Election of Officers

(i) To elect such officers and members of committees as, by the articles or by laws, may be appointed to be so elected

Consideration of Financial Statement of Council and Reports of Committees.

(ii) To consider the annual financial statement presented by the Council the reports of committees instructed to report to such meeting, and motions relating to the adoption of such statement, or of such reports in whole or in part

Dr E J SLADE-KING (Ilfracombe) moved, and Dr J GROVES (Carisbrooke) seconded, the following, which was duly carried —

That it be an instruction to the committee in Recommendation A to be appointed to frame the [illegible] do present to the meeting of [illegible] and expenditure for the con[illegible] mate to be furnished to the [illegible] month before each meeting so that the divisions may know what they have to deal with

The remainder of Clause 17 was then carried as follows :—

The General and Sectional Scientific Meetings.

(B) The general and sectional scientific meetings to deal with such matters relating to the medical and allied sciences and in such manner as may be determined by the Council

Representative Meeting—Election of Officers

(C) The representative meeting

(i) To elect such officers and members of committees as, by the articles or by laws, may be appointed to be so elected

Consideration of Reports

(ii) To consider reports of the Council reports of committees instructed to report to such meeting, and motions relating to the adoption of such reports in whole or in part.

Questions from the Council

(iii) To deal with matters submitted by the Council to the divisions for the purpose of decision by the representative meeting

Alterations of By laws.

(iv) To deal with proposed alterations of the by laws of which three months notice has been given

Medical Politics and Ethics

(v) *To consider any resolutions relating to the honour and interests* of the medical profession which have been adopted by any division and submitted through the *Journal* to the consideration of all the divisions not less than three months previously

The following clauses were then agreed to :—

Voting

18. *That in meetings other than representative meetings each person* entitled to vote have one vote and no more

Representative Meeting

[illegible] ting representatives of divisions o[illegible] [illegible] e latter case voting be as a rule, by [illegible] rity of those present determine that [illegible] n every representative shall record as [illegible] in the division or group of divisions [illegible] ting upon any matter upon which a constituency has passed a resolution within three months

Representative to Vote as Instructed.

immediately preceding such meeting the representative of that constituency be under obligation to vote in accordance with such resolution

Chairman

That the representative meeting at the commencement of its annual session, elect a chairman for such session, who shall be an *ex-officio* member of the Council

Quorum General Business Meeting

That no business be transacted in any general business meeting unless there be present 100 members nor in any representative meeting unless there be present one-half the number of representatives appointed to attend such meeting

Powers of General Business and Representative Meeting

19 That a resolution of the ann[illegible] interests of the [illegible] the adoption thereof

Referendum at Instance of Council

[illegible] observations as the Council [illegible] special meetings of all the [illegible] resolution shall not be valid [illegible] majority of the members of [illegible] said special meetings of the divisions

Annual Subscription Grant to Branches

[illegible] be uniform and inclusive that the [illegible] ing 30s as may [illegible] 4s per annum, [illegible] made from the [illegible]

Subscription Due.

That the annual subscription be due on Jan 1st in each year and be paid to the central office of the Association

Privileges of Membership.

That each year's subscription entitle the member to receive the Journal of the Association for the current year, to the other privileges of membership of the Association, and to the ordinary privileges of membership of his branch and division

Grant to Indian and Colonial Branches

That the same proportion of each member's total annual subscription be allotted to the Indian and colonial branches and divisions for the expenses of local organisation as in the United Kingdom

Standing Committees

21 That subject to the articles of association and by laws, the *Council and the representative* meeting have power to appoint committees with such powers as may be necessary or convenient and to fix the quorum thereof and lay down rules for regulating the proceedings of such committees

Provided that there be standing committees as follows :—

(1) Journal and Finance.

(1) A Journal and Finance Committee to be appointed by the Council which shall *inter alia* examine into the general working of the office and of the *Journal* and certify the quarterly accounts prior to their being presented to the Council.

(2) Premises and Library.

(2) A Premises and Library Committee to be appointed by the Council, to which shall be referred all matters connected with the library and its management as well as the management of the house property of the Association.

(3) Public Health.

(3) A Public Health Committee to be appointed by the Council, to which shall specially be referred all questions relating to the public health service, the poor-law medical service, and the vaccination service.

(4) Colonial.

(4) A *Colonial Committee to be appointed by the* Council, which shall consider all questions specially relating to the colonial and foreign branches.

Such committee to include the representatives of these branches on the council.

(5) Naval and Military.

(5) A Naval and Military Committee to be appointed by the Council, to which shall be referred all matters relating to the Navy Medical Service, the Royal Army Medical Corps, the Indian Medical Service, and the medical organisation of the auxiliary forces.

Such committee to include the members of these services who are on the Council.

(6) Medico-Political.

(6) A Medico-Political Committee, which shall deal with all matters involving the public relations of the profession not specially referred to other committees, and shall consist of 15 members, eight of whom shall be appointed by the Council, and seven by the meeting of representatives.

Such committee to report to the Council and to the meeting of representatives, to act under the Council, and to have the services of a salaried officer.

(7) Ethical.

(7) An Ethical Committee, which shall advise the Council upon proposed by-laws of divisions and branches relating to professional conduct, shall investigate and report to the Council upon the cases of members whose conduct is to be considered by the Council, shall adjudicate in cases of disputes on ethical questions referred to it by members of the Association, and generally shall advise, and where so directed act for the Council on all questions of professional conduct.

Such committee to consist of not more than 12 members, half to be appointed by the Council and half by the meeting of representatives.

(8) Organisation.

(8) An Organisation Committee, which, subject to the directions of *the Council,* shall deal with all questions of the boundaries of branches and divisions, and the by-laws thereof other than those relating to ethical matters, and advise the Council thereon, and shall exercise such powers as may be conferred upon it by the Council in advising and assisting divisions or branches in the strengthening of their organisation.

Such committee to consist of not more than 18 members selected by the Council as representatives of the various districts of the Association and to have power to add to its number for special purposes a limited number of members specially qualified to assist in its work.

Committee Nos. 7 and 8 to have the services of a salaried officer, who may be the same as that of the Medico-Political Committee.

That the chairman of each Standing Committee be a member of Council. In the case of Committee No. 1 all the members to be members of the Council, but that in regard to other committees where not otherwise specified, such members to be non-members of the Council as the Council may from time to

That the first class travelling expenses of all members attending meetings of Association.

It is further recommended that in the event of the above scheme of reorganisation being adopted by the annual meeting the following special committees be appointed:

Drafting of New By-laws and Articles.

A. A committee, not exceeding 11 in number, to arrange for carrying the same into effect, by the preparation of the requisite articles and by-laws, such articles and by-laws to be forwarded to the Council for submission to the necessary statutory meetings.

Organisation Committee.

B. A committee, consisting of the secretaries of all branches, *ex officio*, and of other members *of the Association* appointed by the Council, to confer with Branch Councils, or with such special committees as may be appointed by branches for this purpose as to the formation of divisions and the necessary changes in the boundaries of branches and to advise the Council as to the same.

Special Colonial Committee.

C. A committee to further consider the organisation of the Colonial and Indian branches and their relation to the Association, and to recommend such further *changes in* the regulations of the Association in reference to these matters as such committee may think desirable.

The following motions were put to the meeting, after having been duly proposed and seconded, and were declared by the CHAIRMAN to be carried:—

That it be an instruction to the committee appointed to draft the new articles and by-laws to consider the desirability of publishing the annual report before the election *of the* members of Council, and, if approved, to include the above suggestion in the new articles or by-laws;

Also, to consider the desirability of the President of Council taking the chair at all general business meetings, and, if approved, to include the above suggestion in the new *articles or* by-laws.

Dr. SARAT K. MULLICK moved:—

That having regard to the fact that pe ow-
ledge of medicine are by law allowed the in
India as fully-qualified practitioners, thi it
advisable that there should be a system of registration to protect the public from charlatans.

Dr. GROVES pointed out that registration throughout the Indian Empire presented political difficulties and considerations. Anything that was done in reference to India had to be done after much consultation with the people who have the interests of the natives of India most at heart. The authorities in India were unwilling to interfere with the rights of hereditary practice.

Surgeon-Major J. B. HAMILTON said that the carrying out of the motion would deprive an enormous number of natives of India of medical assistance. In that country the practice of medicine was an hereditary matter.

The motion was thereupon withdrawn and the proceedings terminated.

THE SECTIONS.

OBSTETRICS AND GYNÆCOLOGY.

THURSDAY, AUGUST 1ST.

Dr. WILLIAM DUNCAN (London) opened a discussion on

When and How to Operate for Fibroids.

He began by a reference to the question, Do fibroids endanger a woman's life? One writer had stated that the mortality of fibroids apart from operation was three cases in 2,160,112, adding that it seemed undeniable that deaths from fibroids apart from operation were excessively rare. Against this they had the opinion of another who quoted 18 cases reported by various medical men in which death was directly due to the condition. It was certain that fibroids might seriously affect the health of the patient, even apart from hæmorrhage. Thus a fatty heart was by no means uncommon; pregnancy often involved great risks, the mortality from various causes having been estimated at as much as 36 per cent., and resulting from miscarriage, rupture of the uterus, or other complications of labour; degeneration of vessels might also occur. On the other hand, there was no doubt that many cases gave no trouble and should be left alone; it was as wrong to say that all cases should be operated upon as to say that no operation should ever be done. The indications for operation were: (1) hæmorrhage; (2) pressure symptoms; (3) rapid increase in size; and (4) complication with pregnancy. In cases of hæmorrhage he advocated that in the first place dilatation should be done in order to remove any polypus that might be present; if the tumour turned out to be interstitial he thought that it was bad surgery to incise the capsule and to give ergot in the hope of expulsion, and he equally deprecated removal by morcellement. The advantage claimed for morcellement was that the uterus was left, but this was not always an advantage. Passing on to other measures, he considered that oöphorectomy had very properly fallen into disuse, since the mortality was not less than that of hysterectomy, it was not always effective, and it was more important to leave the ovaries than the uterus. With regard to Apostoli's treatment he had tried it in 10 cases and had found no benefit from it. Abdominal myomectomy was in many cases the ideal operation for fibroids; he did not, however, advocate it for multiple myomata. Hysterectomy was, then, the best treatment. The old extra-peritoneal operation with the serre-nœud he mentioned only to condemn. The choice of operation finally lay between retro-peritoneal hysterectomy and pan-hysterectomy, and of these he preferred the former as he did not see that pan-hysterectomy presented any special advantages. With regard to vaginal hysterectomy he thought that it had drawbacks and risks that were not compensated by advantages. He had now performed retro-peritoneal hysterectomy in 127 cases, with four deaths, there being no deaths in the last 81 cases. When pressure was the principal symptom the uterus could in some cases be pushed up and held up with a pessary; failing this, removal of the tumour was necessary. Rapid increase in size was generally due to degeneration and required the removal of the growth as soon as possible. The treatment of fibroids complicating pregnancy would depend on circumstances; some went through labour without trouble. In other cases interference was demanded by great pain during pregnancy, and the courses that were open to them were (1) the induction of abortion, (2) abdominal hysterectomy or myomectomy, and (3) waiting till form with the view to the performance of Cæsarean section so as to save the child. With regard to the after risks of hysterectomy, shock and heart failure might often be averted by the administration of liquor strychninæ in three minim doses three times a day for a week before and a week after the operation. With regard to operative details he secured the ovarian and uterine vessels before cutting the peritoneal flaps so that there was a minimum of hæmorrhage; he did not sew up the stump itself but secured the peritoneum over it. The abdominal wall was closed in three layers. Convalescence was usually uneventful, especially when the ovaries had been left behind.

Dr **Cuthbert Lockyer** (London) continued the discussion with a short paper on

A Case of Cystic Fibro-myoma in a Single Woman aged 23 years, Myomectomy, Recovery

The patient had a tumour reaching nearly to the umbilicus and admitted the possibility of pregnancy, which the case somewhat resembled. The os was found widely dilated and a cystic swelling presented. The swelling proved to be a degenerating myoma undergoing spontaneous extrusion and was removed by morcellement; the lower and more solid part of the tumour weighed over two pounds; the upper portion was almost entirely cystic, containing over 30 ounces of yellow fluid. The patient made a satisfactory recovery.

Mr **Alban Doran** (London) laid down the dictum that operative success did not constitute justifiability for operation and held that brilliant operating might nevertheless be bad surgery. He agreed with the indications for operation mentioned by Dr Duncan and endorsed his recommendation of strychnine. He had also found spartein very useful especially in the case of middle-aged women with unhealthy kidneys. The Apostoli treatment was in his opinion much too empirical. Menorrhagia if slight was of no consequence; if more severe it could be checked by ergot; if worse still it was best to do hysterectomy. Even the scientific basis of the Apostoli treatment had been called in question by electricians, and it had been pointed out that if molecular disintegration occurred as was claimed the woman would be either burnt up or blown up. With reference to the complication of fibroids with pregnancy, he pointed out that a fibroid at the fundus usually needed no interference and he deprecated myomectomy during pregnancy as being bad surgery. Of the varieties of hysterectomy he preferred the retro-peritoneal. He laid great stress on having the stump and ligatures all covered over by peritoneum, this applied equally to the ovarian stump. He also strongly advocated the ligature of the uterine vessels under the peritoneum without including the serous coat and a lot of tissue in the ligature. When in doubt as to the position of the vessels it was best to amputate the uterus and to secure the arteries as they spouted; it was better to see and to secure them than to poke about in the dark with a pedicle needle in the broad ligament which had the result not infrequently of missing the arteries whilst the needles however blunt usually damaged the veins.

Mr **Christopher Martin** (Birmingham) said that in considering operative indications the right course was a middle one. Among the indications requiring operation one that had not been mentioned by Dr Duncan was sloughing. Further he believed that sarcomatous degeneration of fibroids was a more common condition than some gynæcologists believed, he had personally seen seven cases in 12 years. As to particular operations a submucous myoma should be removed leaving the uterus; if large myomectomy could usually be done in a woman who had borne children but in nulliparæ it was both difficult and dangerous. There was a wide field for conservative abdominal myomectomy except for multiple fibroids. In the main hysterectomy was no doubt the proper treatment. There was much to be said in favour of both pan-hysterectomy and supra-vaginal amputation. He did not consider the former any more difficult than the latter and it was indicated when the cervix was involved or was the seat of malignant disease. The advantages of supra-vaginal amputation were that there was no resulting communication with the vagina, though this was not necessarily a risk if proper cleansing of the vagina were carried out, it did not involve so much shortening of the vagina as occurred after pan-hysterectomy, there was less risk of wounding the bladder and ureters, less chance of adhesions of bowel to gauze packed in the vagina, and it was often a great point for the patient to feel that a part of her uterus was left though it might be incapable of physiological functions. Vaginal hysterectomy was useful in some cases but it was not indicated in cases of large tumours or where adhesions were present. His own results up to date were 47 abdominal hysterectomies (of which 40 were pan-hysterectomy), with one death, eight cases of abdominal hysterectomy for sarcoma with two deaths, and 33 vaginal hysterectomies, with two deaths.

Mr **Hawkins Ambler** (Liverpool) said that heart disease was often an indication for operation as Dr Thomas Wilson of Birmingham had shown in a valuable paper read before the Obstetrical Society of London. He did not approve of myomectomy for multiple fibroids, for though it might give good results in the experienced hands of Dr William Alexander in most cases the results were bad. He asked the experience of members as to the value of atropine for shock; personally he was disappointed in it. He had had good results from strychnine and also from the use of salines.

Dr **Alfred Smith** (Dublin) agreed in the main with the indications laid down by Dr Duncan but thought that the mere size and bulk of the tumour justified operation in some cases—for instance with servants and governesses who might otherwise be unable to obtain situations. His results up to the present were 101 cases of hysterectomy without a death. He laid great stress on the preparatory treatment of exsanguined and feeble patients. With them he not infrequently did a preliminary curetting to check bleeding and then kept the patient for some months on a course of iron and arsenic with a generous diet. In the prevention of shock it was most important to save mauling the intestines; for this purpose after the tumour had been lifted out of the abdomen he generally brought the abdominal walls together above it with a temporary suture.

Dr **John Campbell** (Belfast) considered that dilatation with curetting required to be used with great discrimination, the operation was all right for small fibroids but in the case of large tumours with a tortuous uterine canal it was dangerous. With reference to the size of the flaps he had observed that in some of his cases there was an unsatisfactory condition of the pulse after operation and he was led to the conclusion that his flaps were too large and allowed of collection of fluid from which a kind of chronic poisoning resulted. He now made the flaps as small as possible.

Mrs **Garrett Anderson** (London) recalled the pre-operative period when fibroids were not interfered with. She had seen some of the risks resulting from leaving them alone. Three cases died from cerebral hæmorrhage; the patients were little over 50 years of age and presented nothing to account for the fatal ending except the previous losses of blood from fibroids. She had also seen cases of malignant degeneration of these tumours.

Mrs **Scharlieb** (London) said that she did not at all believe in Apostoli's treatment; it usually led to peritonitis and the formation of adhesions. The indications for operation were theoretically clear but there was often some difficulty in applying them to individual cases. Even when there was no hæmorrhage or pressure and in the case of women over 50 years of age degenerations might occur. One such patient whom she saw consulted one of the leaders of the profession who never operated himself or [illegible] operation. He said that such a thing as operation was not to be considered and the next thing she heard was that the patient had died without operation from the sloughing of a myoma. She related several other cases of degenerations of myomata and remarked that the difficulty was to know which cases would undergo such degeneration and which would not. That these changes were common would admit of no doubt. In conclusion she related a case of myomectomy with conservation of the uterus and appendages in a girl aged 15 years.

Mrs **Stanley Boyd** (London) endorsed Dr Alfred Smith's statement that the mere size of a tumour was often sufficient reason for operating. Such a tumour was a deformity and apart from the difficulties in obtaining situations referred to by Dr Smith it might expose a woman to adverse criticism which might have a very serious effect. In other departments of surgery the removal of deformities was allowed and why not in the case of myomata? The speaker had had good results from morcellement and also from vaginal hysterectomy in cases where the tumour was no larger than a four month gestation. She advocated conservative myomectomy, and pointed out that more information was wanted as to the course and results of labour after this operation.

Trendelenburg's position diminished shock by allowing the intestines to fall back out of the way of manipulation.

After some observations by Mr. BOWREMAN JESSETT (London)

Dr. AUST LAWRENCE (Bristol) remarked that before coming to the position of the obstetrician mentioned by Mrs. Scharlieb who never advised operation he would take down his door-plate. There was no doubt, however, that many women went about with fibroids without inconvenience. He agreed with the indications for operation laid down by Dr. Duncan. He had tried Apostoli's treatment in five cases and came to the conclusion that such benefit as accrued was received by the physician and not by the patient. With regard to the complications of pregnancy, he had had eight patients with fibroids whom he had attended in their confinement, and among them they were delivered of 17 children. An important thing was not to allow the uterine muscle to get over-tired; and half the cases were delivered with forceps. In some cases the tumour markedly diminished in size after labour. He held, therefore, that a fibroid tumour was not necessarily a barrier to marriage, and as long as the tumour presented no obstruction to delivery pregnancy might usually be allowed to go to term.

After some remarks by Dr. WARD COUSINS (Southsea) and the PRESIDENT (Professor J. W. BYERS), Dr. WILLIAM DUNCAN replied.

Dr. F. JAYLE (Paris) read a short communication on a New Gynæcological Position, which was a modification of Trendelenburg's position used for vaginal examinations and operations.

The three following papers were also read:

Dr. ALFRED SMITH (Dublin): A Successful Laparotomy for Abdominal Pregnancy with Removal of a Full-term Fœtus. Placenta and gestation sac *en masse.* The specimen was shown.

Mrs. STANLEY BOYD (London): A case of Twin Pregnancy, Extra-uterine and Intra-uterine.

Mr. HASTINGS GILFORD (Reading): Ovarian Pregnancy.

STATE MEDICINE.

THURSDAY, AUGUST 1ST.

A discussion was opened by Dr. A. C. HOUSTON (London) on

Enteric Fever in its Public Health Aspects.

He said that he was struck by three things: 1. That notwithstanding the progress of science and the greater efficiency of the public health service they found themselves at the beginning of a new century unable to stamp out a disease that was, nevertheless, still classed as a preventable one. All that could be said at the present time was that the mortality from it was less than it was some years ago. 2. That the knowledge, skill, and resourcefulness of the members of the Army Medical Service and their high devotion to duty had failed to prevent their troops in South Africa from suffering from enteric fever to a most deplorable extent. 3. That during the last few years some notable discoveries had been made in connexion with the bacteriology of enteric fever and fresh light had been thrown on the modes of dissemination of the disease. One of the most remarkable bacteriological discoveries of recent times was the "agglutination phenomenon" or "clumping reaction," terms applied to the now well-known fact that the blood of an enteric fever patient when mixed with an emulsion of living typhoid bacilli caused a specific reaction to take place; this showed itself in an embarrassment of motility followed by a clumping together of the bacilli. Dr. D. S. Davies used this test in tracing the epidemic of enteric fever at Bristol. Speaking generally no microbe other than the bacillus typhosus yielded the positive result described. There were exceptions, however. The serum of typhoid fever patients might react strongly to Gärtner's bacillus. The implicated Belfast water-supply that "clumped strongly with the blood of enteric fever patients was found to contain "coli-like" microbes. The means for differentiating the bacillus typhosus from the bacillus coli had been extended; it was known that they were linked by intermediate forms. It was recognised that the typhoid bacillus was the cause of enteric fever, but as regards those other microbes there was no such knowledge. In the method of isolating the bacillus typhosus from sewage and water-supply much progress had not been made, but success had been arrived at in this respect abroad. It might be that the bacillus typhosus, existing saprophytically, differed morphologically and biologically from the bacillus typhosus after it had gained a foothold in the human organism. Dr. Houston then proceeded to deal with water, milk, and shellfish in relation to the dissemination of enteric fever. Water and milk had long been recognised as agents in disseminating enteric fever, but shellfish had lately been the subject of investigation. The bacillus typhosus might persist in sea-water for two or three weeks and in the interior of living oysters placed in sea-water artificially polluted with the bacillus typhosus for 18 days. The typhoid bacillus had been isolated from the body and liquor of an oyster derived from a suspicious source. The danger was not a constant one because although oysters were apt at one time or another to be brought into sustained relation with objectionable matters, the contamination was happily but seldom of specific sort. In regard to soil in its relation to typhoid fever the bacillus typhosus remained alive for long periods in sterilised cultivated soils, but sterilised virgin soils were inimical to its growth. It was held that in the deep layers of soil the conditions might be more favourable to the continued existence of the enteric fever bacillus. Flood water came under grave suspicion in the spread of enteric fever, because during storms it was not uncommon for the filtration of water to be inefficient. At the present time sanitarians took the view that the gases from sewers and cesspools, sewage, and polluted rivers were not usually bacterially objectionable but tended to depress the vitality of weakly persons and rendered them prone to "catch disease." It might be suspected that many of the cases of enteric fever traced to inhalation of impure ground air might have been due to drinking specifically contaminated articles, such as water and milk, &c. Laboratory experiments formed an unreliable index of what occurred in nature. The endemic prevalence of enteric fever in some localities with outbreaks without any apparent cause was difficult to explain unless it was assumed that the bacillus typhosus existed saprophytically in soil or in ground water. It had been shown that the bacillus could remain alive in various situations in the human body for months and years. The stools were only one of a series of agents by means of which the disease was spread, and the patient, after his seeming restoration to health, might carry about in himself the seeds of infection for months and years. It was suspected that the danger of flies and insects and vermin conveying contagion was a real one. Until positive evidence was forthcoming to the contrary it would be wise to regard the effluents from bacterial beds as no more safe in their possible relation to disease than crude sewage. The attention that had been directed to typhoid bacilluria had thrown light on the spread and persistence of the disease. Dr. Houston then discussed fully the danger of infection from fried fish and gave details of an outbreak of enteric fever where the fried fish purchased from a particular shop seemed to have had a nearly universal attraction for the persons attacked by the disease. The distribution of affected houses showed a grouping about this shop as a centre, and in some families it was the fried-fish eaters who were attacked. In an outbreak ascribed by some to fried fish the disease was said by one observer to have been spread by infected mangles. Certainly that medium of infection had hitherto escaped recognition. Dr. Houston concluded with some remarks on prophylaxis. He considered that the preventive inoculation with Wright's vaccine was most serviceable for persons going abroad. It had been clearly demonstrated that urotropine was an almost specific remedy in cases of typhoid bacilluria, and Dr. Houston digressed at this point to state emphatically that the potentialities for evil of a typhoid fever convalescent suffering from typhoid bacilluria were so great as to be almost inconceivable. No one doubted that efficient sand filtration was a great safeguard, but there was no reliable evidence to show that it did more than greatly lessen the danger. The general measures which had governed sanitarians in the past remained the same to-day—viz., protection of water-supplies from excremental pollution, securing all articles of food from objectionable communication, keeping the drains and sewers in good order, and disinfecting the stools and urine of patients suffering from enteric fever. The recognition of the dangerous affection known as typhoid bacilluria must have a most important influence in controlling the spread of the disease.

Dr. F. A. DIXEY (Oxford) read a paper on the

Vital Statistics of Enteric Fever.

His conclusions were that the death-rate from enteric fever in London was a fluctuating one, but had on the whole materially diminished, the most marked descent having occurred about 16 years ago. The seasonal relations of enteric fever remained fairly constant from year to year, but there seemed to be a tendency, at least in years of low general prevalence, towards a progressive flattening of the autumnal maximum. A comparison between London and New York in respect of climate and enteric fever death-rate indicated that some meteorological conditions, especially perhaps temperature, were factors in the activity of the enteric infection. The relation however, was not of such a kind as to make itself apparent from year to year in one given locality. It was probable that the diminution in the death rate of enteric fever was really somewhat greater than it appeared to be from the inclusion in former times of enteric fever cases under other heads, notably typhus fever and simple continued fever. This source of error, however, was never very important and it was practically non existent. The case mortality of enteric fever was almost stationary and seemed likely for the present to remain so.

Dr W. G. SAVAGE (Cardiff) said that there was too great a tendency to accept the opinion of the bacteriologist as final.

Dr H. HANDFORD (Nottingham) addressed the meeting on the importance of direct infection in this disease and protested against the routine use of large doses of urotropine.

A communication from Dr E. M. SMITH (York) was read in which he referred to the ease with which infection could be carried by flies from the open middens used in York.

Dr A. R. REYNOLDS (Chicago) said that Chicago was supplied with water from Lake Michigan by four tunnels and it had been observed that the mortality from typhoid fever and from acute intestinal diseases followed each pollution of the supply, the first in about five weeks and the second in about one week. In January, 1900, the sanitary waterway was opened that carried the city sewage into the Mississippi valley, thereby reducing the mortality from typhoid fever. The Chicago departmental laboratory supplied physicians with its services entirely free in making diagnoses by the Widal test.

Dr A. K. CHALMERS (Glasgow) discussed the seasonal curves of enteric fever in Glasgow. These were two points of increasing prevalence, one in the autumn and the other in the spring. In a winter of severe frost some years ago no spring increase followed.

Dr J. GROVES (Carisbrooke) considered that there was expected from the bacteriologist that which was altogether beyond his power. He gave the history of an outbreak of enteric fever due to a supply of chalk water. The local authorities were lulled to a feeling of security by the bacteriologists and chemists declaring the water to be excellent, containing no organic impurity and with less than 150 innocent micro-organisms to the cubic centimetre. The problem was cleared up by means of "spot maps" at great expense to all concerned.

Dr F. T. BOND (Gloucester) stated that he had *not* observed any special liability to enteric fever in the colliery districts under his care. He had not come across a single case of infected milk causing enteric fever during 28 years.

Mr J. A. WANKLYN said that water free from organisms but charged with organic matter was a highly dangerous water because it was a culture medium.

Mr HERBERT JONES (Hereford) said that after the introduction of "water carriage" typhoid fever decreased in the Rhondda valleys.

Mr W. C. C. PAKES (London) detailed a useful test for differentiating the bacillus coli from the bacillus typhosus by means of a sodium formate medium.

Dr J. M. MARTIN (Stroud) propounded the question whether local authorities ought to sterilise their chemically pure effluent or whether the bodies who drew on river water should purify it.

Mr G. H. FOSBROKE (Worcester) cited cases of enteric fever in which the infection was carried 12 miles by water. He had concluded in certain outbreaks that the disease arose from polluted soil.

Dr HOUSTON, in reply, said that sanitary authorities did not sufficiently recognise the difficulties of the bacteriologist. Sputum was not usually credited with special infective capabilities but should be viewed with suspicion. He did not agree that urotropine should not be administered; to withhold it in some cases was to encourage the spread of enteric fever. The exceptions to the utility of Widal's test were not sufficient to detract from the value of the test. In the failure to diagnose contamination of water described by Dr Groves it was difficult to understand the mistake. In regard to Mr Wanklyn's views he urged that the bacteriologist could detect minute excremental pollution outside the reach of chemical analysis. He recognised the value of Mr Pakes's test with sodium formate medium and would try it in the future.

PSYCHOLOGICAL MEDICINE.

THURSDAY, AUGUST 1ST.

Dr ROBERT JONES (Claybury Asylum) opened a discussion on

Puerperal Insanity.

After referring briefly to the importance of reproduction and to the nervous basis of the reproductive emotions he stated that gestation was attended with much nervous disturbance in many women and with some nervous disturbance in all women. Insanity actually occurred but once in every 700 confinements. The reports of the Commissioners in Lunacy for the years 1894-98 inclusive showed that 8·4 of women admitted to asylums in the pauper class and 7·2 in the "private" class were subjects of insanity due to the puerperal state or to pregnancy or lactation. The statistics of Claybury Asylum for 1900 corresponded very closely with these figures, and Dr J. Warnock of the Cairo Asylum gave similar figures for Egyptian women. Taking the total of 3500 female patients admitted to Claybury Asylum during the past eight years, exclusive of transfers from other asylums, it appeared that 259 were cases of insanity of pregnancy, the puerperium, or lactation, distributed as follows: 56 were cases of insanity of pregnancy, 120 were cases of puerperal insanity in the stricter sense—i.e., occurring within six weeks of confinement, and 83 were of later development and associated with lactation. It was suggested that no particular type of insanity was associated with pregnancy or lactation, but the insanity of the puerperium was different in that it presented a marked delirium with wildness and delusions of a hallucinatory character in which religious and erotic manifestations were prominent, so that an almost distinct nosological entity might be recognised, a view, however, which he confessed was not supported by high authorities. As to illegitimacy it appeared that 12 per cent. of the 259 cases from the records of Claybury Asylum were single women and that the outbreak of insanity was twice as frequent during pregnancy in these cases as in the puerperium. The incidence of illegitimacy in the general population varied greatly, being low in Middlesex and Essex, high in Cumberland, and probably higher still in Scotland. Of the married women who had had a first attack no less than one third had subsequent attacks in their second (or later) confinements. One patient had had 12 attacks of insanity with as many confinements and another had nine. Both cases terminated in chronic and incurable dementia at the menopause. Of the puerperal cases more suffered from mania than from melancholia. Of 120 puerperal cases one only was epileptic. Of the 83 lactational cases a greater proportion suffered from melancholia or depression than from exaltation. The onset in the puerperal cases was generally sudden and maniacal; in fact, the sooner the outbreak of insanity followed confinement the more acute were the symptoms. The almost unanimous early symptom of puerperal insanity was insomnia followed by a feverish and anxious restlessness. Suspiciousness, loss of appetite and a proneness to delirious excitement followed. The symptoms of puerperal mania occurred within the first two weeks of confinement in 40 per cent. of cases and 18 per cent. more occurred during the third week. It was important to pay early attention to sleeplessness and headache in puerperal women. Suicidal promptings were present in 21 per cent. of the puerperal cases, increasing to 47 per cent. among lactational cases. In one case the conversation of the nurse that infants were occasionally removed piecemeal acted as the apparent exciting cause of puerperal insanity in a nervous and susceptible woman. One predisposed woman hearing of the confinement of the Princess May developed the delusion that she was the princess. It was probable that both bodily conditions such as septicæmia, exhaustion and the like, co-operated with mental strain and anxiety in producing puerperal insanity. The puerperal woman should be protected from both classes of exciting causes. In puerperal insanity the woman usually suffered from delusions concerning the identity of those near her and even failed to recognise her own identity or that of her infant. She developed marked antagonism to her husband and displayed both eroticism and indecency—a habit which shocked and alarmed her friends and relatives. A glaring wild look characterised this stage, the skin was pale and sallow, and repeated yawning indicated clearly a marked degree of exhaustion. Of 120 puerperal cases 88 were first attacks. One insane woman discharged from Claybury Asylum was admitted afterwards to another institution with puerperal insanity. She subsequently bore seven children, five of whom became insane. In was questionable whether hysteria in early life increased the possibility of a mental breakdown in the puerperium, for it must be remembered that to many girls marriage fulfilled a natural expectation and it thus might lessen the liability of mental breakdown at the climacteric which the single state predisposed to. With reference to heredity it was found that 122 out of the 259 cases referred to in this paper had some hereditary predisposition to mental or physical breakdown, including both direct and collateral taints of insanity, epilepsy, suicide, alcoholism, and phthisis. Home treatment should be adopted in cases where means permitted, the infant's and husband's presence being avoided, as these frequently tended to produce infanticidal impulse or eroticism. The prognosis as to recovery was good for first attacks, but after second or subsequent attacks, or when puerperal insanity appeared after confinements late in life, the prognosis was bad and the insanity was apt to persist and to become chronic. Many cases of acute puerperal mania tended to pass into acute dementia, and, contrary to Clouston's and Savage's, experience at Claybury Asylum had shown that numerous and frequent relapses were more common in these cases than was generally believed. Special watchfulness was necessary in cases of lactational insanity to guard against the patient's lapsing into a low state of nutrition with tendencies to gangrene or pulmonary phthisis. Albuminuria was not common in puerperal insanity and when it occurred the prognosis was grave. Of the recoveries from puerperal insanity nearly half occurred before the expiration of four months from the outbreak. The death-rate was highest in the insanity of pregnancy and lowest in puerperal insanity. With regard to pathology it was suggested that a slight toxæmia of the mother's blood was produced by waste products excreted from the fœtus; some observers called this a state of anæmia owing to a diminution of the red corpuscles in the maternal blood, while others had drawn attention to peptonuria and an increase in the toxicity of the pregnant woman's urine After confinement the morbid and effete material which was taken into the maternal circulation during early uterine involution tended to produce, in those predisposed, an irritation of the nervous system, especially if the secretory and excretory functions were in any way impaired or inefficient. At this period saprophytic bacilli gained entrance to the blood and septicæmia and pyæmia rapidly developed. The tongue then got foul, dry and coated, sordes formed on the lips and teeth, the skin was dry and hot, and the urine was scanty and concentrated. Obstinate constipation might be present In cases where there was no fever but where an acute delirium occurred lasting for several days it was possible that some unknown poison in the blood acted on the brain in a manner like unto alcohol. As regards treatment the dictum of Gooch, that no medicinal agents could relieve a disordered mind except indirectly through the disorder of the body with which it was associated, had to be borne in mind. These causes had to be ascertained and treatment directed to them. Cases of the insanity of pregnancy required constant vigilance to prevent suicide. The patient was suitable for asylum treatment or where means permitted she might be treated at home The general treatment was a light dietary, bright surroundings, regulation of the bowels by saline aperients, and sleep, the latter being secured by the aid of chloral and bromides in combination. Complications which might arise, such as eclampsia, must be dealt with after the methods of obstetric science. Insanity occurring after the puerperium needed more special treatment. and it would be well to make it a rule in all cases occurring within six weeks of parturition to treat the patient at home The special dangers of infanticide and suicide should be guarded against and the avoidance of the stigma of asylum treatment would be an intense relief to the mother who during her convalescence would think she had only suffered from "fever" and not from insanity. The essence of general treatment might be summed up in generous diet, liquid and easily assimilable, administered by the stomach tube if necessary. Food should be given during every quiet interval, as exhaustion was a marked feature Eggs, beef-tea, milk, malt liquors and malt extract, and cod-liver oil might be given to the patient, while the bowels should be kept regularly and freely open with calomel, jalap, podophyllin, or croton oil. Sleep must be secured, and for this purpose sulphonal, paraldehyde, and the combination of chloral and bromides were the best therapeutic agents in his experience. Opium and morphia were unsuitable owing to the stimulating effect on the brain and the arrest of secretions produced by these drugs. The anæmia should be combated by the use of iron, strychnine, and digitalis. A return of the menses might be regarded as the forerunner of mental improvement. A condition of semi-stupor might mark the stage of convalescence, and at this stage the patient's mind should be roused and diverted by change of scene and bright surroundings. In all puerperal cases vaginal douches might be given with solutions of boric acid, permanganate of potash. or carbolic acid. Where a portion of membrane or clot was retained in utero dilatation of the cervix and curetting of the endometrium were recommended. What had been said about tonics, diet, and fresh air applied with greater force to the treatment of lactational insanity. Stimulants should be administered with great caution, as the alcoholic habit might be contracted and continued after recovery had set in.

In the discussion following the above paper,

The President (Dr. J. B. Spence of Lichfield), after thanking Dr. Jones, stated that though agreeing in the main with the paper he must disagree with the remark that puerperal cases that break down early after confinement should be treated, if possible, at home for a period of at least six weeks. From a long experience of such cases he was convinced that the earlier the cases of puerperal insanity came into an asylum the better were the prospects of recovery for the patient.

Mr. Josiah Oldfield (London) spoke at some length on the medico-legal aspects of infanticide by a woman recently confined, and argued that evidence pointed to the fact that the stresses of pregnancy were responsible for a considerable percentage of mental disturbances in women. In such cases the woman recently delivered of a child was wholly or in part irresponsible for her actions. It was their duty to teach jurors and the public the doctrine that in such cases of infanticide where a woman broke through the strongest ties and instincts that bound her to her offspring (the protective instinct of motherhood). and attempted to destroy the life of her infant, this in itself should be looked upon as *prima facie* evidence of her irresponsibility, and that therefore the onus of proof of sanity and responsibility should fall upon the prosecution and not its disproof upon the defence.

Dr. James G. Soutar (Gloucester) said that in the district where his practice lay. and amongst the well-to-do. puerperal insanity was not a common disorder. Out of the 500 female admissions during recent years at Barnwood House, Gloucester, only 10 were cases of puerperal insanity. and the striking fact in regard to them was that those who had been admitted within four weeks of the onset of the attack made the best recovery.

Dr. W. Lloyd Andriezen (London) referred to the moral factor predisposing to insanity in cases of illegitimate births, puerperal insanity being twice as common (or, according to Dr. Jones, four times as common) after illegitimate as compared with legitimate births. He referred to the problem of racial predisposition and instanced the Jewish race in the United States, Russia, and Austria, where, according to recent observers, puerperal insanity was twice as prevalent amongst Jewesses as compared with the native population A special neuropathic predisposition also existed in some women, for of two pregnant women going through the stresses of parturition and the puerperium under similar conditions the one might develop an acute delirium with hallucinatory excitement lasting for weeks—in other words, acute mental confusion—whereas the other passed through a little restlessness and irritability with a mild pyrexia, lasting two or three days and leaving no bad after-effects. Such a fact, of every-day experience, showed that a fundamental difference existed. From an etiological point of view he recognised two distinct groups of the puerperal psychoses. In the first group the causes were septicæmia with or without auto-intoxication acting on a basis of cerebral exhaustion; in the second group a psychopathic predisposition existed and but slight stresses were required to excite mental confusion and delirium. In the classification of the puerperal insanities the first place should be given to acute mental confusion; this was the fundamental clinical condition and it was allied to the "hallucinatory delirium" of Mendel and was recognised by Kraepelin and the French school as a nosological entity. A description was given of the microscopic pathological changes found in the brain in a fatal case—viz., extensive destruction and "dusty" chromatolysis of all the layers of nerve-cells in the cerebral cortex, especially the large pyramidal cells, and a peculiar brownish pigmentary degeneration throughout many of the cells and the small amount of perivascular changes in the brain. It was claimed that puerperal insanity had decreased during the past three decades in large towns and reference was made to the sanitary records of Boston and Philadelphia, where the ratio of puerperal insanity to total labour cases had fallen steadily since 1880, the date when antiseptic measures were adopted widely and generally in obstetric practice. It was therefore evident that the development of aseptic treatment in parturition and the puerperium was an important practice in the prevention of some forms of puerperal insanity. The limitation in the production of neuropathic girls by forbidding the marriages of those afflicted with taints of insanity, epilepsy, and the like was another means of prevention, but the advice of the mental physician, though solicited, was seldom followed and it would take many years to educate public opinion, though it was their duty as alienists to do all they could in this direction.

Dr S. J. COLE (Colney Hatch) corroborated Dr Jones as regards the somewhat increased prevalence of puerperal insanity among the private classes, the strains of parturition being felt more among cultured women than in the poorer classes. He emphasised the neuropathic taint as playing a rôle of perhaps greater importance than septicæmia and *toxæmia but was of opinion that the causation was compound* as in the other insanities.

Dr FLETCHER BEACH (London) stated that the marriage of neurotic persons was on the whole to be discouraged, especially when epilepsy or insanity was present. With regard to the milder neuroses, however, he would not absolutely prohibit marriage because children with exceptional abilities and brilliance were sometimes the offspring of slightly neurotic fathers or mothers. He also dwelt upon the importance of diet in puerperal cases as in epileptics.

Dr HARRY CAMPBELL (London) pointed out that in order to maintain a high level of racial health it was necessary that those who fell below the standard of health should abstain from marrying and propagating their kind. The view of sanitarians that it was merely needful to this end to secure hygienic conditions was a dream. He thought it was an accepted belief that any woman who had been insane after childbirth should be prevented from conceiving again and pointed out that the so-called "mental" causes of insanity operated essentially by deranging the functions of the body, and that certain emotions such as fright gave rise to profound bodily changes even in animals. The toxic factor was an important one in determining insanity, both in pregnancy and in the puerperium, because the nutrition of the body was at these times in a state different to that at other times.

Dr J. HADDON (Hawick) said that no microbe could grow without a suitable soil, just as clover could not grow in certain fields unless the right manure was put in. So it was in the human body, and he believed that over-eating was one of the conditions which formed the nidus for such microbe. A restricted diet cured some cases of epilepsy—a disease closely allied to insanity—and it might be that a greatly restricted diet would be helpful in diminishing the predisposition to insanity, including puerperal insanity of microbic origin.

Dr SAMUEL GRIFFITH (Portmadoc) said that in his long experience as a general practitioner he had noted that the patients suffering from puerperal insanity were either sthenic with strong hereditary taint or rendered asthenic with difficult and instrumental labours. He looked upon puerperal insanity as being septicæmic or hereditary. He believed in the home treatment of such cases, the asylum being made use of when the former failed. Many cases would get well with good feeding, strict cleanliness, and rest for both body and mind.

Dr EDWIN LASMORE (Banstead Asylum) said that there was a disease which could be properly termed puerperal mania characterised by an attack of excitement during the puerperal state, febrile temperature, hallucinations of sight, and delusions of identity. The group of symptoms seemed to him to be of such a nature as to point to a toxæmia with characteristic clinical features and he believed it was hereditary. He had faith in the efficacy of opium in puerperal mania and to secure proper effect the drug should be given in large doses up to 20 or 30 minims.

Dr ROBERT JONES, in replying at some length, appreciated the value of the medico-legal criticisms of Mr *Oldfield and believed that legal experience had borne out* the view that there might be changes in women during pregnancy, parturition, and the puerperal state amounting to mental alienation, a point which could not be disregarded in cases of infanticide following labour. He was impressed with the great necessity of kindness, patience, and tolerance in treating puerperal cases. His experience as regards puerperal cases with marked melancholia was that recovery was delayed in such cases. His experience of private cases agreed with that of Dr Soutar as regards the rate of recoverability. The remarks of Dr Andriezen on the moral factor and on illegitimacy deserved serious attention and he entirely agreed with those remarks. The same applied to the observations cited of the diminished incidence of puerperal insanity since the introduction of antiseptic methods. As to the distribution of puerperal insanity among the Jews his impression was that in England they probably kept their women at home when suffering from puerperal insanity either until recovery or until the case became chronic. He quite agreed that acute mental confusion of a hallucinatory and delirious character was the common feature in puerperal insanity, but this had not been recognised by authorities in this country as a nosological entity. He could supplement the pathological findings of Dr Andriezen by referring to a similar case described by Dr van Gieson of New York, who found similar *changes in the* Nissl's granules and pigmentary changes in the nerve cells in acute delirium. Dr Harry Campbell's interesting observations were welcome from the philosophical standpoint—viz., the prevention of insanity by forbidding the marriage of neurotic persons. This was a counsel of perfection thankfully received and promptly disregarded by candidates for matrimony. In certain States of North America such marriages were recently forbidden by law. He agreed with Dr Campbell as to the results of the emotion of fear in producing *bodily disturbances. To the remarks of* Dr Fletcher Beach as regards the marriage of neurotic persons the same remarks he had just made applied. He agreed with Dr Cole that mental shock was more felt in the educated classes and would thus go further to produce puerperal mania which might in such cases be very distinctly of neurotic origin. In reply to Dr Lasmore he stated that both temperature and pulse had a marked bearing upon prognosis, but that a febrile temperature was comparatively infrequent in some marked cases of *acute puerperal mania*. As to heredity, the result of inquiries showed that maternal heredity was met with twice as frequently as paternal heredity in the puerperal and lactational cases. The President's remarks as to early treatment in asylums deserved great respect, especially for pauper cases, but in the case of the well-to-do the stigma of having been in an asylum was keenly felt and if possible this should be avoided by home treatment.

Dr F. W. EDRIDGE-GREEN (*Hendon*) *contributed a paper* dealing with the

Evolution of a Perceptive Centre.

By a perceptive centre was meant the portion of brain having the function of conveying to the mind information concerning a sensation. They knew that nerve impulses differed in accordance with the character of the physical stimuli giving rise to them, and the theory he would put forward was that those physical stimuli which differed most were first recognised by man as different. In illustration of this the evolution of the colour sense was discussed. All the facts which could be gained from the study of the words used for colours in ancient literature (e.g., Greek) and the examination of healthy and colour-blind natives from savage and primitive races of man showed that the sense of light was developed first and the sense of colour afterwards. Those colours which differed most in their physical aspects—which differed most materially in their physical aspects—i.e., wave-lengths—were the first to be perceived as different—viz., red and violet. As the cerebral visual centre developed in man the capacity for recognising other colours would be superadded, so that early man passed through the various stages of colour-blindness, the capacity for colour perception in its present form being very slowly developed. The rainbow in the [illegible] appeared to primitive man first as a bright grey in the middle with a tinge of violet at one border and a tinge of red at the other. This would correspond to that degree of colour-blindness met with occasionally and which preceded total colour-blindess. The recognition of green was a later development in the colour-sense, and as evolution proceeded a fourth colour, yellow, was recognised at the junction of the red and green. He had never met any person who was able to see more than seven different colours in the spectrum. The same theory of evolution applied to the other perceptive centres, such as the perception of pitch by the ear.

In the discussion following the above communication

Dr. LLOYD ANDRIEZEN stated that various observers could distinguish according to their capacity from four to seven colours in the spectrum. He was himself able to discriminate red, orange, yellow, green, and greenish-blue, blue in the strict sense, violet, and the lavender-grey ultra-violet. The infant at first differentiated luminosity from darkness, and from a limited number of observations he believed that blue was first appreciated by the child and red soon afterwards. The perception of green was a later development. From experiments he thought that probably the yellow-green region—the region of maximum luminosity in the spectrum—was the last to be discriminated by man in the evolution of his colour-sense because the purely luminous effect was here at its maximum and therefore would obscure fine differentiation. The evolution of every sensory centre (visual, auditory, or cutaneous) took place in coöperation with its special kinæsthetic auxiliary centre and he thought that exercise of the latter would help in the development of the former. He inquired if cases were observed of the order of dissolution of the colour sense.

Dr. ROBERT JONES said that in some languages such as Welsh the same word was used to designate both blue and green. The grass was blue (Welsh "glas") in Welsh, an indication that blue was the colour first recognised by the primitive Welsh, who at a later stage in the development of their colour-sense extended the application of the term to the nearest colour allied to blue—viz., green. He had dressed his two children in coloured dresses and concluded that they preferred blue overalls. The occurrence of Daltonism was an instance of defective development of the colour-sense, a reversal to an ancestral type of evolution. He agreed with Dr. Andriezen as to the great part played by "motor" sense in the evolution of the special senses, and he believed that its growth could be best studied in children, which must prove an interesting as well as necessary study.

Dr. EDRIDGE-GREEN, in reply to questions, said that he found the order of development of the colour-sense in children to be as follows: first red and violet, then green, then yellow, and lastly blue. In Greek and many other languages besides Welsh there was but one word for both "blue" and "green." The confusion of green and blue was a very common form of colour-blindness. He had noted in a case of general paralysis that the order of dissolution of the colour-sense was the reverse of the order of evolution; and with reference to heredity he mentioned a family of nine persons—one an artist and eight musicians—all of whom were colour-blind.

Dr. JOHN TURNER (Essex County Asylum) contributed a paper on

The Physical Basis of Melancholia.

In melancholia changes were met with in the pyramidal and giant nerve-cells of the brain which were apparently identical with those produced in the motor bulbo-spinal nuclei (hypoglossal and lumbar) of animals by severance of the motor nerves. When such changes were marked dementia was present. Alcohol and traumatism were also capable of setting up similar changes in the nerve-cells. Many years ago Dr. Wiglesworth of Rainhill Asylum described changes in the cerebral nerve-cells in melancholia, and recently Dr. Adolf Meyer had published several cases with descriptions of the pathological changes in the cells. In cases of rapid dementia of alcoholic origin the changes were present in a more marked degree. Dr. Turner then gave the clinical histories of cases of melancholia in which at the necropsies the brain cells showed pathological changes which he tabulated as follows:—1. Cerebral cortical cells. These showed swellings of the cell bodies, displacement of the nucleus to the periphery of the cell, and chromatolytic changes (disintegration) in the central part of the cell body so that this part appeared pale, blurred, and "washed out" in appearance, while the peripheral part was still full of darkly-staining chromatic bodies. These observations referred to the giant and large pyramidal cells. The changes affected all parts of the cortex examined, but were more clearly marked and affected a larger proportion of cells in the ascending frontal convolutions. The very large pyramidal cells met with in the occipital lobe were almost always similarly implicated. The cells of the hypoglossal nuclei were normal, but the cells in the vagus, lateral, ambiguous, and cuneate and gracile nuclei presented changes similar to those of the cortical nerve-cells. In the spinal cord the changes were slight or absent in the cells of the anterior cornua at various levels. No degeneration of the tracts in the spinal cord could be found with Marchi's method in seven cases examined. The tangential fibres of the cerebral cortex in six cases studied after staining with osmic acid appeared to be almost normal, there being a slight diminution in the numbers of the finer medullated fibres only. The fact that the cells of the hypoglossal nuclei were not affected in any of the cases and the anterior corneal cells only in advanced cases showed that the disease was not uniform throughout the nervous system. Dr. Turner claimed that the changes in melancholia began in the afferent part of the nervous system, beginning in the sensory roots and posterior spinal ganglia of the spinal nerves, so that the cells within the spinal cord—for example, in Clarke's column—were deprived of their natural sensory stimuli. The same condition applied to the sensory pathway proceeding upwards to the cerebrum, the cells of the cuneate and gracile nuclei being affected and the sensory tracts to the brain thus damaged. Thus was explained also the general and partial anæsthesias of the surface of the body in advanced melancholia, as was pointed out long ago by Griesinger. Bevan Lewis regarded the essence of mental pain as "pent up activity" and stated that all grades of mental pain were dependent on over-action of the impressive (or afferent) and restricted action of the expressive (or efferent) region, but this view of over-action must be regarded as doubtful in face of the admitted frequency of anæsthesia in melancholia. Apparently, according to Bevan Lewis, the barrier was in the efferent region, whereas the above observations showed that any barrier which might exist, was on the afferent pathways. Moreover, the theory that melancholic states depended upon a slighter reduction in the highest nervous centres than, maniacal states did not satisfactorily meet the facts of the case, and although undoubtedly most mental affections began with depression, yet they were by no means less grave than maniacal conditions. In Dr. Turner's experience melancholia more frequently than any other class of mental disorders, with the exception of general paralysis, tended in comparatively short periods to pass into dementia, and this passage often showed no intervening phase of mania as they should expect if the assumption just referred to were correct.

Dr. SEYMOUR TUKE (London) read a paper on

The Modern Treatment of the Insane,

referring to the difficulties under which alienists laboured under the existing lunacy laws. He thought that legislators had framed the laws in question in a spirit mainly of suspicion towards physicians engaged in lunacy practice or interested in private asylums and licensed houses. The Lunacy Act of 1890 was, owing to its "too repressive" nature, evaded by many, and unregistered places for the accommodation of insane private patients thus continued to exist. Then a prevailing practice existed of diagnosing cases of insanity as neurasthenia, hysteria, and as "borderland" cases, and the borderland was regarded as so elastic that it was made to include cases of insanity which in his opinion should be sent to asylums.

In the discussion which followed Mr. J. STEWART (Clifton, Gloucestershire) said his own experience confirmed the observations of Dr. Tuke, and he felt it was regrettable that owing to the abuse of the law by a class of practitioners who were not alienists the latter should have in large measure come to share the blame.

PATHOLOGY AND BACTERIOLOGY.

THURSDAY, AUGUST 1ST.

Mr. ALEXANDER G. R. FOULERTON (London), in introducing a discussion on

The Pathology of Pneumococcic Infection,

said that the pathology of pneumococcic infection was concerned with a large number of cases of diseases which in their clinical aspect might have but little in common and in their morbid anatomy might vary as widely. The specific organism of this infection, the pneumococcus, micrococcus pneumoniæ, or diplococcus lanceolatus, belonged to the class of strict parasites so far as our present knowledge went. Further, it appeared as infecting man alone and had never yet been found as a parasite of the lower animals. It had been but rarely met with outside the human body, but Emmerich had succeeded in isolating it from the dust of the floor of a ward in which there were patients with pneumonia and Uffelman claimed to have isolated it from the air of a cellar. From what was known of its biology it was improbable that the pneumococcus as it was found as a parasite of man could maintain a separate existence as a saprophyte and away from a living host for any length of time. Micrococcus pneumoniæ was a fairly common parasite of the mucous membranes in man and not necessarily under pathogenic conditions. It was first discovered accidentally by Pasteur, Chamberland, and Roux on inoculating rabbits with the saliva of a child who had died from hydrophobia and at about the same time by Sternberg on inoculating some rabbits with healthy saliva, and both accounts of the organism were published almost simultaneously in 1881. Subsequent investigations had shown the frequency with which the organism existed in the mouths of healthy individuals, in whom Sternberg found it in 20 per cent. of all cases examined, and Netter in about 15 per cent. The organism was also found in the anterior nares, von Besser isolating it from the nasal secretion of 14 out of 57 individuals examined. Arnold Lawson, when investigating the bacteriology of the conjunctival sac in 200 healthy individuals found micrococcus pneumoniæ present in two, and in each in pure culture. The parasite had also been found on the mucous membrane of the vagina, but it was probably rarely present there since Doyen was the only one of the large number of those who had worked at the bacteriology of this canal who had isolated it from the vaginal secretion.

The virulence of the parasite from healthy individuals and when existing under pathogenic conditions.—The first point that had to be considered in studying the pathology of pneumococcic infection was whether the organism as it existed as a parasite of healthy individuals was endued with virulence in the same degree as when it was found as an actively pathogenic agent. Evidence on this matter could only be obtained by animal experiment. Micrococcus pneumoniæ although not found occurring naturally in the lower animals was actively pathogenic for many of them—the rabbit, wild and tame mice, wild and tame rats, the guinea-pig, the sheep, and the dog being all more or less susceptible to infection. The susceptibility was most marked in the rabbit least in the dog and in the other species according to their position on the list. Pigeons and poultry were according to Washbourn immune against this infection. And in testing the organism as obtained from healthy saliva its virulence for the rabbit would usually be found to be quite as evident as when isolated from, for instance, the sputum of a case of pneumonia. When, therefore, the parasite became pathogenic for its human host there was no reason to believe that infection had happened because of any sudden access of virulence to a previously harmless parasite but rather that the condition of the host had afforded opportunity which under the conditions of ordinary good health, had been wanting for the exercise of a natural pathogenic virulence. Netter, however, when studying the organism as it occurred in the sputum of cases of pneumonia found that it lost all its virulence during the fortnight immediately succeeding defervescence but regained it at the end of that time. Testing the cultures immediately after isolation from cases of recent infection in man Mr. Foulerton had found that the degree of virulence in a series of cases, including the organisms isolated from 11 cases of empyema in children one case of empyema in an adult from two cases of meningitis from three of pneumonia, from one of cellulitis, and from one case of a circumscribed abscess of the finger was fairly uniform for the rabbit. So far as man its natural host, was concerned, micrococcus pneumoniæ in its character as a normal and only occasionally pathogenic parasite resembled in some degree bacillus coli communis. The latter, although a universal and according to Burnstock, a useful parasite of the intestinal tract became nevertheless, like the pneumococcus, actively pathogenic when it found the opportunity of penetrating below the mucous membrane.

The pathogenicity of micrococcus pneumoniæ for man. The pathology of pneumococcic infection might conveniently be considered with special regard to the following points: (1) the general results of blood infection and those of the toxæmia produced by the absorption and circulation of toxins formed in the local foci of infection in the tissues or produced by cocci which had infected the circulating blood itself; (2) the direct action of the parasite on the various tissues in which it became located in the course of an infection; and (3) what might be termed the secondary results of the infection—that is to say, those results due not to any direct action of the infecting organism but arising from the new morbid conditions brought about by the infection. In the case of pneumococcic infection these last secondary effects were often of the greatest consequence; there was the effect on the right heart of the obstruction to the passage of blood through the infected area of the lung the result of sudden diminution of the surface available for the oxygenation of the blood the effect of interference with cerebral function in cases of meningitis, together with others which had no immediate bearing on the present discussion.

Toxæmia in pneumococcic infection.—With regard to the exact nature of the toxic substances produced in the course of a pneumococcic infection they knew very little, whether such were actually secreted by the cocci themselves or whether they were formed from the infected tissues by the action of the cocci. Klemperer had isolated a toxic albumose pneumotoxin from broth cultures of the coccus by precipitation with sulphate of ammonia and alcohol; formic acid was also produced in some quantity in such culture. Auld had isolated from the tissues of infected animals by precipitation with absolute alcohol an albumose and a residue soluble in alcohol and consisting mainly of an organic acid. The albumose when injected into the thorax of the rabbit set up a lobar pneumonia with pleural and pericardial effusions and when injected into the subcutaneous tissue a cellulitis; the acid residue soluble in alcohol, was innocuous. As to the action of the toxins on individual tissues so far as such action was manifested by histological changes but little was known. Carnot and Fournier described definite alteration in the cardiac muscle of the rabbit produced by the injection of small quantities of filtered toxic broth. The changes included an exaggeration of the transverse striation, with vacuolation, dissociation, and fragmentation of the muscle fibres. There was also some swelling of the connective tissue of the muscle, with a subsequent hyaline degeneration. Similar changes were to be found in the voluntary muscles. Carnot and Fournier had found in two cases of pneumonia in man changes in the heart muscle similar to those occurring in the rabbit. Maragliano, on the other hand believed that the changes found in the heart-muscle in pneumonia were not due to the direct action of toxins but were secondary to nerve lesions. There was a certain amount of evidence that changes in the motor ganglion cells might result in pneumonia. Campbell Thomson and himself when investigating the action of various bacterial toxins on the motor cells of the cerebral cortex found some indication of structural alteration in these cells, when stained by Nissl's method in pneumococcic infection. In the mouse the ganglion cells showed merely the appearance of uneven staining. In the rabbit the changes were more marked the cells were swollen and showed uneven staining irregular dark areas alternating with areas of lighter staining the nuclei were indistinct and the cell body generally had a blurred appearance. There was, however, no reason to suppose that these changes were specific or in any way peculiar to the particular bacterial toxin used such as the changes which they had found in experimental tetanus were. The changes in the pneumococcic infection nearly resembled in fact those which Campbell Thomson had found in a variety of morbid conditions in which the common factor of a high temperature came into play. Cases of post-pneumonic paralysis had been described in man, and Auld had observed paralysis of the extensor muscles of the fore-limbs occurring in rabbits at some long interval after the injection of the toxin.

The local action of the pneumococcus on the tissues infected.—The local action of the pneumococcus under the conditions of a natural infection varied according to the susceptibility of the individual infected and partly perhaps, although probably in a less degree on the virulence of the actual strain of coccus present. Carnot and Fournier had pointed out that the nature of the lesions produced by pneumococcic infection in man in the guinea-pig and in the rabbit presented a gradually ascending scale of severity, the exudation being sero-fibrinous, purulent and hæmorrhagic in the respective cases. This was, of course, only partly true. In man all three varieties of exudation might be met with; the exudation might be purulent from the first, sero-fibrinous and becoming purulent, and sero-fibrinous and remaining so; and occasionally hæmorrhagic lesions were seen. A case of extensive cellulitis of the forearm, following a wound of a finger when doing a post-mortem examination, was quoted as an example of a pure pneumococcic infection of a primarily pyogenic character. Other examples were seen in the acute but circumscribed abscesses which occurred on the fingers after cuts in the post-mortem room or the abscesses in the tonsil which were sometimes a result of pure pneumococcic infection.

Fibrinous lobar pneumonia.—The first point which had to be considered with regard to fibrinous lobar pneumonia was whether the pneumonia was merely a manifestation of a general pneumococcic infection or whether it was at first a local infection. Latterly the general tendency had been to the former view, the pneumonia being looked upon as an incident in the course of a general infective disease. Mr. Foulerton thought, however, that the usual sequence of events showed that the lung infection was the primary condition and that any general blood infection was secondary to this, and, moreover, not of such common occurrence as some had suggested. Whichever view was adopted, it was certain that it was only in a comparatively small number of cases of pneumonia that any proof, direct or indirect, of a general blood infection could be found. The most reliable statistics of the result of blood examination in pneumonia were those of Franklin W. White of Boston, U.S.A., who examined the blood in 19 cases, drawing off five cubic centimetres direct from a vein with a syringe. On transferring the blood to culture media a culture of micrococcus pneumoniæ was obtained in only three cases, and each of these three proved fatal. Two of these three cases were examined post mortem and in both evidence of general blood infection was found. In seven other cases out of the 19 which also terminated fatally and in which the blood drawn off during life had proved sterile there was no evidence post mortem of any general blood infection. Indirect evidence of general blood infection was found in a certain number of cases in which after pneumonia lesions, such as endocarditis, meningitis, or arthritis and the like, occurred in parts remote from the lungs. Amongst the more uncommon of such lesions a pure pneumococcic parotiditis must be mentioned. Fraenkel and Reiche had found the specific coccus in the kidney in 22 out of 24 cases of pneumonia examined post mortem. With regard to the causation of fibrinous lobar pneumonia, and looking upon the lesion as arising from a local infection of the lung, it was quite possible that the old belief as to "chill" or exposure to cold having some share in the causation was well founded. There was no doubt but that exposure to cold would produce some temporary congestion of the capillaries of the lungs, and under those conditions it was quite likely that there was just sufficient alteration in the cells lining the air vesicles to render them less efficient in resisting an invasion by any bacteria which might come to rest on them. The access of potentially pathogenic bacteria with the air was prevented under the conditions of normal respiration through the nostrils by the mechanism which provided for the freedom of such inspired air from bacteria. But given an attack of reflex coughing, due to the irritation set up by a congested state of the air-passages, it seemed possible that minute particles of mucus from the mouth charged with cocci, having been disturbed by expiratory efforts in coughing, might subsequently be inhaled directly into the lungs with the next deep inspiration taken through the open mouth. Another point of interest was as to the exact proportion of cases of fibrinous lobar pneumonia which were due to pneumococcic infection. Weichselbaum identified the pneumococcus in the exudation of 94 out of 129 cases examined, his results being verified by culture in 54; Netter gave the proportion at about 75 per cent. and other observers had found it to be still higher. With regard to "epidemic" pneumonia Mr. Foulerton thought that this was not usually due to a pneumococcic infection. During the last year he had examined material from cases of epidemic pneumonia then prevalent at Middlesbrough. The disease was certainly characterised by fibrinous lobar pneumonia, but none of the cases were due to pneumococcic infection and he had come to the conclusion that the causative parasite in these particular cases was a bacillus having all the characters of bacillus coli communis, a conclusion which corresponded with that arrived at by Klein and Ballard when investigating a similar outbreak of epidemic pneumonia at the same place some years previously. Fibrinous lobar pneumonia was not, of course, the only result of pneumococcic infection of the lung; there was a pneumococcic broncho-pneumonia, especially in children, and the pneumococcic perinodular pneumonia of cases of pulmonary phthisis.

Pneumococcic empyema.—The pleural effusion which occurred to a greater or less extent in probably every case of lobar pneumonia was in the majority of cases due at first to the irritation of toxins passing through from the neighbouring infected lung and not to the presence of the cocci themselves in the pleural sac. And, excepting one case which occurred in a child, he had never found the pneumococcus in a non-purulent pleuritic effusion which was sufficiently extensive to have required tapping. In adults empyema usually occurred as a complication of lobar pneumonia; in children the pleural lesion was, he thought, frequently the primary one. And considering how well cases of empyema in children did under surgical treatment it was difficult to believe that there was a lobar pneumonia underlying any large proportion of ther [illegible] s a marked difference in the [illegible] in children and adults. The two parasites which had caused a very large proportion of all the cases of empyema which he had examined were streptococcus pyogenes and micrococcus pneumoniæ; in his own cases the streptococcus had caused about 75 per cent. of the cases in adults and 25 per cent. of those in children, whilst the pneumococcus had caused about 75 per cent. of the cases in children and about 25 per cent. of the cases in adults; this was excluding a small minority of cases in which organisms other than these two were present.

Pneumococcic arthritis.—Cave had recently published an excellent paper on the Arthritic Manifestations of Pneumococcic Infection, giving details of cases in his own practice and of 30 other cases recorded. Of 31 cases 23 died and only eight recovered. In one case the symptoms of the arthritis preceded those of pneumonia, in 27 cases the pneumonia preceded the arthritis, and in three cases there was no history of pneumonia either antecedent or subsequent. In 19 cases only one joint was affected, in seven cases two joints were affected, and in two the arthritis was multiple—that is to say, more than four joints were affected. When the details of published cases were considered it was obvious that the joint affection might take one of three forms: it might be purulent from the beginning, it might be at first sero-fibrinous and then purulent, or it might remain sero-fibrinous throughout, in the last case assuming sometimes the type of an osteo-arthritis. Rendu had recorded a case of pneumococcic infection of the sterno-clavicular and knee-joints in which at the time of examination the fluid in both knees was still sero-fibrinous, whilst in the sterno-clavicular joint it was purulent. As examples of the less acute forms of pneumococcic arthritis the case recorded by Fernet and Lacapére was quoted in which an osteo-arthritis of the wrist with teno-synovitis followed an attack of pneumonia. In that case full bacteriological evidence of the nature of the joint infection was obtained. Fernet and Lorrain had previously recorded two similar cases of osteo-arthritis with teno-synovitis following pneumonia in which the diagnosis of pneumococcic infection was founded on clinical evidence only.

Pneumococcic meningitis.—A pneumococcic meningitis might be acute and purulent in character or more chronic and with a sero-fibrinous exudation. Details of an acute case were given and the rapidity with which these cases ran their course was pointed out. The sero-fibrinous form apparently occurred only in children; it was uncommon, but Levi had recorded two well-marked cases occurring in children after broncho-pneumonia, and Dr. Lazarus-Barlow would refer to two other cases. The lesions in this form might be exactly those of the basic meningitis described by Still, which was in his cases undoubtedly due to diplococcus intracellularis meningitidis of Weichselbaum. The points of differential pathological diagnosis between the forms of cerebro-spinal meningitis due to infection by streptococcus pyogenes, diplococcus intracellularis meningitidis, and micrococcus pneumoniæ were referred to. Streptococcus produced only a purulent meningitis, whilst the other two produced either a purulent or sero-fibrinous form. In the purulent form the lesions were very similar whichever organism was present; there was the same purulent infiltration of the pia mater extending over the base of the brain and most marked on the dorsal aspect of the cord. Councilman, Mallory, and Wright had pointed out that in the pneumococcic and streptococcic forms the inflammation did not tend to spread from the pia mater into the substance of the brain or cord, as in the case of infection by diplococcus intracellularis; in the first two forms there was, however, an amount of endarteritis of the pial vessels not found in the other. Epidemic cerebro-spinal meningitis was probably never due to micrococcus pneumoniæ, the diplococcus intracellularis meningitidis being the organism always present in such cases. Pneumococcic meningitis might be the only lesion present, or it might be secondary to pneumonia, to otitis media, or to fracture of the base of the skull passing through the middle ear.

Pneumococcic peritonitis.—This, like many of the other manifestations of pneumococcic infection, might occur under two forms, the sero-fibrinous and the purulent. It was most frequently met with in children, only two out of 17 cases quoted by Dieulafoy having occurred in adults. Ménétrier and Legroux had recorded two additional cases in one which illustrated the two types which the peritonitis might assume. In one case in which the patient died eight days after the onset of symptoms, the peritoneal exudation was found to be purulent; in the other in which the patient died some five weeks after the onset of symptoms the exudation was sero-fibrinous and the visceral peritoneum was covered with a layer of lymph. The latter case was remarkable also from the fact that embolism of the left brachial, the right popliteal, and the left Sylvian arteries had occurred. Amongst children peritonitis from this cause was most common in girls, whilst the cases recorded in adults had been in males.

The other manifestations of pneumococcic infection which were briefly referred to were pericarditis, endocarditis, salpingitis, keratitis, and otitis media. Mr. Foulerton concluded with a reference to the method of testing the serum reaction in pneumococcic infection, as devised by Bezançon and Griffon.

The PRESIDENT (*Dr. J. W.* WASHBOURN) *thought that the* pneumococcus might certainly exist outside the body, but in a non-virulent condition. He gave an account of several cases of pneumococcic pleurisy. He was not satisfied as to the isolation of toxic substances from cultures of the pneumococcus, having failed to isolate any toxic albumose himself. In conjunction with Dr. Eyre he had carried out experiments to test the value of the serum reaction in pneumonia but without any useful results.

Professor MICHELL CLARKE (Bristol) showed and commented on some cases of purulent pneumococcic meningitis; he also showed a specimen illustrating an uncommon complication of pneumococcic empyema, extensive thrombosis of the left axillary vein.

Dr. J. H. BRYANT (London) had had the opportunity of investigating three cases of pneumococcic peritonitis, two in young girls and one in an adult male. In the last case both pneumococci and streptococci were present.

Dr. E. J. CAVE (Bath) referred to his work on pneumococcic arthritis and recorded an additional case which had occurred in his practice since the publication of his paper.

Dr. LAZARUS BARLOW (*London*) referred to two cases of posterior basic meningitis in infants from which pure cultures of the pneumococcus had been isolated. Clinically and anatomically these cases had resembled those described by Still as due to infection by the diplococcus of Weichselbaum. His cases, however, showed that the condition of posterior basic meningitis in children might be caused by more than one organism.

Dr. J. W. EYRE (London) referred to the method which Dr. Washbourn and himself had elaborated for determining the virulence of cultures of the pneumococcus by diluting a loopful of culture from a solid medium and they had been able to establish a standard of normal virulence for the organism. Using their own method they found that there was considerable variation in the virulence of cultures from different cases.

Dr. GEORGE BATTEN (London) recorded a case of cerebral abscess from which a man died eight months after an attack of pneumonia. The abscess was of the size of a small orange and was situated in the anterior part of the right cerebral lobe. The symptoms produced had been very indefinite. The pus of the abscess contained the pneumococcus and some staphylococci.

Dr. THEODORE FISHER (Bristol) called attention to the occurrence of abscess of the lung in pneumonia; he did not think that this complication was as uncommon as was generally stated to be the case. He had met with such abscesses in five cases, in all of which a mixed infection was present, the pneumococcus with bacillus coli communis or with streptococci.

Mr. FOULERTON replied, referring to various points raised in the discussion.

Dr. R. H. STEEN (Chichester) gave a demonstration on a new Electro-thermal Paraffin Bath which had been found useful when a supply of gas for heating an oven could not be obtained. The temperature was kept remarkably constant and the range of variation was not appreciable with an ordinary thermometer.

Dr. J. W. EYRE read a paper, Further Notes on Media of Standard Reaction. Dr. Eyre described his methods in detail and laid especial stress on the necessity for a somewhat prolonged heating of the meat infusion employed, in order that a maximum acidity before the final standardisation might be obtained.

Professor GLEY (Paris) read a paper on Variations of Iodine in the Thyroid in Graves's Disease and principally in the Blood after Removal of the Thyroid.—Mr. WALTER EDMUNDS (*London*) *took part in the discussion which* followed on the reading of Professor Gley's paper.

Dr. WILLIAM HUNTER (London) read a paper on the Diagnosis of the Presence of Bacillus Coli Communis by Means of Neutral Red.

OPHTHALMOLOGY.

THURSDAY, AUGUST 1ST.

Mr. J. B. LAWFORD *(London), in opening the discussion on*

The Relation of Gonorrhœa to Diseases of the Eye exclusive of Purulent Ophthalmia,

said that although the gonococcus had been found in inflamed joints and serous membranes its presence had not been *demonstrated in the eye apart from gonorrhœal ophthalmia.* Modern observations tended to show that mild conjunctivitis sometimes came on during an attack of gonorrhœa not due to the gonococcus, although possibly due to inoculation with an attenuated virus. The association of iritis and irido-cyclitis with gonorrhœa had been long recognised. In many cases it occurred concurrently with arthritis, though not invariably. Both were liable to relapse without any fresh infection. Scleritis and episcleritis were not so frequent and still less so were retinitis and neuro-retinitis. In the former there was a possibility of embolic infection. One or two instances of bilateral infection of the lacrymal gland were on record.

Mr. E. J. HAMILTON (Liverpool) described a case of gonorrhœal iritis in which there was no arthritis.

Dr. R. A. YELD (London) had recently analysed 159 cases of iritis. In 28 patients there was a history of gonorrhœa and 26 had arthritis as well. In 13 cases there co-existed iritis, arthritis, and gonorrhœa. 8 per cent. were therefore attributable to gonorrhœa. Conjunctivitis was a common complication; the great difficulty was to exclude syphilis as a factor.

Dr. DARIER (Paris) had seen many cases of iritis associated with metritis and endometritis not proved to be gonorrhœal which subsided with the cure of the uterine trouble.

Mr. HENRY POWER (London) thought that cases of gonorrhœal iritis must be very rare.

Mr. RICHARDSON CROSS (Bristol) considered that there was no doubt about the occurrence of gonorrhœal iritis and had frequently met with it.

Major H. E. DRAKE-BROCKMAN, I.M.S., said that he had seen instances of gonorrhœal iritis complicating gonorrhœal ophthalmia.

Mr. SYDNEY STEPHENSON (London) said that he had recently seen two cases of gonorrhœal conjunctivitis with arthritis.

Mr. DEVEREUX MARSHALL (London) described the exudation in the anterior chamber in these cases [illegible] found the gonococcus present there.

Mr. L. V. CARGILL (London) drew attention to the numerous cases of rheumatic iritis in which there was no history of gonorrhœa.

Mr. G. W. ROLL (London) questioned Mr. Lawford on his *experience of the use of salicylate of soda in these cases.*

Mr. LAWFORD, in reply, said that he had not seen this form of iritis in females. He thought that in cases of gonorrhœal iritis complicating gonorrhœal conjunctivitis cro could not positively exclude a solution of continuity in the surface.

Dr. C. S. Blair (London) exhibited a New Portable Refractometer.

Mr. G. W. Roll made some observations on Hess's Operation for Ptosis suggesting some slight modification of the insertion of the sutures, placing them nearer to the edge of the lid.

Mr. R. J. Coulter (Bristol) described some interesting Visual Fields. He showed tracings taken from patients with various diseases of the optic nerve and other lesions, functional and organic. He strongly advocated the use of *black* spots for use with the perimeter.

Mr. G. Hartridge (London) thought that too large an object was used with the perimeter and that the size should be stated.

Mr. L. V. Cargill read notes on Ophthalmic Experience in the Imperial Yeomanry Hospital in South Africa, exhibiting specimens of eyes and projectiles which had injured them. He described the most frequent forms of injury, including some of the cervical sympathetic.

Mr. Henry Power pleaded for the

Occasional Employment of Depression for the Cure of Cataract.

The operation was universally adopted in days gone by and many native operators still used it, often with brilliant success, even in the absence of antiseptic precautions. In early days he had both witnessed its performance by others and practised it himself. The dangers of the operation were greatly exaggerated. He did not advocate its revival in ordinary cases or where there existed adhesions of the iris, but he thought it might be undertaken in very old and feeble people, in small and depressed eyes, in cases of incurable chronic conjunctivitis, in complete deafness where the patient could not be made to understand the details of after treatment, in lunatics, sufferers from chronic bronchitis, in cases of tremulous lens with fluid vitreous, in cases unsuccessfully operated upon, and, lastly, in cases of hæmophilia.

Lieutenant-Colonel J. L. Poynder, I.M.S., stated that he had seen a great many cases of couching, but usually the patients came to him on account of serious complications which had followed after the operation had been done by natives. He thought that in many cases in India it was justifiable. The puncture was usually made through the cornea.

Mr. Richardson Cross had tried the operation in tremulous irides with fluid vitreous.

Mr. Dykes Bower (Gloucester), Mr. G. W. Roll, Mr. Tatham Thompson (Cardiff), and Mr. G. Hartridge also spoke.

Mr. Power, in reply, said that he always punctured through the sclerotic, first tearing the posterior capsule and then passing the needle in front of the anterior.

Mr. R. J. Hamilton, in describing the

Treatment of Hypopyon Ulcers of the Cornea,

advocated the local division of blood-vessels near the ulcer and application of leeches to the outer canthus. The actual cautery was of the utmost value and gave the patient much relief: other local treatment he considered to be of little use.

Mr. Richard Williams (Liverpool) said that he only occasionally evacuated a hypopyon in severe cases, preferring a small linear incision to Saemisch's section. He approved of the use of quinine.

Mr. Tatham Thompson thought the influence of bad surroundings was very serious in infective ulcers of the cornea. 1 in 5000 formol was now his favourite remedy.

Mr. H. E. Jones (Liverpool) said that he saw the condition frequently in colliers. He had almost entirely given up the cautery.

Dr. Darier strongly advocated the galvano-cautery and in some cases the sub-conjunctival injection of cyanide of mercury.

Mr. Dykes Bower recommended the use of the galvano-cautery and fluorescin; a general anæsthetic was essential.

DISEASES OF CHILDREN.

Thursday, August 1st.

This section resumed its work (all its officials being present) by Dr. F. Foord Caiger (London) opening a discussion on

The Early Diagnosis of the Acute Specific Fevers.

He began by emphasising the necessity for early diagnosis in this class of cases so as to secure prompt isolation. His first group comprised those acute specific fevers associated with catarrh of the naso-pharynx, such as rubella, measles, feverish colds, and whooping-cough. In measles, besides the cold in the head and watery eye, there was often a blotchy condition of the face a day or two before the rash came out. In measles after scarlet fever the rash frequently came out on the first day. In rubella there was occasionally malaise for some days before the appearance of the rash. The nasal catarrh was slight, the throat symptoms were slight, and there was no catarrh of the fauces or the bronchial tubes. Often there was enlargement of the glands in the posterior cervical region sometimes below the mastoid or at the angle of the jaw. The fever was slight and transient. The main difficulty in the diagnosis was deciding about the rash. In rubella the spots were smaller, rosier, raised, and less persistent than they were in measles. In measles Koplik spots were valuable. They were minute bluish-white specks on the buccal mucous membrane, nearly opposite the molar teeth, never on the palate. They appeared three or four days before the skin eruption. Later they might get surrounded by a definite red areola. They were not aphthous but a part of the general endanthem in measles. Observers had given 165 cases of measles in which in every case these spots had been seen and another set of 266 cases where 244 showed them. His own experience was not so satisfactory. In whooping-cough sometimes the sickness (apart from the cough) was an early symptom, then the paroxysmal cough (especially at night), the puffiness round the eyes, viscid sputa, and nervous symptoms, such as bed-wetting, were valuable. A peculiar bacillus had been found in the sputum. He then discussed the symptoms of laryngeal catarrh, croup and membranous croup, and diphtheria. Throat affections were common in diphtheria, scarlet fever, and tonsillitis. The bacteriological test was the only real one, though surrounded by many difficulties. (1) The Klebs-Löffler bacillus was found, not definite clinical symptoms; then not conclusive save by animal inoculation: (2) the same with clinical symptoms of diphtheria could be taken as quite correct; (3) no bacilli (on two separate occasions) and clinical symptoms negative, equals no diphtheria; (4) no bacilli could not be accepted as negative if the clinical symptoms were well marked. The Neisser stain was recommended as very distinct. Follicular tonsillitis showed the exudation in spots not coalescing, and limited to the tonsils; there would be no albuminuria and more fever than was common in diphtheria. There might be a slight rash, not punctiform, and not lasting 24 hours. In scarlet fever generally there was a sore throat from the onset, which in four-fifths of the cases was accompanied by vomiting. The tongue was creamy white, which later cleared of, leaving a brick-red shiny surface. He then alluded to the two types (one sometimes called the fourth disease) of rubella—one like measles and the other like scarlet fever.

The President (Mr. Frederic Eve, London) asked if there was any diagnosis between surgical scarlet fever and septicæmia.

Dr. E. W. Goodall remarked on the prodromal rash in measles, much like a scarlatiniform rash, but not punctiform or very slightly so, which faded before the real measles rash came out; it was a diffuse brilliant erythema on the trunk on the first or second day of the attack. The ordinary eruption of scarlet fever was not punctate at first. There was a similar prodromal eruption in varicella on the first day, and occasionally this rash came out after the real rash was evident. Was there a rash in acute pneumonia, as cases were sometimes sent to the fever hospital with this complaint for scarlet fever? Sometimes in measles, after one or two days of catarrh, a complete remission of all symptoms occurred. The Koplik spots were not always present. In a child with laryngeal symptoms, where there was no definite history, treat as diphtheria. He quite agreed with Dr. Caiger on the value of bacteriological examination. In a large number of cases of scarlet fever there was no sore throat (children, also, often did not complain of it), so that the diagnosis was very difficult. Where a patient had continued pyrexia, with early vomiting and delirium, and did not yield at all to antitoxin, it would be wise to suspect scarlet fever.

Dr. H. Ashby (Manchester) considered that everything should be taken into account in making a diagnosis. His experience of the Koplik spots was not satisfactory. He believed measles to be infectious from the first day of the disease. He had often seen influenza in children attended by a paroxysmal cough, closely simulating whooping-cough, without the whoop. Enlarged glands at the angle of the jaw would always suggest diphtheria or scarlet fever, even though there was no appearance of disease in the throat. The diagnosis of scarlet fever in a surgical ward was full of difficulty. Acute pneumonia, especially of the cerebral or gastric kinds with little physical signs, and those apical with hyperpyrexia and vomiting, closely resembled scarlet fever before the rash came out. As to the fourth disease there were cases of this (or the scarlatiniform kind of rubella) which had got scarlet fever afterwards, tending to show that they were not the same disease.

Dr. F. J. POYNTON (London) had seen cases of fourth disease with hardly anything to distinguish them from mild scarlet fever. Swelling of the posterior cervical gland was an early symptom of German measles and a prodromal rash, a faint and abortive edition of the real exanthem, went off in a day or two before the real one came.

Dr. W. J. TYSON (Folkestone) considered it a great mistake to be too dogmatic in diagnosis of these difficult cases and dealt with the cases called in old times gastric and low fever; these he thought were really due to toxin absorption and had nothing to do with typhoid fever.

Dr. WATSON WILLIAMS (Clifton) showed two good coloured sketches of Koplik spots and said that he had never found them in German measles nor had he seen them in any suspected cases of measles which did not prove to be real measles afterwards. He had seen all varieties of German measles from the morbilliform to the scarlatiniform kinds, and considered that the two extremes were rather varieties of rubella than that the latter kind was another (the fourth) disease.

Dr. LOVELL DRAGE (Hatfield) said that the scientific position of the acute specific fevers should be always taken into consideration. One should look on every sore throat as a possible diphtheria. Bacteriology so far from helping had, in fact, muddled the diagnosis. He ended by referring to the measures taken to suppress the plague at Glasgow.

Dr. MANSEL SYMPSON (Lincoln) had always found the posterior cervical glands enlarged early in German measles. He noted that the rash came out behind the ears and around the nose and mouth; sometimes it had rather the size and shape of the measles spots, but with the scarlet fever colour. He had been much helped in diagnosing scarlet fever by the 'circumoral pallor' described by Dr. Caiger. An early sign in scarlet fever was the great heat of the skin to touch. This occurred also in acute rheumatism and in acute pneumonia. The last disease (when of the gastric or cerebral type described by Dr. Ashby) in children often had no physical signs for two or three days after the onset of the illness, and so might reasonably be placed among the acute specific fevers. Not much was heard nowadays of these fevers beginning with fits of convulsions. He lately saw three children in one family all taken ill on the same day, of whom two died in fits and the third developed typical scarlet fever. He related a case of diphtheria which apparently had developed in the lung and travelled outwards to the larynx and tonsils. In an analysis of cases of diphtheria in Dr. Gee's wards at St. Bartholomew's Hospital during a period of 10 years which the speaker had made some years ago he found that the most constant sign of the disease was swollen glands at the angle of the jaw.

Dr. CAIGER replied. He considered the surgical scarlet fever alluded to, a diffused erythema in children, to be really scarlet fever. There was a septic rash due to absorption which was rather of the morbilliform kind of eruption than scarlatiniform. He would say, "No Koplik spots, then not measles." The prodromal rash of measles came on during the early febrile stage; very often a distinct scarlatiniform eruption was very likely to mislead. The Koplik spots must not be mistaken for flakes of milk, buccal glands, air bubbles, or the orifice of Steno's duct. Where in scarlet fever there was a sore throat early or a late rash the throat very probably was the cause of the scarlet fever and so not a scarlet fever throat at all. Also it might be a conjunction of scarlet fever and diphtheria which was always dangerous. Frequently there was a "kick up" temperature in the incubation state of measles. The spasmodic cough in influenza was very like that of whooping cough. He was very doubtful if the later stages of desquamation in scarlet fever were dangerous. He was inclined to class the fourth disease when there was much peeling with scarlet fever.

Dr. J. H. THURSFIELD (London) read a paper on Widal's Serum Reaction in the Diagnosis of Typhoid Fever in Children. Out of 100 cases 42 gave positive reaction. It seemed to be a valuable and trustworthy aid in the early diagnosis of typhoid fever in children.—Dr. CAIGER congratulated Dr. Thursfield on the very satisfactory results.

Dr. SINCLAIR WHITE (Sheffield) then read an excellent paper on the Ultimate Results of Tendon grafting in Infantile Paralysis, which was discussed by Mr. F. C. ABBOTT (London) and Mr. A. H. TUBBY (London) and Mr. WHITE replied.

Mr. F. C. ABBOTT produced a Specimen and Photographs of a very interesting case of Intra-uterine Rickets.

LARYNGOLOGY AND OTOLOGY

THURSDAY, AUGUST 1ST

Dr. MIDDLEMASS HUNT (Liverpool), Dr. BARCLAY BARON (Bristol), and Mr. RICHARD LAKE (London) opened a discussion on

The Local Treatment of Tuberculosis of the Larynx.

Dr. MIDDLEMASS HUNT said that it was 11 years since the subject had been discussed by that section of the Association. In 1890 the epoch-making work of Heryng on "The Curability of Laryngeal Phthisis" had not long been published. Although all the bright hopes with which the writings of Krause and Heryng had inspired them had not been realised a great and permanent advance in the treatment of a desperate disease had been made and they must not go back. In every case of laryngeal phthisis he tried to determine whether it was one for curative or for palliative treatment. Curative treatment as he understood the term, he said, was essentially surgical. It meant the removal of all diseased tissues by cutting instruments or their destruction by caustics, such as lactic or chromic acid. Palliative treatment included all antiseptic and local anæsthetic applications and was only occasionally surgical, as when the necessity arose to relieve dyspnœa or severe dysphagia. The cases suitable for curative treatment were those of limited disease and of hypertrophic form indicating local resistance, cases in which the lung disease was slight and stationary or only very slowly progressive, the general health and appetite good, the patient free from fever, and of a courageous and hopeful temperament. The treatment must be strictly palliative, he said, whenever the ulceration and infiltration were extensive and with much œdema or perichondritis, also when there were high fever, loss of appetite, advancing lung disease, or evidence of the patient being deeply stricken. In his opinion neither lactic acid nor any other application would remove an infiltration covered by unbroken mucous membrane. Wherever they had well-defined or at least limited infiltration without ulceration, a mass of granulations or a distinct tumour formation, the first step must be the thorough removal of the diseased tissue by the curette, followed by an application of lactic acid. He had seen rather free hæmorrhage after using the cutting forceps. He had never performed the extensive operations advocated by some but had confined himself to cases in which there had been some probability of removing the whole of the diseased tissues by curette or forceps. He considered that it was of little use to employ solutions of lactic acid of less strength than 50 per cent. and if it were tolerated it was better to go on rapidly to pure acid, healing being often hastened by first thoroughly curetting the ulcerated surface. Speaking of palliative treatment, he said that although it might not be possible to eradicate or to arrest the disease, much could be done to relieve suffering; an untreated case of laryngeal phthisis went more rapidly to the bad and with more suffering to the patient than a treated one. It was a difficult question to decide to what extent surgical means might be used in the palliative treatment of the disease. The incision of an inflammatory œdema of the arytenoid or epiglottis, which was first practised by the English physician Marcet, was a rational surgical procedure which would often relieve dysphagia and was not followed by ulceration as was at one time feared on purely theoretical grounds.

Dr. BARCLAY BARON considered the question of the extent to which laryngeal tuberculosis could be looked upon as curable. Cure, he said, could be looked for only in those cases in which a favourable pulmonary and constitutional state existed and only in a small proportion of all such cases where lung and larynx were both attacked. Local treatment alone, he said, would not suffice to effect a cure; it must always go hand in hand with general treatment. The alve of local treatment he described as threefold; first, to attack and to destroy by direct surgical and topical medical treatment the bacilli; secondly, by giving rest to the affected organ and by protecting its tissues from irritation and inflammation to restore the natural resistance to disease which if attacked by bacilli they had largely lost, and so indirectly to destroy the bacilli; also to help tissues not yet attacked to retain their health and so prevent spread of the mischief; and thirdly, in cases in which one was not able to do much in either of these directions, to ameliorate symptoms of which the most important was dysphagia. In the early stage of the disease local treatment, he said, should be of the mildest possible character. It should merely consist in giving such instructions to the patient as would give rest to the organ, and in every way should be that suitable for a simple laryngitis. In the next stage, that of infiltration, the larynx must be shielded from all irritation, including that of too much use of the voice, and purposeless cough must be stopped by suitable drugs, such as codeia, cocaine, and menthol. In the third or ulcerated stage of the disease local treatment, he said, was most definitely valuable. Many drugs had been recommended to set up a healthy and healing action in ulcerated and necrosed structures, but he had not found any of them so thoroughly satisfactory as lactic acid.

Mr. Richard Lake observed that 15 per cent. only of cases of laryngeal phthisis could be cured by surgical treatment. Speaking of the removal of the epiglottis when diseased, he said it had been brought to his notice that the operation he had described had been previously performed by others.

Dr. A. McCall (Bournemouth) spoke of the good results he had obtained by insufflating a mixture of resorcin and orthoform, using two parts of the former and one of the latter; this he found led to diminution in granulation tissue and to an improvement in voice.

Dr. Jobson Horne (London) said it was difficult to overrate the importance of the subject; it was also difficult to overstate the frequency with which it had been discussed, but that it was still more difficult to arrive at any very precise conclusions from what had been published as to the lines of treatment to be followed. The extreme surgical measures that had been recommended by some he considered were not remediable and at the best could only be regarded as mechanical means of overcoming physical difficulties which comparatively seldom occurred. He laid stress upon the pathological fact, which he had himself observed, that by the time the larynx was so extensively involved in the disease as to require surgical treatment cavitation of the lung was already established, so that in treating the larynx it was important to bear in mind that it was only a part of a diseased respiratory tract. In the more chronic form of tuberculosis of the larynx, in which thickening of the mucous membrane occurred without ulceration, he was opposed to a breach of surface being made by curetting, by punch forceps, and similar instruments, inasmuch as the hyperplasia constituted a protective action of the epithelium and submucosa, which was to be hoped for and encouraged. He referred to tuberculin as of assistance in bringing about a condition which would favour the quiescence or arrest of the disease, and in the more advanced cases with destruction of tissue he had found it of help in rendering localised lesions more amenable to surgical treatment.

Dr. Watson Williams (Bristol) considered that surgical treatment was of service in those cases in which there were definite tuberculous tumours and growths requiring removal. He recommended injections of guaiacol and olive oil: he also agreed that it was best not to injure unbroken epithelium. A case was narrated showing the value of sanatorium treatment. He insisted upon rest of the larynx being as absolute as possible, even whispering to be prohibited. Insufflations of morphine would allay a useless cough.

Dr. StClair Thomson (London) said that when they got down to the bed-rock of the whole matter the results of the so-called surgical treatment were poor, and that more definite information was required about the cures that had been worked; bare statements such as "gratifying results" and "patient died cured" were insufficient. He took exception to the statement that curative treatment was essentially surgical. He pointed out the importance of rest in view of the fact that the observations recently made all pointed to the frequency with which the disease affected the region of the arytænoid articulation. Hope of success must not be placed in treating what might be roughly called the third stage, but in an earlier diagnosis together with open air and rest.

Dr. R. H. Woods (Dublin) showed instruments for the local treatment with lactic acid and reported a case of Thyrotomy for Laryngeal Tuberculosis.

Dr. F. de Havilland Hall (London) considered that lactic acid promised definite relief to a certain proportion of cases. He had not gone in for the major surgical treatment. Where there was a breach of surface lactic acid might be used with or without curetting; where there was no breach of surface he did not advise curetting. He thought it was better to begin with a 25 per cent. solution of lactic acid and rapidly to increase the strength of the solution and, if necessary, the part to be treated could be thoroughly cocainised previously. He spoke of the value of orthoform and of the relief it afforded being more lasting than that of cocaine. He also agreed with the previous speakers who had urged the necessity for obtaining definite information about results; this, he thought, might be ascertained in London by the cases being brought before the Laryngological Society before, and twelve months after, surgical treatment.

Dr. W. Permewan (Liverpool) considered that the lack of progress in the treatment of laryngeal tuberculosis was due to no definite and reliable statistics being available. He did not employ the extreme surgical measures that had been recommended and was of the opinion that some cases were made worse by interference; he adopted rather a palliative course of treatment and had found that localised lesions benefited most.

Dr. J. Donelan (London) considered that better results could be obtained by cases being treated in institutions.

Dr. W. Milligan (Manchester) also spoke in favour of more definite information about results being obtained.

Dr. Adolph Bronner (Bradford) recommended formalin being used either by a spray or local application, commencing with a solution of the strength of 1 in 1000, to be gradually increased to 1 per cent.

Dr. N. C. Haring (Manchester) considered that possibly surgical treatment often hit the happy moment when the disease was becoming arrested, and thus they were liable to give more credit to treatment than was due.

Mr. C. A. Parker (London) said that if the part was previously cocainised pure lactic acid might be applied, and without fear of excessive reaction. The reaction was more commonly insufficient; when this was the case pure chromic acid might be used by way of gaining time. The larynx, he thought, might re-infect the lung, therefore, if the lung was in a quiescent state it was better to treat the larynx.

Dr. Middlemass Hunt, in replying, hoped that there would be an expression of advance having been made in local surgical treatment.

Dr. Barclay Baron considered that in enforcing absolute rest of the larynx they must be logical in the local treatment recommended.

Mr. Lake said that his statistics were incomplete and that owing to the patients having been lost sight of it would be difficult to complete them.

The President (Mr. T. Mark Hovell), in summing up the discussion, said it was important that local and general treatment should be combined and that no cure would be obtainable so long as the disease was active in the lungs.

Dr. Adolph Bronner read the notes of a case of

Recurrent Papillomata of the Larynx in an Adult treated locally by Formalin.

Recurrent papillomata of the larynx, he said, were most difficult to cure as they almost invariably recurred after removal. In children tracheotomy was the successful method of treatment. In adults tracheotomy was not only more dangerous but also impracticable for other obvious reasons. Many local remedies had been recommended but with no success. Dr. Bronner had recently treated a case with formalin; this had seemed to prevent recurrence. The patient, a man, aged 45 years, was seen in June, 1896; he had been hoarse off and on for over two years and was steadily getting worse. Both vocal cords were covered with typical papillomata. These were removed by forceps every two to three months. Various local remedies—e.g., lactic acid, nitrate of silver, &c.—had been tried. In December, 1897, the patient had a severe attack of laryngeal spasm and hæmorrhage, which nearly proved fatal. In December, 1898, a large number of growths were removed A spray of formalin, 1 in 1000, increasing up to 1 in 100, was ordered In March 1899, a few growths were removed Since then there had been no recurrence of the growths The vocal cords were thickened and irregular, but the voice was fairly good

Dr N C HARING read a paper on Multiple Papillomata of the Larynx

TROPICAL DISEASES

THURSDAY AUGUST 1ST

The VICE PRESIDENT (Mr JAMES CANTLIE, London) was in the chair

Malaria and its Prevention

The following papers on malaria were read

His Excellency Sir WILLIAM MACGREGOR K C M G, M D Aberd, Governor of the colony of Lagos read notes on Anti Malarial Measures now being taken in Lagos He remarked first on the importance of the subject of malaria in relation to Lagos and the advantage which would follow the control of malarial fever In Lagos steps had been and were being, taken as follows As a preliminary every effort was being made to spread knowledge of recent malarial doctrine among Europeans and natives by pamphlets lectures, and teaching in school and thus considerable interest in the subject had already been evoked In active operations the greatest attention was being given (1) to prevention by administration of quinine, (2) to the use of gauze netting, and (3) to attacking the mosquito in its breeding ground As regards quinine most Government officers took it regularly Some could not take quinine because of intolerance and he himself thought that the taking of quinine should be compulsory among Government servants and that they should be tested as to toleration before being engaged Judging from results it would seem tolerably certain that by the regular use of quinine as a prophylactic officers could be kept practically free from malarial fever The great difficulty was to extend this preventive treatment beyond the service, more particularly to natives but it was found practically impossible, on the ground of expense and the unwillingness of many natives to take it to give quinine to the whole population As regards mosquito netting reasons were given why such good results as had been obtained in Italy could not be expected in Lagos Limited operations were however, being carried out in this direction in Lagos With regard to the attack on mosquitoes, swamps were being gradually filled up kerosine was being used on anopheles pools water tanks of houses were being made mosquito proof, undergrowth was being thinned out and the lower branches of the large trees removed and general sanitary measures were being carried out in the town and along the railway Sir W MacGregor stated that from the more free use made of water in their neighbourhood the quarters of Europeans were more infested with mosquitoes than those of natives For six months in the year during the dry season there was practically no propagation of the mosquito in the interior, and it might be practicable to exterminate mosquitoes in the hinterland were it possible to prevent their production near and arrival from the coast The strong recommendations that Europeans should live away from natives, which he said might be called the academic recommendation, he was unable from his point of view as an administrator for reasons fully given in the paper to accept Sir William MacGregor concluded by remarking that though the measures taken in Lagos were no doubt far less than the measures required still if they were persevered in for two or three years their effect would undoubtedly be felt and encouragement would be given to steps on a greater scale It must not be forgotten that malaria was not the only disease that caused large mortality in Lagos and that large expenditure had to be incurred with reference to other diseases notably dysentery

children, and breeding pools for anopheles were found in the neighbourhood The seasonal increase of cases of malarial fever during the time of ploughing and harvesting the rice crops was due to the disturbance at these times of mosquitoes usually resting among the grass or growing paddy (rice) and feeding on the Chinese coming within their reach Dr Young pointed out the practical impossibility of dealing with mosquito larvæ by any germicides and regarded the latter merely as useful auxiliaries in extermination of the pests He regarded permanent good in this direction as possible only by clearing all long grass and undergrowth and destroying all breeding places by draining, &c A cleared area he considered of the first importance as no mosquito would fly far from vegetation, and he fixed 160 yards as sufficient clearance around houses as beyond that distance it was doubtful if mosquitoes would fly

Captain C J FEARNSIDE, I M S, read a paper on the Inoculation of Malaria by Anopheles He said that the central prison of Rajahmundri Madras Presidency, was one of the most malarious jails in India and from the years 1880 to 1897 no less than 60 per cent. of admissions for malarial fever in all the larger jails of that Presidency were accounted for by this prison In 1899 Dr Manson suggested that he (Captain Fearnside) should make investigations to see how far the anopheles mosquito was the bearer of the malarial organism In November last he dissected 40 free anopheles which had at some time or other been feeding on the blood of the prisoners and he found malarial sporozoites in one—i e 1 in 40 The sporozoites were very numerous in the veneno salivary gland from the tenth to the twelfth day after infection From the fifteenth day after incubation the numbers decreased so that there were few sporozoites in the gland on the nineteenth day The infected mosquito could only infect a limited number of persons and further to give a successful inoculation a considerable number of sporozoites must be infected because if a small number only found their way into the blood the phagocytes destroyed them Of 17 anopheles fed on blood containing summer autumn parasites and crescents nine were found to contain Ross's cysts The failures he had explained and the conclusion was that 70 per cent approximately became infected Of seven fed on blood containing spring tertian parasites all became infected Eight persons were inoculated and of these seven contracted fever The blood on which the anopheles fed originally was examined and the parasite recorded the blood of the person inoculated was examined from time to time and also recorded The incubation period was from 12 to 25 days for both types of fever The prevention of the spread of malaria by means of wire protected houses and mosquito curtains was out of the question in India To put the native population men women and children who sometimes had only sufficient money to keep body and soul together under mosquito nets and in mosquito proof houses was impossible The next suggestion then one heard of was the destruction of anopheles If this was to be done properly the rice fields which were the main source of food throughout a great part of India would have to be abolished Were the population to starve in the meantime? Famine had been quite bad enough in recent years without the abolition of the rice fields The best remedies were the freer use of quinine and the segregation of infected individuals The former seemed to be the more practical but the segregation of infected natives would be as difficult a task as the wholesale slaughter of the anopheles

Dr GEORGE A WILLIAMSON (Larnaca, Cyprus) read some Notes on Cyprus Fever He commenced by calling attention to the unscientific system of giving the names of localities to diseases which although doubtless found elsewhere occurred in those localities He went on to state that there was no particular form of fever which belonged to Cyprus alone and which could therefore with any truth be called less frequently met with than in former days. He gave tables showing the proportion of cases of malarial fever of different kinds to each other and of these cases to the whole number of diseases coming under notice in a given time, which indicated that Cyprus was far from being the fever-stricken place it was sometimes supposed to be.

Dr. GEORGE C. LOW (Barbados) gave the results of his Investigations in Malaria and Filaria in Barbados. He found neither anopheles nor malaria in Barbados; but found the culex mosquito and filarial diseases in plenty. He believed that filarial ailments and filariasis could be readily exterminated in Barbados by destroying the breeding-places of the culicidæ. The water-supply of the island was excellent, water being laid on in pipes to the houses, and the culex mosquitoes found their breeding-grounds in the rain-water tanks and pools around the dwellings. Were these tanks covered or done away with and the pools drained the filarial scourge would speedily, in his opinion, be mitigated or altogether wiped out.

Professor R. W. BOYCE (Liverpool) upheld a point contended for in Sir W. MacGregor's paper—namely, that measures adopted in West Africa to eradicate malaria must be adopted for natives as well as for Europeans. He believed that segregation would not be productive of so much good as the extirpation of mosquitoes bearing malarial infection.

Dr. EDWARD HENDERSON (London), although he regarded the method of exterminating mosquitoes as almost hopeless throughout the length and breadth of China, still believed that the example set by Europeans of the several methods of preventing malarial fever would produce a good effect amongst the Chinese and might stimulate many of them to follow the example.

Dr. P. MANSON, F.R.S. (London), held that different methods of dealing with malaria were applicable according to environment. In one place the administration of quinine was alone possible; in another the destruction of mosquito breeding-grounds; and in a third the protection afforded by mosquito netting. In some places all these plans of protection might be expedient, but it was unwise to depreciate one at the expense of the other, or to think that the amelioration even of malarial ailments was not to be aimed at, and he objected to any plan of defeating malaria being condemned merely because it was not completely perfect. It seemed impossible to compel negroes to take quinine, and the attempt about to be made by the Germans in this direction was bound to fail. Dr. Young referred in his paper to the culex larvæ consuming anopheles larvæ when placed in the same pool. When food was scarce this no doubt occurred, but when food was plentiful the two varieties of mosquitoes would be found living side by side amicably. Questions which it seemed expedient to go into were, why was malaria absent and why present in some parts of the tropics? why were anopheles met with in one place and culex mosquitoes in another? and yet again, why were they found both abundant in some places? Could these points be ascertained they would be approaching a rational solution of the mosquito difficulty, and be able to apply "natural" means of exterminating mosquitoes in the place of the present empiric plans by netting, quinine, and destruction of larvæ. They had examples of analogous methods of dealing with parasitic diseases afforded in the cases of the vines in France and of the orange trees in America and he believed that in the future means of prevention would be found in this direction.

Lieutenant-Colonel J. L. POYNDER, I.M.S., considered it impossible to teach the natives of India the use of preventive measures against either malaria or cholera.

Mr. CANTLIE said that the "Swatow lamp" in use in China and the Straits as a means of killing mosquitoes within a mosquito-net was a safe and sure method and that he had had the lamp made in London where it could now be obtained.

Dr. F. M. SANDWITH (Cairo) read a note on

The Entrance of Ankylostoma Embryos into the Human Body by Means of the Skin.

He affirmed that it had long been known that ankylostomiasis infection could occur by the mouth, but the present paper was to draw attention to Dr. Looss's discovery that the embryos had also the power of entering the skin chiefly by the hair follicles. In 1898 Dr. Looss announced this fact, but as there was no analogy for a parasite behaving in this way his paper met with no reception beyond a little hostile criticism. Like many scientific discoveries this was the result of a pure accident. While working in the laboratory of the Cairo medical school a drop of a pure culture of embryos fell on his hand; he happened to examine the drop some minutes later and was astonished to find that it contained countless *empty* embryo sheaths and a few sluggish embryos. The bulk of the embryos had apparently entered the skin. His hand became red and burning and he found himself later suffering from anæmia and debility with evidence of ankylostoma infection in the fæces requiring a prolonged course of treatment. Since then a similar experiment had been made on a human leg one hour before amputation. Sections of the skin showed that the embryos had entered chiefly by the hair follicles. Inside the follicle the embryos pushed their way towards the hair papillæ, during which process, if there were many in the hair follicle, the root sheath of the hair was almost completely destroyed. When the papillæ were reached the embryos left the hair follicle to pierce the surrounding tissue of the true skin.[1] A section under the microscope and some micro-photographs showed many embryos in different stages of entry. It was assumed that the embryo found its way from the skin to the small intestine, but of this there was as yet no proof. Dr. Looss's researches threw an additional light upon ankylostomiasis infection in many countries, and might lead to an analogous discovery with regard to bilharzia and perhaps other parasites.

Lieutenant-Colonel G. M. J. GILES, I.M.S., said that he had seen Dr. Looss's specimens in Cairo, and he quite agreed with his conclusions. He believed that the ova of the ankylostoma gained access to the body by the mouth, being conveyed on the dirty hands of coolies. The earth in Assam tea-gardens teemed with the ova, and as the coolie ate his food with unwashed hands he became infected with the parasite. He was, prepared, however, to agree that embryo worms could gain access by the skin, but he failed to understand how they could reach the intestines in the numbers they did unless they were swallowed.

Dr. MANSON deprecated premature conclusions being arrived at from the discovery of Dr. Looss. He looked upon specimens showing the embryos entering a hair follicle of the skin and thereby gaining access to the subcutaneous tissues more or less in the nature of a curiosity. Were the embryos of ankylostoma placed on the skin he believed they would seek shelter in a hair follicle, but he could not believe that this mode of infection was usual. He suggested further experimental research on the subject.

Lieutenant-Colonel ANDREW DUNCAN, I.M.S. (retired), read a paper on

The Causation of Enteric Fever in India,

in which he reviewed the various theories appertaining to the etiology of enteric fever. He mentioned the vicarious theory of Martin; the transformation theory of M. Colin, who held that fever primarily paludal could be transformed into enteric; the non-specific theory of Moore; the fæcal-poisoning theory of Fayrer; the climatic theory of Bryden; the opinion of Gordon that there was no such disease as enteric fever in India; and the theory of Home who regarded all diseases in which ulcers were met with in the intestine as enteric. Lieutenant-Colonel Duncan said that the factors concerned in the evolution of enteric fever in India were to be found in the facts: (1) the yearly advent in India of a large body of subjects at an age most liable to the disease; and (2) the country presented an environment to these subjects most favourable to the disease. Soldiers in India imbibed the liquids offered for sale in the native bazaars, and in spite of precautions within their barracks became thus infected and also by the dust conveyed by the winds and by the agency of flies. He upheld the inoculations of Professor Wright against enteric fever as being of great practical value.

Lieutenant-Colonel A. CROMBIE, I.M.S. (retired), stated that enteric fever in India was not commonly met with amongst natives. Ghoorkas were liable to the disease; but in Madras and in Lower Bengal enteric ulcerations were not found. He stated that he tested the blood of six natives of India in London and found that three gave Widal's reaction. All these were under 30 years of age and the three in which the reaction was negative were over 40 years of age. A continued fever lasting 21 days was common in India, in which there was no eruption, diarrhœa, or enlargement of the spleen. 75 per cent. of the cases of continued fever in South Africa during the Boer war gave Widal's reaction Concerning the efficacy of Professor Wright's serum for enteric fever, Lieutenant-Colonel Crombie stated that of 300 patients convalescent from enteric fever whom he had seen, 60 per cent. had been inoculated once and 10 per cent. twice Second attacks of enteric fever also had not infrequently occurred

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[1] Centralblatt fur Bakteriologie, May 31st and July 5th, 1901.

Captain W R. BATTYE, I M S, believed that a benign bacillus could, according to environment, become pathogenic in its properties

Lieutenant Colonel POYNDER, I M S, believed that the immunity of adults in India to typhoid fever was in all probability due to their having had typhoid fever in their youth

Dr SANDWITH said that of course Professor Wright's method of preventing typhoid fever was as yet only on its trial He had seen several cases of enteric fever amongst nurses who had been inoculated He advocated blood examinations after inoculation to elucidate the effects of the anti typhoid treatment

Major F P MAYNARD, I M S, read a paper on

Some Ophthalmic Complications of Plague

He called attention to the injected condition of the eyes which had been described by writers as characteristic of the plague facies, and discussed 12 cases of plague with ophthalmic complications which came under his notice during a recent severe epidemic of the disease at Patna The plague symptoms in all the cases were, or had been severe, but none of the patients died, six recovered with one eye sound, of the remaining 18 eyes vision was lost in five partly lost in eight, and fairly good in five The lesions were for the most part the results of iritis and opacity of media apparently from interference with the nutrition of the eye Tension was diminished in 12 eyes and was normal in the rest It was remarkable that, considering the frequent cases in which blood extravasations in various places throughout the body were met with in plague post mortem examinations, in only one case did a fundus show hæmorrhage Treatment, except in one case, was of no avail because it was started too late

THE PATHOLOGICAL MUSEUM

Relegated to one little room in a corner of the palatial edifice known as the "Winter Garden" the rest of which was devoted to the exhibition of drugs and foods the Pathological Museum can hardly be said to have received its due share of space certainly not commensurate with its importance Perhaps it was a sign of the times

Among the most interesting exhibits may be mentioned a valuable series of photographs illustrating the various lesions met with in the recent epidemic of arsenical poisoning among beer drinkers contributed to the collection by Dr J N Kelynack (Manchester) This included excellent photographs of cases of atrophy of the lower extremities, general wasting double wrist-drop and dropped hands and feet,, and among the skin affections, erythema with keratosis and pigmentation of the palms and soles, general pigmentation with characteristic distribution over the thigh and abdomen extensive scaly eruption, melanosis of the arms and abdomen in a patient whose suckling infant, aged nine weeks also presented symptoms of arsenical poisoning, and a case of ridges on the nails A series of x ray photographs was contributed by Mr J Hall Edwards (Birmingham) who was with the Imperial Yeomanry in South Africa, which included representations of bullets in various positions Here again we find undoubted evidence of the use of soft nosed or expansive bullets by the Boers The same exhibitor showed a portable coil and apparatus for taking radiographs in the field

A series of interesting photographs by Dr E A Dent (Cheltenham) showed various arthritic affections and malformations of the hands. Some beautiful and life like sketches from the museum of St George's Hospital made by Joseph Perry in 1836 illustrated cases of pemphigus and Pott's disease of the vertebra. Upon the same table, placed there presumably for lack of space certainly not for any reason of scientific classification was a very remarkable series of ancient Egyptian bones, exhibiting various forms of fracture These were stated to have belonged to a people living over 2000 years ago and reveal the fact that they were subject to much the same form of injury as those who live in the present day They were presented by Professor D MacAlister to the museum of the Cambridge University and were exhibited by Mr Joseph Griffiths

So cramped was the space afforded that even the side posts of the doorway had to be pressed into the service and here there were suspended two interesting photographs showing a somewhat unusual form of bromide eruption in an infant who had had one of the numerous patent "soothing medicines administered to it and a case of accidental vaccination of chapped hands in a nurse whose parents had refused to have her vaccinated previously on account of ' conscientious objections "

Among the rarer and more interesting of the mounted specimens, mostly prepared by means of the formalin method were the following A ball thrombus in the auricle (from University College Sheffield) from a patient who died with signs of mitral disease and many emboli, the thrombus being loose in the auricle as seen in the specimen. Syphilitic myocarditis (from University College Sheffield) from a man *who was discharged from the army on account of epilepsy,* who died in a fit the muscular substance of the heart showed the mottling It would have been interesting in this specimen to have learned if there were any gross changes in the brain to account for the fits or whether these were as some maintain due entirely to circulatory disturbance Brown atrophy of the heart (from the Royal Free Hospital) from a case of phthisis Thrombus in the thoracic aorta (from Westminster Hospital) the transverse part of the aortic arch and a portion of the descending aorta showed the presence of a firm clot in the lumen of the vessel The clot reached down to the level of the diaphragm It was taken from a body of a man 49 years of age, who died from a large mixed cell sarcoma of the os innominatum There was no evidence found at the necropsy of a collateral circulation Microscopically the clot in the aorta was mostly fibrin but there were a few large cells of sarcomatous appearance in places Specimen of dilated stomach produced by simple hypertrophy of the pyloric sphincter consequent on traction of a moveable kidney (exhibited by Dr H Bramwell Cheltenham) Lymphangiectasis of the intestine (from the Westminster Hospital Museum) The mucosa of the duodenum and commencement of the jejunum was covered with closely-set villous processes which gave it a shaggy appearance In the recent condition the mucous membrane was much congested though the villous projections were white The entire intestinal tract was similarly affected It was taken from the body of a man aged 38 years who had suffered for some months from intermittent attacks of diarrhœa and vomiting Emaciation ensued and he died from exhaustion With the exception of the intestinal condition, which affected the whole of the small intestines, the viscera were normal Specimens of scurvy rickets (from the Westminster Hospital Museum) showing the pelvis and lower extremities of a child who died from the disease The periosteum of the femur was stripped up from the shaft and underneath it was a blood-clot The upper epiphysis was separated and there was a fracture at the lower end just above the epiphyseal line; blood clot intervened between the broken ends The changes were remarkably symmetrical on the two sides The bones of the legs were very soft and could easily be cut with a knife The specimens were from a male child, aged 11 months The child was quite well until the age of five months when he began to fail in strength and general health The child sweated about the head was constantly sick, and very constipated *Red sand was often found in* the urine which was much increased in quantity Two months before admission the mouth and gums became spongy and livid and there was epistaxis Five weeks before death the ankles feet shoulders legs and wrists were swollen and painful and the eyelids and face were puffy

In the department of Comparative Pathology Dr S T Pruen (Cheltenham) exhibited an interesting series of specimens (macroscopic and microscopic) of tuberculosis in birds and animals As an illustration of careful observation and description the microscopic specimens of parakeratosis variegata exhibited by Dr J M H Macleod (London) may be mentioned In general terms the descriptive catalogue had been prepared with unusual care and completeness and the various preparations were well arranged Much credit in this respect is due to Mrs Grace Stewart Billings M B (Cheltenham) the secretary of the Pathological Museum and it is greatly to be regretted that the want of space at her disposal did not enable her to do greater justice to her task.

THE ANNUAL MUSEUM.

(Continued from page 408.)

III.—SANITARY APPLIANCES, DISINFECTANTS, &c.

A quite distinct falling off in the number of sanitary exhibits was notable this year. There were scarcely any constructional sanitary appliances at all, this section being devoted for the most part to the display of disinfectants and antiseptics. Perhaps the most comprehensive assortment of disinfectants and antiseptics was shown by the Sanitas Co., Limited, of Bethnal Green, London, E. Besides a great number of preparations, including soaps, powders, and fluids, the basis of which is the well-known sanitas, many convenient appliances for aerial disinfection were shown. Amongst these may be mentioned the sulphur fumigating candles, giving a definite amount of sulphurous acid gas, the formic air purifier, and the formic sulphugator, evolving sulphurous acid gas in association with formaldehyde. A curious association is sanitas with formaldehyde and known as "formitas." Since sanitas is antiseptic and disinfectant by virtue of its oxidising properties it is difficult to see how it can be associated with advantage with a rapidly reducing agent like formaldehyde. The exhibit included an ingenious drain-tester and disinfectant fluids other than sanitas. Izal is now well known as a convenient and non-corrosive disinfectant fluid. It is prepared in many forms, notably as medical izal for medical and surgical use, as disinfectant powder, as soap, as lozenges, as "perles" for internal administration, and as lint, wool, and gauze. These exhibits were shown by Messrs. Newton Chambers and Co., Thorncliffe, Sheffield. The Ronuk Co., Limited, of 83, Upper Thames-street, London, E.C., showed specimens of wood treated with their preparations, amongst which were illustrations of the sanitary application of ronuk to the floors of hospital wards. The preparation produces an excellent polish and is undoubtedly a sanitary adjunct. Messrs. J. Defries and Sons of 147, Houndsditch, London, E., exhibited the principal forms of the Pasteur-Chamberland filter. The exhibit included also Scurfield's ventilation indicator, an apparatus for the rapid estimation of carbonic-acid gas, the equifex portable sprayers, and illustrations of the equifex disinfectors used in London, Bombay, Calcutta, and elsewhere. The Sanitary and Economic Association of Gloucester showed two ingenious appliances, both of which are the invention of a medical man. The first was a gas-stove designed to effect ventilation and at the same time not itself to contaminate the air, the second was a refrigerator and ice-storer. The Sanitary Wood-Wool Co., of 26, Thavies-inn, Holborn-circus, London, E.C., devoted the space allotted to them to the exhibition of Hartmann's patent wood-wool preparations. These included sanitary wood-wool sheets, vaccination pads, antiseptic sponges, napkins, and gonorrhœa bags. In addition to these were specimens of Hartmann's catgut, and the simplicity and convenience of Hartmann's patent arm-sling already noticed in our columns were demonstrated. The Petanelle preparations were exhibited by Messrs. Paté, Burke, and Co. of 6, Wool Exchange, Basinghall-street, London, E.C. Petanelle is a preparation of fibrous peat which is described as a natural antiseptic and deodorant; its absorbing power is remarkable and on this account it makes excellent material for surgical dressings and pads. It is also employed for accouchement-sheets, hygienic clothing, and for bedding. We have already described petanelle disinfecting powder and fluid, while petanelle foot powder is well worth mentioning in connexion with its application to the feet during excessive perspiration. The Shell brand floor-polish was exhibited by Messrs. A. H. Hamilton and Co., of 106, Elliot-street, Glasgow. This polish, it is stated, is made with pure American turpentine amongst other things, and on account of its sanitary properties is held to be particularly well adapted for the polishing of floors of hospital wards, asylums, and convalescent homes. The exhibit of the Jeyes' Sanitary Compounds Co., of 64, Cannon-street, London, E.C., differed little from their exhibit of previous years. It comprised the creolin preparations, soaps, plasters, capsules, gauze, fluids, powders, and a dentifrice.

IV.—SURGICAL INSTRUMENTS AND APPLIANCES.

There was a distinct variety of surgical appliances shown, comprising surgical instruments, x-ray apparatus, hospital outfits, operation equipments.
Messrs. Meyer and Meltze
London, W., had a
exhibition of
furniture for t
This firm am
electro-motor
more especiall
surgery. The
instruments ada
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S.E., was the c
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been used. Messrs. [illegible] -street,
London, W., showed a [illegible] of special interest
to surgeons. These included their special operating-table, sterilisers, cabinets for instruments, aspirators, syringes, laryngoscopes, ligatures, and every conceivable aid to surgical work. Patent appliances for the lame were the chief feature of the O'Connor Extension Co., of 2, Bloomsbury-street, London, W.C. Most of these have already been described in our columns. The O'Connor appliance is an ingenious arrangement which compensates for shortening of the leg, yet enables ordinary shoes to be worn. Boots for flat-foot and for raising the toe and for paralysis were also shown. Flax and cotton lint adapted for [illegible] surgical use were shown by the Liverpool [illegible] Netherfield-road North, Liverpool. In addition [illegible] bandage absorbent gauze tissue, and surgeons' tow, this company als showed a special material (transpirable) for ordinary clothin which is said to permit of free evaporation and not to become cold and moist even with profuse perspiration. Mr. R. Strang, of Montpellier, Cheltenham, exhibited a very ingenious pillow-holder and bed-rest, while close by Mr. W. F. Woodland, of 24, Dorset-street, Southampton, exhibited a series of improved artificial limbs the feature of which is ball ankle-joints allowing of the automatic accommodation of the foot to the ground and rotation to prevent twisting or running at the point of bearing. The Dowsing system of the treatment of rheumatism, &c., by radiant heat and light was demonstrated by representatives of the company (24, Budge-row, Cannon-street, London, E.C.). Mr. Harry W. Cox of 9, 10, 11, Cursitor-street, Chancery-lane, London, W.C., exhibited all the lates developments of x-ray apparatus, especially in its application to surgery and medicine. The new electrolytic "break" is worthy of mention as giving a perfectly steady glow and very definite shadows or pictures. This firm supplies all the appliances connected with x-ray work, and we have had some experience of the excellence of the apparatus made by this firm. The coils are wound under personal supervision to provide for effectual insulation. A very well-arranged assortment of surgical instruments and appliances was shown by Messrs. Salt and Son of 5, Cherry-street, Birmingham. Messrs. Rosenberg and Co. of 21, Southampton-row, London, W.C., exhibited their portable x-ray outfits besides a historical collection of various x-ray tubes. Messrs. Allen and Hanbury of Plough-court, Lombard-street, London, E.C., showed a number of useful surgical appliances, including aseptic instruments and caddies of surgical dressings and plasters. They showed also a new inhaler for the administration of ether and also one for use with kélène. The exhibit included the convenient and portable ozone apparatus recently described in our columns and a convenient tray for storing labels. A very ingenious automatic bed-rest was shown by the Automatic Bed-rest Co. of 1, Somers-place, Leamington. It consists of a sling and head support adjusted by pulleys attached by means of springs to the foot-frame of the bed. Special hospital bedsteads and an anti-sagging bedstead were the features of the exhibit of Messrs. John and Joseph Taunton, of Belgrave Works, Birmingham. Similar appliances, the Lawson Tait spring bedsteads, were exhibited by Messrs. George

Sons, Limited, of Dominion Works, Birmingham, and by Messrs. S. P. Whitfield and Co., Limited, of Watery lane, Birmingham. Woods patent wire mattress was exhibited by the Longford Wire Co., of Warrington. This mattress, attached to a bedstead six feet by three feet, will carry one ton weight without injury to the mattress or bed. A very interesting sen [illegible] than 30 cases of double [illegible] hown [illegible] limbs [illegible] omerset. Mr. N. Bletchley [illegible] has devoted his attention [illegible] He exhibited a number of boots adapted for various abnormal conditions and deformities.

(To be concluded.)

Public Health and Poor Law.

LOCAL GOVERNMENT BOARD

REPORTS OF MEDICAL OFFICERS OF HEALTH

City of London.—In his report for the three weeks ending July 13th, Dr. W. Collingridge, the newly appointed medical officer of health, tells us that the Corporation of London have decided to adopt the voluntary notification of phthisis and to pay the usual fee of 2*s.* 6*d.* for each case notified. On the receipt of the notification the invaded house will be visited, disinfection will be offered, and a leaflet prepared by the medical officer of health, setting out the precautions to be observed, will be left. Turning to another matter we are pleased to see that a detailed inspection of the sanitary conveniences at the several railway stations, both above and below ground, has been made in the City, and defects have been found at a very large number of them. This is a very useful public service and it is to be hoped that other medical officers of health will follow this example. Our own experiences over many of the lines of England enable us to urge the necessity of this step.

Surrey County District.—The Surrey County Council have under the advice of Dr. T. O. Seaton, their medical officer of health, taken an active and useful part with regard to the water supplied in the county during 1900. More particularly was this the case with respect to the West Surrey Water Company, the water supplied by which had been the subject of complaint by two urban district councils whose districts were supplied by the said company. Briefly stated, the chemical analysis gave, in the view of these two councils, unsatisfactory results. The company in question has an intake from the Thames a short distance above Walton Bridge and the area of supply is very extensive. Near the intake there are filters but no subsidence reservoirs, the water being delivered direct to the filter beds. The filtered water is pumped to a service reservoir on St. George's Hill. The analyses made by the experts of the company were in favour of the company; those made by the Jenner Institute of Preventive Medicine were unsatisfactory. Doubtless, as Dr. Seaton suggests, the conditions of collection varied, but at the same time the strength of a chain is measured by the resistance of its weakest link. Having regard to these discrepancies Dr. Seaton, who received the assistance of the company in his inquiries, procured a sample before filtration and a sample after filtration, seeking by this means to ascertain whether the filtered water gave average results which are satisfactory at all times and under all conditions of the river. The water was also examined bacteriologically and for this purpose 50 samples were taken. The results of this bacteriological examination were, we are told, satisfactory, but on the other hand the chemical results were unsatisfactory. It is not clear if the filtrate of each filter was submitted to examination or whether there are automatic arrangements for checking the rate of filtration of each filter. But in the meantime the company applied for Parliamentary powers to construct subsidence reservoirs and the county council were able finally to arrange terms upon which alone their opposition to the Bill would be withheld. It may therefore be said that the Surrey County Council have here performed a useful service. Other action has also been taken by this county council in reference to another water company.

Coventry Urban District.—By the provisions of the Coventry Corporation Act, 1900, power has been procured by which the corporation, having erected an abattoir, may revoke, cancel, or call in any licence granted by them, either before or after the passing of the Act, with regard to private slaughter houses, subject to the condition that compensation to the owner shall be given. Similarly the corporation have power to close any private slaughter house which in their opinion is injurious or dangerous to the public health. It will be interesting to note how these provisions are applied in practice.

Kingston upon Hull Urban District.—Dr. Wright Mason, in reporting upon the cases of small-pox which occurred at Hull during 1900, gives a brief summary of the whole outbreak. There were in all 943 cases notified with 163 deaths. There were removed to hospital 904 cases, and of these 748 were vaccinated and 156 showed "no evidence of vaccination from marks." The fatality-rate of the vaccinated was 10·2 per cent. and that of the unvaccinated was 48·7 per cent. The total fatality-rate was 16·9 per cent. 20 vaccinated children under 10 years of age were attacked, with no deaths, while of the 60 children attacked who showed no evidence of vaccination 27 died—i.e., the fatality-rate was 45 per cent.

Hastings Urban District.—Dr. Scarlyn Wilson refers in his current annual report to the practice of the "inflation," or blowing up, of the connective tissue of young animals, such as calves and lambs, immediately after death. This operation is held to improve the appearance of the meat, and there is no doubt that it imparts a fallacious idea of bulk and perhaps, too, of freshness. In other words, it must be regarded as a questionable practice. Dr. Wilson states that "inflation" is practised on ill-nourished meat by the direct lung power of the slaughterer, and certainly this proceeding should be unhesitatingly condemned. We have ourselves seen inflation by means of a pump. But here is another argument for public slaughter-houses where processes such as this may either be controlled or prohibited.

VITAL STATISTICS

HEALTH OF ENGLISH TOWNS

IN 33 of the largest English towns 5893 births and 4862 deaths were registered during the week ending August 10th. The annual rate of mortality in these towns, which had risen from 14·8 to 22·4 per 1000 in the six preceding weeks, declined again to 22·1 last week. In London the death-rate was 18·3 per 1000, while it averaged 24·3 in the 32 large provincial towns. The lowest death-rates in these towns were 11·9 in Bristol, 12·0 in Croydon, 12·1 in Wolverhampton, and 14·5 in Plymouth; the highest rates were 32·6 in Sheffield, 33·7 in Sunderland, 34·1 in Salford, and 40·6 in Gateshead. The 4862 deaths in these towns last week included 1724 which were referred to the principal zymotic diseases, against 1508 and 1755 in the two preceding weeks; of these, 1436 resulted from diarrhœal diseases, 93 from measles, 71 from diphtheria, 57 from whooping-cough, 34 from "fever" (principally enteric), 27 from scarlet fever, and one from small-pox. The lowest death-rates from these diseases were recorded in Bristol, Cardiff, Swansea, and Halifax, and the highest rates in West Ham, Salford, Leeds, Sheffield, Sunderland, and Gateshead. The greatest proportional mortality from measles occurred in West Ham, Birmingham, Salford, Leeds, and Sheffield; from whooping-cough in Sunderland; and from diarrhœal diseases in Portsmouth, Manchester, Salford, Sheffield, Sunderland, and Gateshead. The 71 deaths from diphtheria included 24 in London, seven in West Ham, seven in Leeds, six in Brighton, and four in Leicester. One fatal case of small-pox was registered in London, but not one in any other of the 33 large towns. The number of small-pox patients under treatment in the Metropolitan Asylums hospitals, which had been 14, 11, and 13 at the end of the three preceding weeks, had declined again to 11 on Saturday, August 10th; three new cases were admitted during the week, against five, two, and four in the three preceding weeks. The number of scarlet fever patients in these hospitals and in the London Fever Hospital at the end of the week was 3148, against 2907, 2974, and 3001 on the three preceding Saturdays; 306 new cases were admitted during the week, against 371, 374, and 391 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 135, 134, and 126 in the three preceding weeks, rose again to 127 last week, but were 38 below the corrected average. The causes of 47, or 1·0 per cent., of the deaths in the 33 towns were not certified, either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Portsmouth, Bristol, Cardiff, Nottingham, and in 13 other smaller towns; the largest proportions of uncertified deaths were registered in Blackburn, Sheffield, Hull, and Gateshead.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 17·8 and 19·8 per 1000 in the two preceding weeks, declined again to 19·2 during the week ending August 10th, and was 2·9 per 1000 below the mean rate during the same period in the 33 large English towns. The rates in the eight Scotch towns ranged from 13·5 in Aberdeen and 15·0 in Paisley to 20·8 in Glasgow and 30·0 in Perth. The 613 deaths in these towns included 129 from diarrhœa, 13 from measles, 12 from whooping-cough, six from "fever," five from diphtheria, and three from scarlet fever. In all, 168 deaths resulted from these principal zymotic diseases last week, against 101, 134, and 174 in the three preceding weeks. These 168 deaths were equal to an annual rate of 5·3 per 1000, which was 2·5 per 1000 less than the zymotic death-rate during the same period in the 33 large English towns. The fatal cases of diarrhœa, which had increased from 19 to 128 in the five preceding weeks, further rose last week to 129, of which 77 occurred in Glasgow, 19 in Edinburgh, 10 in Dundee, nine in Leith, five in Greenock, four in Paisley, three in Perth, and two in Aberdeen. The deaths from measles, which had been 24, 16, and 13 in the three preceding weeks, were again 13 last week, and included nine in Glasgow and two in Edinburgh. The fatal cases of whooping-cough, which had been nine and 28 in the two preceding weeks, declined again last week to 12, of which nine were registered in Glasgow and two in Edinburgh. The deaths referred to different forms of "fever," which had been 6, 3, 2, and 2 in the four preceding weeks, rose again to six last week, and included three in Dundee and two in Glasgow. The fatal cases of diphtheria, which had been two and one in the two preceding weeks, increased last week to five, of which three occurred in Edinburgh. The deaths from scarlet fever, which had been six and two in the two preceding weeks, rose again to three last week, and included two in Glasgow. The deaths referred to diseases of the respiratory organs in these towns, which had been 56 and 65 in the two preceding weeks, declined again last week to 44, and were 8 below the number in the corresponding period of last year. The causes of 23, or nearly 4 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 20·6 per 1000 in each of the two preceding weeks, increased to 22·4 per 1000 during the week ending August 10th. During the past four weeks the death-rate has averaged 20·5 per 1000, the rates during the same period being 18·8 in London and 17·8 in Edinburgh. The 161 deaths of persons belonging to Dublin registered during the week under notice showed an excess of 13 over the number in the preceding week, and included 34 which were referred to the principal zymotic diseases, against 18, 26, and 32 in the three preceding weeks; of these 33 resulted from diarrhœa and one from "fever," but not one from either small-pox, measles, scarlet fever, diphtheria, or whooping cough. These 34 deaths were equal to an annual rate of 4·7 per 1000, the zymotic death-rate during the same period being 5·5 in London and 4·4 in Edinburgh. The fatal cases of diarrhœa, which had been four, 14, 20, and 23 in the four preceding weeks, further rose last week to 33. The 161 deaths in Dublin last week included 58 of children under one year of age and 30 of persons aged upwards of 60 years; the deaths of infants showed a considerable increase, while those of elderly persons were slightly below the number in the preceding week. Nine inquest cases and eight deaths from violence were registered; and 53, or more than one-fourth, of the deaths occurred in public institutions. The causes of nine, or nearly 6 per cent., of the deaths in Dublin last week were not certified.

VITAL STATISTICS OF LONDON DURING JULY, 1901.

IN the accompanying table will be found summarised complete statistics relating to sickness and mortality in each of the cities and boroughs in the county of London. With regard to the notified cases of infectious diseases it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 9·6 per 1000 of the population, provisionally estimated at 4,543,757 persons in the middle of the year. In the three preceding months the rates had been 5·2, 8·5, and 8·5 per 1000 respectively. The rates were considerably below the average in Chelsea, Battersea, Wandsworth, Greenwich, and Woolwich, while they showed the largest excess in Fulham, Holborn, Finsbury, City of London, Bethnal Green, Southwark, and Bermondsey. 22 cases of small-pox were notified last month in London; of these, seven belonged to Hackney, five to Wandsworth, three to Hammersmith, two to Paddington, and two to St. Marylebone. Nineteen small-pox patients were admitted into the Metropolitan Asylums hospitals during the month, and 13 remained under treatment on Saturday. August 3rd. The prevalence of scarlet fever showed a slight increase over that recorded in the preceding month; among the various metropolitan boroughs this disease was proportionally most prevalent in Holborn, Finsbury, City of London, Bethnal Green, Southwark, and Bermondsey. The Metropolitan Asylums hospitals contained 3026 scarlet fever patients at the end of July, against 1491, 2291, and 2752 at the end of the three preceding months; the weekly admissions averaged 355, against 179, 339, and 343 in the three preceding months. The prevalence of diphtheria shows a further increase upon that recorded in recent months; the greatest proportional prevalence of this disease occurred in Fulham, St. Pancras, Islington, Hackney, Holborn, and Poplar, There were 1332 diphtheria patients under treatment in the Metropolitan Asylums hospitals at the end of June, against 960, 1101, and 1169 at the end of the three preceding months; the weekly admissions averaged 209, against 117, 160, and 175 in the three preceding months. The prevalence of enteric fever was slightly in excess of that recorded in the preceding month; among the various metropolitan boroughs this disease was proportionally most prevalent in Fulham, St. Marylebone, Hackney, Holborn, and the City of London. The number of enteric fever patients under treatment in the Metropolitan Asylums hospitals, which had been 121, 95, and 125 at the end of the three preceding months, further increased to 166 at the end of July; the weekly admissions averaged 29 last month, against 16, 14, and 25 in the three preceding months. Erysipelas was proportionally most prevalent in St. Marylebone, Holborn, Finsbury, City of London, Bethnal Green, and Bermondsey. The 17 notified cases of puerperal fever included five in Islington, two in Kensington, two in Bethnal Green, and two in Wandsworth.

The mortality statistics in the table relate to the deaths of persons actually belonging to the various metropolitan boroughs, the deaths occurring in the public institutions of London having been distributed among the various boroughs in which the deceased persons had previously resided. During the five weeks ending August 3rd the deaths of 7013 persons were registered, equal to an annual rate of 16·1 per 1000, against 17·6, 15·4, and 13·4 per 1000 in the three preceding months. The lowest death-rates last month in the various metropolitan boroughs were 9·0 in Hampstead, 10·6 in Stoke Newington, 11·1 in Lewisham, 11·5 in Greenwich, 12·0 in Wandsworth, and 12·2 in Woolwich; the highest rates were 19·1 in St. Pancras, 20·5 in Finsbury and in Southwark, 20·6 in Poplar, 21·4 in Stepney, and 25·0 in Shoreditch. During the five weeks of July, 1527 deaths were referred to the principal zymotic diseases; of these one resulted from small-pox, 236 from measles, 70 from scarlet fever, 137 from diphtheria (including membranous croup), 98 from whooping-cough, 34 from enteric fever, three from simple continued fever, and 948 from diarrhœal diseases. The lowest death-rates from these diseases occurred last month in the City of Westminster, Hampstead, Stoke Newington, the City of London, Wandsworth, and Lewisham; and the highest rates in St. Pancras, Finsbury, Shoreditch,

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING JULY, 1901.

(*Specially compiled for* THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1901.	NOTIFIED CASES OF INFECTIOUS DISEASE.											DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.											Deaths from all causes.	Death rate per 1000 living.	Deaths of Infants under one year to 1000 births.
		Small pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cholera.	Total.	Annual rate per 1000 persons living.	Small pox.	Measles.	Scarlet fever.	Diphtheria *	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœal diseases.	Total.	Annual rate per 1000 persons living.			
LONDON...	4,543,757	22	2093	1233	1	281	6	17	467	—	4180	9·6	1	236	70	137	98	—	34	3	948	1527	3·5	7013	16·1	177
West Districts.																										
Paddington	144,154	2	63	22	—	8	—	—	14	—	109	7·9	—	—	—	2	2	—	1	—	26	31	2·2	181	13·1	158
Kensington	176,737	—	63	46	—	9	3	2	19	—	147	8·7	—	1	—	6	2	—	—	—	32	41	2·4	231	13·6	196
Hammersmith	112,619	3	39	17	—	9	1	—	5	—	74	6·9	1	1	3	1	2	—	—	—	23	31	2·9	159	14·7	174
Fulham	138,428	—	65	65	—	20	—	—	15	—	165	12·4	—	9	2	2	2	—	2	—	30	47	3·5	208	15·7	172
Chelsea	73,879	—	23	9	—	6	—	—	1	—	39	5·5	—	—	2	—	—	—	—	—	12	14	2·0	88	12·4	130
City of Westminster	182,502	1	89	35	—	11	—	1	13	—	150	8·6	—	7	3	1	1	—	—	—	12	24	1·4	246	14·1	138
North Districts.																										
St. Marylebone	133,060	2	40	30	—	12	—	—	23	—	107	8·4	—	4	1	4	1	—	1	—	34	45	3·5	219	17·2	157
Hampstead	82,287	—	23	12	—	6	—	—	8	—	49	6·2	—	—	—	4	3	—	2	—	2	11	1·4	71	9·0	59
St. Pancras	235,297	—	96	124	—	11	—	—	18	—	249	11·0	—	13	3	13	4	—	3	—	78	114	5·1	431	19·1	238
Islington	335,325	—	113	119	—	23	—	5	35	—	300	9·3	—	15	1	16	7	—	6	—	42	87	2·7	457	14·2	151
Stoke Newington	51,323	—	16	10	—	1	—	—	6	—	33	6·7	—	1	—	—	—	—	—	—	4	5	1·0	52	10·6	98
Hackney	219,720	7	86	115	—	22	—	1	25	—	256	12·1	—	11	2	13	4	—	1	—	63	94	4·5	347	16·5	219
Central Districts.																										
Holborn	59,205	—	48	23	—	8	—	—	14	—	93	16·4	—	2	1	1	1	—	2	—	5	12	2·1	103	18·1	118
Finsbury	101,233	—	71	34	—	4	—	—	16	—	125	12·9	—	12	3	5	3	—	—	—	37	60	6·2	199	20·5	199
City of London	26,627	—	19	6	—	3	—	—	5	—	33	12·9	—	—	1	—	—	—	—	—	—	1	0·4	41	16·1	148
East Districts																										
Shoreditch	118,554	—	51	36	—	7	—	—	15	—	109	9·6	—	14	2	6	2	—	1	—	67	92	8·1	284	25·0	324
Bethnal Green	129,700	—	102	43	1	10	—	2	28	—	186	15·0	—	6	2	1	4	—	2	1	27	43	3·5	233	18·7	164
Stepney	298,824	—	156	89	—	20	—	1	35	—	301	10·5	—	41	7	9	11	—	4	—	73	145	5·1	614	21·4	215
Poplar	163 387	—	67	76	—	10	—	—	18	—	171	10·6	—	16	2	13	4	—	2	—	64	101	6·2	333	20·6	248
South Districts.																										
Southwark	206,219	1	167	51	—	10	—	—	19	—	248	12·5	—	16	8	4	6	—	—	—	52	83	4·5	405	20·5	227
Bermondsey	130,348	—	142	41	—	8	—	—	22	—	216	17·3	—	10	8	7	3	—	1	—	15	44	3·5	232	18·0	161
Lambeth	302,460	—	126	56	—	12	2	1	31	—	228	7·9	—	10	7	5	8	—	1	2	82	115	4·0	481	16·6	169
Battersea	169,364	—	43	15	—	7	—	1	20	—	86	5·3	—	21	1	1	8	—	1	—	48	80	4·9	272	16·8	202
Wandsworth	233,913	5	54	39	—	7	—	2	12	—	125	5·6	—	10	5	3	2	—	—	—	18	33	1·7	269	12·0	130
Camberwell	259 297	—	183	88	—	6	—	1	17	—	293	11·8	—	2	4	14	3	—	1	—	43	67	2·7	334	13·4	134
Deptford	110,752	—	40	32	—	5	—	—	8	—	85	8·0	—	3	1	1	6	—	1	—	23	40	3·8	142	13·4	146
Greenwich	96,153	—	22	10	—	6	—	—	6	—	44	4·8	—	4	1	—	2	—	—	—	10	17	1·8	106	11·5	125
Lewisham	123,423	1	50	23	—	4	—	—	11	—	91	7·6	—	1	—	3	2	—	—	—	10	16	1·3	137	11·1	116
Woolwich...	117,619	—	30	21	—	6	—	—	2	—	59	5·2	—	6	—	2	3	—	2	—	11	24	2·1	138	12·2	92
Port of London	—	—	1	—	—	5	—	—	—	—	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

Stepney, Poplar, and Battersea. The fatal case of small-pox was that of a person belongng to Hammersmith. The 236 deaths from measles were slightly below the average number in the corresponding periods of the 10 preceding years; this disease was proportionally most fatal in Finsbury, Shoreditch, Stepney, Poplar, Southwark, and Battersea. The 70 fatal cases of scarlet fever were 15 below the corrected average number; among the various metropolitan boroughs the greatest proportional mortality from this disease occurred in Hammersmith, Finsbury, Southwark, and Bermondsey. The 137 deaths from diphtheria showed a marked decline from the average in the corresponding periods of the 10 preceding years; this disease showed the highest proportional fatality in St. Pancras, Hackney, Finsbury, Shoreditch, Poplar, Bermondsey, and Camberwell. The 98 fatal cases of whooping cough were only about one-half of the corrected average number; among the various metropolitan boroughs this disease was proportionally most fatal in Stepney, Battersea, and Deptford. The 37 deaths referred to "fever" showed a slight decline from the average number in the corresponding periods of the 10 preceding years; the highest "fever" death-rates occurred in Fulham, Hampstead, Islington, Holborn, Bethnal Green, and Woolwich. The 948 deaths from diarrhœal diseases were slightly less than the corrected average number; among the various metropolitan boroughs the greatest proportional mortality from these diseases was recorded in St. Pancras, Hackney, Finsbury, Shoreditch, Poplar, and Battersea. In conclusion, it may be stated that the aggregate mortality from these principal zymotic diseases in London during July was more than 28 per cent. below the average.

Infant mortality in London last month, measured by the proportion of deaths of children under one year of age to registered births, was equal to 177 per 1000. The lowest rates of infant mortality were recorded in Hampstead, Stoke Newington, Holborn, Greenwich, Lewisham, and Woolwich; and the highest rates in St. Pancras, Hackney, Shoreditch, Stepney, Poplar, and Southwark.

THE SERVICES.

ROYAL ARMY MEDICAL CORPS.

LIEUTENANT-COLONEL R. W. FORD, D S.O., is appointed Deputy Surgeon of Chelsea Hospital. Lieutenant-Colonel G. W. Brazier-Creagh, C.M.G., holds himself in readiness to embark for South Africa at an early date. Major G. J. A. Tuke has been instructed to join at Woolwich for duty. Lieutenant R. F. M. Fawcett and Lieutenant W. L. Steele have left Aldershot for service in South Africa. Surgeon (on probation) J. C. Hastings has joined at Aldershot.

The undermentioned Majors to be Lieutenant-Colonels (dated July 20th, 1901):—Arthur Mercer Davies, Henry William Hubbard, Thomas Edward Noding, John Robert Yourdi, John Chislett Culling, Robert Isaac Dalby Hackett, George Turner Trewman, Henry Halcro Johnston, Edmond Munkhouse Wilson, C.M.G., D.S.O., Edmund John Erskine Risk, William George Birrell, Michael Dundon, Charles William Stanford Magrath, Alfred Vavasour Lane, George Edward Weston, George Harrison Younge, Richard Francis O'Brien, Charles William Thiele, Frederick Peter Nichols, John McLaughlin, Francis Joseph Lambkin, William Lloyd Reade, Henry James Peard, Samuel James Rennie, John Carmichael, George Washington Brazier-Creagh, C.M.G., and Francis Tichborne Wilkinson.

Surgeon-Lieutenant-Colonel Samuel Farrant, West Somerset Regiment of Yeomanry Cavalry, has been appointed to the medical charge of troops at Taunton, vice Lieutenant-Colonel E. H. Joynt, late R.A.M.C., resigned.

VOLUNTEER CORPS.

Artillery: 1st Banff: Surgeon-Lieutenant S. Clark retires under paragraph 111 Volunteer Regulations. Dated August 10th, 1901. *Rifle:* 1st Volunteer Battalion the Prince of Wales's Own (West Yorkshire Regiment): Surgeon-Captain F. Shann to be Surgeon-Major. Dated August 10th, 1901. 2nd Volunteer Battalion the Princess of Wales's Own (Yorkshire Regiment): Surgeon-Captain S. H. Snell resigns his commission. Dated August 10th, 1901. 1st (City of Bristol) Volunteer Battalion the Gloucestershire Regiment: Surgeon-Captain A. W. Prichard to be [illegible] Dated [illegible]st 10th, 1901. 1st Volunteer [illegible] giment: Surgeon-Captain J. [illegible] Dated August 10th, 1901. 2nd Volunteer Battalion the York and Lancaster Regiment: John Power Shine to be Surgeon-Lieutenant. Dated August 10th, 1901. 2nd (Renfrewshire) Volunteer Battalion Princess Louise's (Argyll and Sutherland Highlanders): Surgeon-Lieutenant J. B. Stevens to be Surgeon-Captain. Dated August 10th, 1901. 5th Volunteer Battalion Princess Louise's (Argyll and Sutherland Highlanders): Surgeon-Lieutenant J. P. Brown to be Surgeon-Captain. Dated August 10th, 1901.

SOUTH AFRICAN WAR NOTES.

The following have been discharged from hospital to duty:—Civil Surgeon Digby Manfold French and Civil Surgeon Thomas Caldwell.

Civil Surgeon C. R. Hodgson is on passage home in the *Avoca*.

DEATHS IN THE SERVICES.

Surgeon-General Charles Richard Francis, I.M.S. (retired), at his residence, Spencer-park, London, S.W., aged 82 years. He at one time was principal and professor of medicine at the Medical College of Calcutta and examiner to the University of Calcutta. Subsequently he became secretary to the surgeon-general with the Government of India, retiring in 1875.

Inspector-General of Hospitals and Fleets, Henry C. Woods, M.V.O. (retired), late of His Majesty's yacht, has been appointed for service at the Admiralty as member of a committee on the pay and promotion of naval medical officers.

Deputy Inspector-General of Hospitals and Fleets John S. Dobbyn has been awarded the Greenwich Hospital Pension of £50 a year.

THE METROPOLITAN HOSPITAL SUNDAY FUND.

THE following is a list of the grants awarded by the Committee of Distribution of the Metropolitan Hospital Sunday Fund for the year 1901:—

GENERAL HOSPITALS.

Charing Cross Hospital, £1050; French Hospital, £266 13s. 4d.; German Hospital, £441 13s. 4d.; Great Northern Central Hospital, £716 13s. 4d.; Guy's Hospital, £2250; Hampstead Hospital, £200; Italian Hospital, £50; King's College Hospital, £1250; London Hospital, £4500; London Homœopathic Hospital, £458 6s. 8d.; Phillips Memorial Homœopathic Hospital, £29 3s. 4d.; London Temperance Hospital, £666 13s. 4d; Metropolitan Hospital, £616 13s. 4d.; Mildmay Hospital, £225; Miller Hospital and Royal Kent Dispensary, £250; North-West London Hospital, £341 13s. 4d.; Poplar Hospital, £433 6s. 8d.; Queen's Jubilee Hospital, £83 6s. 8d.; Royal Free Hospital, £875; St. George's Hospital, £1937 10s.; SS. John and Elizabeth Hospital, £58 6s. 8d.; St. Mary's Hospital, £2000; St. Thomas's Hospital, £956 13s. 4d.; Seamen's Hospital Society, £1041 13s. 4d.; Middlesex Hospital, £1783 6s. 8d.; Tottenham Hospital, £258 6s. 8d.; University College Hospital, £1133 6s. 8d.; Walthamstow, £70 16s. 8d.; West Ham Hospital, £375; West London Hospital, £600; and Westminster Hospital, £1291 13s. 4d.

CHEST HOSPITALS.

City of London Hospital for Diseases of the Chest, £666 13s. 4d.; *Hospital for Consumption, Brompton, £1583 6s. 8d.*; North London Consumption Hospital, Hampstead, £458 6s. 8d.; Royal Hospital for Diseases of the Chest, City-road, £333 6s. 8d.; and Royal National Hospital for Consumption, Ventnor, £291 13s. 4d.

CHILDREN'S HOSPITALS.

Alexandra Hospital for Hip Disease, W.C., £125; Banstead Surgical Home, £20 16s. 8d.; Barnet Home Hospital, £34 3s. 4d.; Belgrave Hospital for Children, S.W., £100; Cheyne Hospital for Incurable Children, S.W., £83 6s. 8d.; East London Hospital for Children, Shadwell, E., £583 6s. 8d.; Evelina Hospital for Sick Children, Southwark, S.E., £291 13s. 4d.; Home for Incurable Children, Maida-vale, W., £66 13s. 4d.; Home for Sick Children, Sydenham, S.E., £108 6s. 8d.; Hospital for Sick Children, Great Ormond-street, W.C., £833 6s. 8d.; [illegible] Children, Hackney-road, N.E., £291 13s. 4d.; [illegible] for Children, W., £241 13s. 4d.; St. Mary's [illegible] Monica's, Brondesbury, N.W., £87 10s.; Victoria Hospital for Children, King's road, Chelsea, S.W., £433 6s. 8d.; Victoria Home, Margate, £25; and "The Vine," Sevenoaks, £33 6s. 8d.

LYING-IN HOSPITALS.

British Lying-in Hospital, Endell-street, W.C., £33 6s. 8d.; City of London Lying-in Hospital, City-road, E.C., £45 16s. 8d.; Clapham Maternity Hospital, £33 6s. 8d.; East-end Mothers' Home, £75; General Lying-in Hospital, Lambeth, S.E., £35; and Queen Charlotte's Lying-in Hospital, Marylebone-road, W., £333 6s. 8d.

HOSPITALS FOR WOMEN.

Chelsea Hospital for Women, S.W., £341 13s. 4d.; Hospital for Women, Soho-square, W., £208 6s. 8d.; Grosvenor Hospital for Women and Children, Vincent-square, S W., £125; New Hospital for Women Euston road, W.C, £233 6s 8d; Royal Hospital for Children and Women, Lambeth, S E 203 6s 8d, and Samaritan Free Hospital, Lower Seymour-street, W., £433 6s 8d

OTHER SPECIAL HOSPITALS.

Cancer Hospital, Brompton, S W, £500, London Fever Hospital, Islington, N, £583 6s 8d, Gordon Hospital for Fistula, Vauxhall [illegible] S.W. [illegible] St. Mark's Hospital for Fistula, [illegible] or the Diseases of the Heart, [illegible] Lock Hospital, Harrow road, [illegible] Paralysis, and other Diseases [illegible] W, £41 13s. 4d., National [illegible] Epileptic, W C, deferred, [illegible] the Nervous System, £125, [illegible] ray's Inn road, W.C, £100, [illegible] S E, £175; Royal London [illegible] £625, Royal Westminster [illegible] Hospital of London, Leicester [illegible] Dental Hospital, 149, Great Portland-street, W, [illegible]

CONVALESCENT HOSPITALS.

[illegible] W., £533 6s 8d, [illegible] 13s 4d., All [illegible] Ascot Priory [illegible] Convalescent [illegible] Women Con[illegible] Mission Con[illegible] Convalescent Home Dover, [illegible]mouth £25, Convalescent [illegible] Baldwin Brown [illegible]scent Home, Convalescent [illegible] Convalescent [illegible] Female [illegible] Home for [illegible] Home for Work[illegible] 13s 4d.; St. [illegible] Convalescent Hospital, Clewer, £116 13s 4d, St. Andrew's [illegible] Home for [illegible] Joseph's Con[illegible]

COTTAGE HOSPITALS.

[illegible]

INSTITUTIONS.

[illegible] Dying, £208 6s. 8d.

DISPENSARIES.

Battersea Provident Dispensary, £70 16s 8d, Bloomsbury Provident Dispensary, £10, Brixton, &c, Dispensary, £40; Brompton Provident Dispensary, £18 6s 8d, Camberwell Provident Dispensary, £58 6s 8d; Camden Provident Dispensary, £10 16s 8d; Chelsea, Brompton, and Belgrave Dispensary, £33 6s 8d Chelsea Provident Dispensary, £10; City Dispensary, £91 13s. 4d; City of London and East London Dispensary, £18 6s 8d., Clapham General and Provident Dispensary, £20, Deptford Medical Mission, £15; Eastern Dispensary, £33 6s 8d; East Dulwich Provident Dispensary, £76 13s 4d., Farringdon General Dispensary, £36 13s 4d., Finsbury Dispensary, £33 6s. 8d.; Forest Hill Dispensary, £31 13s 4d, Greenwich Provident Dispensary £19 3s 4d, Hackney Provident Dispensary, £9 2s 4d; Hampstead Provident [illegible] Holloway and North Islington Dis[illegible] 13s 4d; Kentish Town Dispensary, £47 16s; [illegible] Dispensary, £31 13s 4d; [illegible] Leman-street Provident [illegible] 10s; London Medical Mission, Endell-street, £83 [illegible] St. George's, Hanover-square [illegible] Wood and Portland Town Provident Dispensary, £5[illegible] 13s 4d., St Marylebone General Dispensary, £25, St. Pancras and Northern Dispensary £25, South Lambeth, Stockwell, and North Brixton Dispensary, £33 6s 8d; Stamford Hill, Stoke Newington, &c, Dispensary, £46 6s 8d; Tower Hamlets Dispensary, £3[illegible] Dispensary £10, Wandsworth Common P[illegible] Provident Dispensary [illegible] Dispensary, £46 13s 4d [illegible] Westminster General Dis[illegible] Dispensary, £19 3s 4d, [illegible]

Correspondence.

"Audi alteram partem."

“WAS LUIGI CORNARO RIGHT?”

To the Editors of THE LANCET.

SIRS,—Mr. E H Van Someren's paper, under the above title, published in THE LANCET of August 10th, is one of great practical interest It emphasises the harmfulness of a dietetic custom which is becoming increasingly prevalent—I refer to the practice of feeding children almost exclusively on soft pappy food Mr. Van Someren says, in effect, that the manifold varieties of indigestion and the long array of evils which follow in their train are chiefly due to defective insalivation; that if food be properly masticated and insalivated it will pass into the stomach involuntarily and in a condition best suited to the requirements of gastric digestion; and that if this habit be persisted in for a few weeks it will be impossible for the individual to swallow food that is imperfectly insalivated owing to the development of a reflex mechanism controlling certain muscles of the mouth and throat, further, that owing to the habit of bolting food in early life the reflex in question fails to be developed. This view carries with it the assumption, which, indeed, cannot be denied, that our ancestors masticated their food more efficiently than we do ours

Now, Sirs, how comes it that the modern human tends to bolt his food from early years? Is it because he is congenitally more prone to do so than were his ancestors? Or are we to suppose that the human has always needed to be educated in efficient mastication and that our ancestors were more thorough and persevering in this respect than we are? On neither of these assumptions can we explain the modern tendency to bolt food This results from the fact that children are fed on soft food which can be readily swallowed without mastication—that we are, in fact, a pap-fed people Under the head of pap we may include all food which can be swallowed with little or no preliminary mastication—such as bread-and-milk, rusks-and-milk, the numerous children's foods prepared with milk, milk puddings, potatoes and gravy, bread soaked in bacon fat, and pounded meat; these, with an occasional biscuit (variety not specified) and a thin slice of bread and butter, constitute, according to an eminent authority on children's diseases, the correct dietary for the young human from the time of weaning till the age of two years, and I am positively dismayed when I think how widely this pernicious system prevails If asked what is the *most important fact* to insist on regarding the feeding of children after the teeth have appeared I should reply—Let their food be of a kind which compels them to masticate adequately, whether they like it or not It is manifestly quite impossible to teach a child at 10 months, or even one much older than this, properly to masticate if we give it pap only

The evils which result from this system of pap-feeding fall under two heads —

1 Those (referred to by Mr Van Someren) connected with the imperfect preparation of food for the stomach Under the present system a crude mess is allowed to flop down into the stomach *without any proper preparation* by the mouth Is there any wonder that a child with a sound digestion is such a rarity? So hugely, indeed, do digestive troubles loom in the pathological life of the child that it were an almost justifiable exaggeration to say that he has but one malady—indigestion. *It has long been an aphorism* with me: keep a child's digestive system healthy and you keep the child healthy and the best way to do this is to discard the use of paps and instead of casting about for the latest marvel in patent foods to give any plain food we like, provided it is of a kind which necessitates thorough mastication.

2. The second class of evils resulting from pap-feeding have reference to the imperfect use of the jaws and associated structures. Owing to this there is defective development of the jaws and their muscles, also of the teeth, tongue, and salivary glands. Let us not forget that every time the muscles of mastication contract the flow of blood and lymph in the structures of the mouth and accessory cavities, *including the naso-pharynx*, is accelerated. Pap-feeding, therefore, implies a sluggish circulation of blood and lymph in these parts. Now, "adenoid" disease is essentially a disease of pap-fed communities. I leave your readers to draw their own conclusions from these facts.

I am, Sirs, yours faithfully,
Wimpole-street, W., August 10th, 1901. HARRY CAMPBELL.

To the Editors of THE LANCET.

SIRS,—The treatise of Ludovico Cornaro, which, as reported in THE LANCET of August 10th, p. 389, was the subject of discussion at a sectional meeting of the British Medical Association, early found an English translator in George Herbert and can be examined in Warne's edition of his works. Amongst the advantages he derived from frugality Cornaro reckons immunity from malaria while serving upon an agricultural survey. "I ...... abode in ...... fenny places two whole months in the heat of summer (which in Italy is very great), receiving not any hurt or inconvenience thereby, so great is the power and efficacy of that temperance which ever accompanied me." Herbert, himself consumptive, died young, but he speaks well of what are indeed the higher pleasures of the table :—

> "Besides the cleanness of sweet abstinence
> Quick thoughts and motions at a small expense,
> A face not fearing light ;
> Whereas in fulness there are sluttish fumes,
> Sour exhalations, and dishonest rheums,
> Revenging the delight."

I am, Sirs, yours faithfully,
Leek, August 13th, 1901. D. A. ALEXANDER.

THE RELATION BETWEEN HUMAN AND BOVINE TUBERCULOSIS.

To the Editors of THE LANCET.

SIRS,—The papers which have appeared in this week's issue of THE LANCET bearing upon the possibility of infection with tuberculosis through the medium of milk have suggested a brief comment. It is natural that the discovery by laboratory workers of tubercle bacilli in milk should lead them to assume that milk is a frequent source of tuberculosis, and although morbid anatomists have adduced facts from the post-mortem room to show that they consider the danger from contaminated milk to have been over-estimated, few have not been prepared to admit that primary abdominal tuberculosis is a sequence of ingestion of milk containing bacilli of bovine tuberculosis. This conclusion may appear justifiable, yet it has always seemed to me that it leaves out of consideration the fact that if dust containing tubercle bacilli from the human subject is the great infecting medium for the lungs, there is no reason why it should not be the great source of infection of the intestinal tract also. One has only to walk down a back street in a poor neighbourhood and see dirty-faced infants crawling upon dirty floors, putting every object within reach into their mouths, in order to realise in some small measure how vast must be the number of bacilli of human tuberculosis which are swallowed annually by the infant population. A similar lesson may be learnt in the out-patient room. A crying infant may be seen to be comforted by its mother with an indiarubber teat, which no sooner falls on to the dusty floor than it is picked up and thrust unwiped into the infant's mouth again, a proceeding which is no doubt repeated several times during the day. Another method of infection with human tuberculosis also suggests itself. The habit a woman frequently has of putting a spoon with which an infant is being fed into her mouth, in order to taste or estimate the temperature of the food, must often lead to direct transference of tubercle bacilli to the child. Although we may exclude the possibility of infection with bovine tuberculosis there is no difficulty, as we have seen, in explaining the presence of primary abdominal tuberculosis. The wonder is that it does not occur more often.

The occurrence of tuberculosis of the skin in butchers has been used as an argument in favour of the possibility of infection with bovine tuberculosis. Such an occurrence is, however, by no means conclusive. As is well known, this disease may occasionally follow slight local injuries sustained in various occupations. I have seen tuberculosis of the skin result from a puncture by a gardener's fork and from a prick by a splinter of a deal table. As guardians of the public health it is wise that workers in the medical field should consider milk to be a possible source of tuberculous infection until it is proved to be harmless, but as scientists it is necessary that the subject should be viewed from its various aspects. Had the teachings of morbid anatomy been more carefully weighed possibly less stress would have been laid upon the findings of bacteriology.

I am, Sirs, yours faithfully,
Clifton, Bristol, August 6th, 1901. THEODORE FISHER.

To the Editors of THE LANCET.

SIRS,—The importance of the statement made by Professor Koch at the British Congress on Tuberculosis—namely, that cattle are refractory to injections of tubercle bacilli derived from man—is so great that one is justified in recording any facts which have a bearing on the subject and which may help to decide this vital question. In a series of experiments which I have been conducting for several years I had occasion to introduce tubercle bacilli derived from man into the anterior chamber of the eye of a young cow. Though the dose was not a large one, nevertheless tuberculosis resulted and the eye was converted into a large tuberculous mass in which tubercle bacilli were embedded in large numbers. This is only one case, but still it shows that cattle are not perfectly immune to this organism. That susceptible animals can have tubercle bacilli derived from man injected into the circulation or into a cavity where they are exposed to a large surface without producing tuberculosis, whereas a smaller dose introduced into a smaller area may produce the disease, is, in my opinion, possible. The experiments which no doubt are now being undertaken to prove or to condemn Professor Koch's statements will, I believe, elucidate the fact that cattle are not so susceptible to the tubercle derived from man as has hitherto been thought, but that neither are they quite refractory. Other observations made during the series of experiments referred to disagree with several of Professor Koch's statements, but as these are of somewhat secondary importance, and as I hope to embody them in a paper at an early date, I do not feel called upon to enter into them at present. I am, Sirs, yours faithfully,
Glasgow, July 29th, 1901. PETER PATERSON, M.B. Glasg.

HAY FEVER: ITS REMEDY.

To the Editors of THE LANCET.

SIRS,—Those who reside in towns are little cognisant of the abject misery for a few weeks in the early summer of some of those who live in the country, and especially in a grass-growing district as distinguished from the cultivation of crops on arable land, by reason of that ailment which goes by the name of "hay fever." Many, young and old, it quite prostrates ; to others it renders life a burden while it lasts. When the physiological effect of the suprarenal capsules as a contractor of blood-vessels was first mooted I thought that I foresaw its virtue as a remedy for hay fever, though for a long time I was unable to test its action owing to the lack of a stable solution that would "keep" and be always in readiness. When, however, Messrs. Parke, Davis, and Co., with the advice of Dr. Takamine, perfected their solution of adrenal chloride, 1 in 1000, the difficulty was solved, and throughout this season many sufferers have been relieved of their burden to a marked degree.

For those who suffer from sneezing and wheezing a spray of the solution into the nostrils, 1 in 1000, daily—for its effects last many hours—or twice a day, by virtue of its contracting the distended capillaries in the nasal mucous membrane, removes these discomforts completely for a time varying in the individual and in the character of the day. The congested conjunctiva, which occasions so much annoyance by reason of the smarting and itching which prevents the close use of the eyes, is blanched in a few seconds by the application of a solution of 1 in 10,000 once or twice daily as required. The prostration is largely overcome by the administration of quinine internally. The few cases that are not sufficiently relieved by the use of this simple remedy are capable of cure by the galvano-cautery applied to the nasal mucous membrane

I am, Sirs, yours faithfully,

July 31st, 1901. CLEMENT DUKES

"A SIMPLE FORM OF PUMP FOR INFLATING THE ETHER-BAG."

To the Editors of THE LANCET.

SIRS,—One naturally feels some diffidence in commenting upon the remarks of such an able anæsthetist as Mr. Edgar Willett, but I nevertheless feel that his assertion is somewhat too sweeping. To keep the bag adequately filled when the patient is well under the anæsthetic is an easy matter, but in starting the anæsthetic, say ether (without the previous use of nitrous oxide gas), in a nervous patient where the breathing is shallow and somewhat jerky, I consider a mechanical means of filling the bag would be of great service —I am, Sirs, yours faithfully,

FREDERICK W. COLLINGWOOD,
Anæsthetist to the National Dental Hospital.
Wimpole-street, August 1st, 1901

"BRITISH MEDICAL MEN AND GERMAN WATERING-PLACES."

To the Editors of THE LANCET.

SIRS,—I have only just read Dr Bezly Thorne's letter in THE LANCET of July 27th, p 228 I am gratified he thinks most medical men agree with me

With regard to Schott's treatment, although Dr. Thorne has quoted my letter correctly he must have read it carelessly for I cannot believe Dr Thorne can wish the profession to think his opinion is that unsuitable cases are benefited by Schott's treatment. I never ventured an opinion upon suitable cases. I am, Sirs, yours faithfully,

Manchester-square, W., August 9th, 1901 THOMAS DUTTON.

"LEGISLATION AGAINST NATIONAL INTEMPERANCE."

To the Editors of THE LANCET.

SIRS,—Dr Archdall Reid seems to challenge the existence of cases of the "inheritance of acquired characters" May I refer him to a very simple case, one which he can test for himself without much expenditure of time? The instance referred to is small and unimportant, but so much the better for the purpose in view, and is described in *Nature* of August 8th, 1901, p 351, under the heading, "Hair on the Digits of Man" There are, I may add, many other phenomena of hair-direction in man and the lower animals which bear a Lamarckian and only a Lamarckian interpretation I am, Sirs, yours faithfully,

Blackheath, August 10th, 1901. WALTER KIDD

"THE COMING ELECTION OF DIRECT REPRESENTATIVES TO THE GENERAL MEDICAL COUNCIL."

To the Editors of THE LANCET.

SIRS,—I do not wish to call in question the accuracy of your reporter in reference to my answer to Dr Brown Ritchie's question at the recent Cheltenham meeting, *re* the possibility of making the attendance of a medical man compulsory in cases of confinement,[1] but his version of my reply differs from what I meant to say. Instead of stating that I had conversed with members of "both Houses" on the subject I intended to say that from conversations with members of "both parties" in the House of Commons I was certain that such legislation would not be entertained Thanking you in anticipation for permitting me to make this correction.—I am, Sirs, yours faithfully,

GEORGE BROWN,
Direct Representative for England and Wales on the General Medical Council
Gibson-square, N., August 13th 1901

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[1] THE LANCET, August 10th 1901, p 409

THE ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION AND THE REPORT OF THE CONSTITUTIONAL COMMITTEE.

To the Editors of THE LANCET

SIRS,—The report of the Constitutional Committee was submitted to, and with but slight modification adopted at, the annual meeting at Cheltenham after a brief, rapid, generally excited, and at times angry, debate, conducted with perhaps less of the *suaviter in modo* than of the *fortiter in re* The Association is therefore committed to a radical reform of its principles but little, if anything, short of revolutionary, and although some discussion may possibly be allowed when the consequential new rules and by-laws are submitted for confirmation at a future general meeting the Cheltenham decisions must, I fear, be looked upon as final. *The principal changes effected are*

[illegible] of the total [illegible] the divisions [illegible] raised from [illegible] be fixed by [illegible] for a share [illegible] the total [illegible] the general [illegible] trades' [illegible] of [illegible], *their first-* [illegible] at the same place and time of the year as the general business and the general scientific meetings, and they are invested with most of the powers hitherto enjoyed by the ordinary members in their general meetings. (Clause 16)

As regards the unattached members (1) it is not unlikely that many may resent so compulsory a dictum; and the enhanced cost of membership (2) may likewise lead not a few to reconsider their position in this respect The adoption of the principle of delegation (3) is, however, a very momentous change and its effect upon the numerical strength of the Association may be still more serious Some members, especially those connected with the public services, as the navy, the army, &c, may have scruples regarding the propriety of belonging to a society the objects and methods of which are so closely allied to those of the ordinary trades' unions, since the delegate system is foreign to other scientific and professional bodies It may be expedient, or even necessary, for ordinary trades' unions, because the members of such have, generally, neither the time nor the means, nor perhaps the capacity, for taking part in their general meetings; but the medical profession is, as a whole, a wealthy one, and its members are intellectually well able, individually, to conduct the affairs of an Association such as the British Medical Again, the setting up of a body of delegates or representatives—the terms in this connexion are synonymous—will to a great extent supersede the ordinary annual meeting of members, whilst it will undoubtedly tend to degrade the status of the Central Council In my opinion this body is a superfluous and expensive machine, a cumbrous and complex duplicate, not only quite unnecessary to the requirements of the Association, but its adoption is derogatory to the position of the Association as a learned and professional society, and will tend, I fear, still further to lower its influence with the public.

I thought it very desirable that the principle of delegation should be formally discussed at the Cheltenham meeting An amendment by me to that effect was accepted by the Council and appeared for days on the agenda printed in the Daily Journals, and I was informed by the general secretary that it would come up in the discussion upon resolution No 2, that, namely, "approving generally the principles of the Constitutional Committee's report" Before my motion was reached, however the discussion upon that resolution was abruptly closured, the resolution was put to the meeting at once and it was carried Thus, no opportunity was afforded for discussing a principle which the chairman of the Constitutional Committee Mr Edmund Owen, in his speech proposing the reception of their report, said he thought was the "crux" of the whole matter

I am, Sirs, yours faithfully.

JOHN INCE, M D St And, Major I M S (retired)
Swanley, August 11th 1901

Action for Damages against a Medical Practitioner.

At the Glamorganshire Assizes held on August 5th, before Mr. Justice Grantham, a collier of Merthyr Tydvil sought to recover £60 11*s.* 10*d.* damages from Mr. J. L. W. Ward, J.P., a surgeon of the same town. Evidence showed that the plaintiff whilst at his work sustained a fracture of the left forearm for which he was attended by Mr. Ward. Fibrous union resulted and eventually an operation was performed by Mr. R. Jones of Liverpool. This gentleman in giving evidence stated that there was no negligence on the part of Mr. Ward. The jury interposed before the defence was finished and returned a verdict for the defendant. Judgment was given accordingly with costs.

The Vaccination Act.

From July 1st to Dec. 31st, 1900, 4440 births were registered in the city of Bristol; of these 2292 children were successfully vaccinated, 10 were insusceptible, in 120 cases there were conscientious objections, 511 died unvaccinated, in 180 cases vaccination was medically postponed, 101 removed to other districts, 331 removed to places unknown, and 895 cases were unaccounted for. In the Frome (Somerset) Union for the second six months of 1900, 230 births were registered and 160 of these were successfully vaccinated.

Phthisis in Wiltshire.

The annual report of the medical officer of health of Wiltshire (Mr. J. Tubb-Thomas) which has been recently issued shows that during 1900 285 deaths were attributed to phthisis, 119 of which were registered in urban and 166 in rural districts. 374 deaths were due to consumption and the various forms of tuberculous disease, giving a death-rate of 1·37 per 1000. The deaths from tuberculous diseases were equal to 9·42 per cent. for all causes, the rate for England and Wales for 1899 being 10·4 per cent. The report adds that the voluntary notification of consumption has been adopted in two or three districts in Wiltshire and a number of medical officers have recommended its introduction. Mr. Tubb-Thomas remarks that where voluntary notification was adopted he offered free of all expense to examine sputa for the bacillus tuberculosis from cases notified and to provide suitable outfits. He has already examined between 40 and 50 specimens of sputa.

August 13th.

SCOTLAND.

(From our own Correspondents.)

Glasgow Health Report.

Dr. A. K. Chalmers has just issued a report giving details of the health and vital statistics of the city for the years 1899 and 1900. In the statement of the death-rate figures are given to show that this has undergone a progressive decline from 24·2 per 1000 in 1881–90 to 21·9 in 1891–97 and 20·6 in 1898–1900. The number of infants dying under one year of age in 1899 was 3686, and in 1900 it was 3733, representing a mortality per 1000 born of 152 and 153 respectively. The mortality in this particular class varies widely in different districts of the city, ranging from 1 in 13 born in Hillhead and Pollokshields to 1 in 5 in Gorbals and Cowcaddens. The analysis shows that the infantile death-rate is increasing in the suburban districts, and Dr. Chalmers suggests that the greater tendency to have recourse to artificial feeding as a substitute for natural nursing may possibly be an influence helping to explain this fact. The cases of infectious disease registered during 1899 numbered 17,833, and in 1900 the total was 16,684. The deaths from the principal zymotic diseases in 1899 were 2296, and in 1900 (including seven deaths from plague and one from anthrax) they were 2277. In June, 1899, a patient was admitted to hospital with small-pox; the man had arrived in the city some 12 days previously, having travelled overland from Marseilles. He had sickened two days before admission, the disease was promptly recognised, the patient was at once sent to the hospital, and there were no secondary cases. The account of the small-pox epidemic which commenced in May, 1900, is to be issued as a special report and will present a very different picture from that just defined. The disease was introduced by a seaman in April. Though the man had small-pox in a confluent form no medical man was consulted until the end of the second week, the patient during the interval being confined to bed in a one-apartment house with one and sometimes two lodgers, and receiving visitors who appear to have been frequently of a convivial turn. That was the earliest scene in an epidemic which before the end of the year had sent 397 cases into hospital and had caused 41 deaths, these numbers being much more than doubled before the outbreak was finally checked in the spring of 1901. Some other figures of interest in the report are—6606 cases of measles in 1900, with 461 deaths; 4162 cases of scarlet fever, with 210 deaths; 540 cases of diphtheria, with 125 deaths; 1013 cases of enteric fever, with 158 deaths; and 72 cases of typhus fever, with 17 deaths. The deaths registered as due to phthisis in 1899 were 1383, and the figures for 1900 were 1418. In the chief sanitary inspector's report a full account is given of the measures of visitation, inspection, disinfection, &c., entailed by the outbreaks of plague and small-pox, and it is intimated that if the increasing demands on the department are to be met adequately there must be some additions to the staff and a re-distribution of the sanitary districts of the city.

The Eyesight of School Children.

In the general statement for 1900 recently issued by Mr. A. E. Scougal, M.A., one of His Majesty's chief inspectors for schools in Scotland, attention is drawn to a report on the examination of school children's eyes drawn up by Miss Marion Gilchrist, M.B., C.M. This report deals with the results of an examination of 588 children in two of the schools under the Govan School Board. Miss Gilchrist found that only 55·6 per cent. of the children examined had "full vision," and that of these there were only 21·4 per cent. who could be described as emmetropic, the others being more or less hypermetropic or astigmatic. Of the 44·4 per cent. of the whole who had only "partial vision," 46·3 per cent. had "less than a half of full vision," and that "nearly all" of those with partial vision complained of headaches and pain in the eyes on reading. One of the head masters, after examining the lists of names sent in by Miss Gilchrist, states the following facts: (1) the greater number of the worst cases of defective eyesight are to be found in the lower division of each standard; (2) of the children who have been kept two years in the same standard almost all those were marked "very defective" in eyesight; (3) very defective eyesight means bad spelling, poor reading, and inaccurate arithmetic; and (4) where good spectacles have been fitted there has been marked improvement in the quantity and quality of the work done. On the basis of these facts the inspector draws attention to the faulty incidence of the light which in many schools is calculated to injure the eyesight, or at least to aggravate the disabilities of children suffering from refractive errors.

Caledonian Medical Society.

The annual dinner of this society was held in Glasgow on August 9th, the chair being taken by Dr. Cameron Gillies. The toast of the evening was proposed by Sir Hector Cameron, who described the objects of the society as three in number. In the first place, it was animated by a patriotic desire to maintain and to extend the knowledge of Celtic traditions, both literary and medical; secondly, through the medium of its journal and scientific meetings the society cultivated professional culture and excellence; and thirdly, it promoted good fellowship among its members. In replying to the toast Dr. Gillies gave an account of the steps which had been taken to secure the medical lore of the Highlands from oblivion and stated that the membership of the society had now reached a total of 200. Other speakers included Dr. J. P. Tulloch (Trinidad), Dr. D. C. McVail (Glasgow), and Dr. Russell (Edinburgh).

August 13th.

IRELAND.

(From our own Correspondents.)

The Irish Workhouse Infirmaries.

The duties of the medical officers of the workhouse infirmaries of Ireland have been increased and their responsibilities widened by a recent and amended order of the Local Government Board. It will be remembered that the original order of the Board in reference to the appointment of assistant officers provided that the boards of guardians should appoint all such and so many assistant officers as the Local Government Board should deem necessary. Nineteen of the boards of guardians appealed and in last May the matter came before the judicial committee sitting in Dublin Castle. After receiving the evidence of many authorities including the President of the Royal College of Surgeons in Ireland, Sir Francis Cruise, Sir George O'Farrell, Sir William Thomson, with others, and after a prolonged investigation, during which the Local Government Board proved beyond question the necessity for their interference with the state of things which prevailed in connexion with the nursing in many of the infirmaries, the council stated that they would advise His Excellency that the order as it stood should be disallowed, but that a rule or order making provision for better nursing was required. A new order with that as its chief object has accordingly been issued and is now in force all over Ireland. By it the medical officer is placed in control of the infirmary and nursing staff, the latter being no longer under the supervision of the matron and being subordinate to the master only for general disciplinary control. "The management of the sick wards under the guardians will be in the hands of the medical officer, to whom the guardians should look for the satisfactory condition of their infirmary and hospital."

Belfast Water Commissioners.

Dr. John Barron after a contested election has been elected a member of the Belfast Water Board. The two planks in his election platform were, first that there was no medical man on this important board, and, secondly, that in reference to the epidemic of typhoid fever he considered that it was due to the state of the subsoil, which owing to bad sanitary arrangements is permeated with the germs of the disease which after dry weather get disseminated and so give rise to epidemics of typhoid fever.

Queen's College, Belfast.

From the report of the President of Queen's College, Belfast, for 1900–1901 it appears that there was an increase in the freshmen of 16, the muster being 115, and there was in the total number of students in all faculties, an increase of 12 over the numbers of the previous year. In the medical faculty there was an increase of 12. Reference is made to the honours gained by students and to the college equipment scheme, to which attention has been drawn several times in THE LANCET.

County Armagh Asylum.

At a meeting of the committee of management of this asylum, held on August 12th, a communication was submitted from the Local Government Board auditor stating that he would be glad to know that the members of committee who had been surcharged in respect of luncheons had agreed to pay for same and he requested to be informed when this had been done so that the amounts might be struck off.

The Local Government Board in Ireland.

There can be no doubt that the general feeling in Ireland against the Local Government Board is increasing. That body are anxious that the Bragan and Glasslough dispensary districts in Monaghan should be amalgamated, but the Monaghan Board of Guardians are resisting on the ground especially that the poor may receive proper treatment. At the meeting of the Monaghan Guardians held on August 12th, the following resolution was passed:—

> That we, the Monaghan Board of Guardians, assembled in meeting summoned by special notice to consider the amalgamation of Bragan and Glasslough dispensary districts, desire to record our most emphatic disapproval of the arbitrary action of the Local Government Board in placing an obstacle in the way when all arrangements for a final and satisfactory settlement of the question had been made by the board. As our arrangement had met with the approval of both the people of those districts and Dr. Stewart we can come to no other conclusion but that the Local Government Board (by their letter of the 2nd inst.) desire to coerce this Board into accepting a system which if allowed to continue would end with disaster to the poor of those districts.

A meeting of representatives from all public bodies in Ulster is to be held in Monaghan on Oct. 26th "for the purpose of taking steps to have the powers of the Local Government Board curtailed, so that the efforts of boards of guardians and councils throughout the country can no longer be vetoed by a body of paid servants who were ignorant of the duties which the people's representatives were proud to discharge without fear or reward."

Belfast District Asylums.

On August 12th there were in the Belfast Asylum 708 inmates (337 males and 371 females), at Purdysburn 149 (109 males and 40 females), and at Ballymena annexe 61 (10 males and 51 females), making a grand total of 917 (455 males and 462 females).

Liverpool Port Sanitary Authority.

Dr. William Hanna, an old student of the Belfast Medical School, has been appointed assistant medical officer of the Port of Liverpool. Dr. Hanna, after a brilliant university career, studied at Berlin and at Cambridge, and was three years on plague duty in India, where he was engaged at the Government Research Laboratory, Bombay. He has had a thoroughly practical training in bacteriology and pathology, knowledge of which is so necessary now for public health officers.

August 13th.

PARIS

(FROM OUR OWN CORRESPONDENT.)

The Quarantine Station at Marseilles.

I HAVE already mentioned[1] in a former letter the arrival at Marseilles of a vessel declared to have cases of plague on board. This naturally produced a feeling of alarm which has now completely subsided, and from the reports of the passengers who have undergone quarantine the public are beginning to have a better comprehension of the course of events. In the first place there appears to be a doubt as to whether the disease was really plague. Medical men of the colonial service, thoroughly acquainted with the special bacteriology of the subject, assert that the bacilli found in the patients by the medical officers of the sanitary service were not the real plague bacilli of Yersin. Moreover, it is necessary to remark that the disease attacked only the Arab stokers shipped at Djibouti and did not affect either the Europeans shipped along with them before their isolation or even the Chinese whose special liability to plague is well known. Passing to another aspect of the question the passengers have described with much bitterness the defective accommodation provided for them in the lazaret where they remained for 10 days. The buildings are handsome and large, but the internal arrangements are faulty in many respects. There are only 24 bedrooms and one general dining-room for the use of all classes of passengers. The bedrooms are not kept in good order, which is explained by the fact that there is only one female servant to attend to them. The neglect of cleanliness is the same as in all the hotels of the south of France, first class establishments alone excepted. The supply of medicines is also insufficient; a patient suffering from diarrhœa could only obtain a little bismuth at the end of three days notwithstanding repeated requests. Although the heat was intense the passengers were supplied with ice only once in 10 days. The place would be quite inadequate for the reception of a number of persons or in the event of a serious epidemic, and it is to be hoped that this false alarm will render a service by drawing the attention of the authorities to its defects.

Hospital Ships for Fishermen.

The Société Française des Œuvres de Mer (French Seamen's Aid Society) has had two special steamers built, the *St. François d'Assise* and the *Saint Pierre*, fitted up in accordance with the latest requirements of sanitary science and used as hospital ships and centres of medical aid for the numerous fishermen who go every year either to the Banks of Newfoundland or to Iceland. These two vessels have rendered valuable services to those men who are careless as regards their health although exposed to diseases of every kind and liable to injuries in connexion with their surroundings and their occupation. The *St. François d'Assise*, which went on its first voyage this year, has made three visits to the Banks of Newfoundland and one to the French Shore. It has been able to relieve much suffering, to pick up men lost at sea on floating wreckage, and in one week of June 25 patients from the fishing boats were provided with beds in the hospital on board. The medical officer and the chaplain went on board numerous boats, rendering aid and treating patients; they also gave their services to vessels of other nationalities, as is provided for by the regulations of the society. This vessel carries a disinfecting stove which was capable of completely disinfecting a ship of war on board of which an epidemic of measles had broken out. The *Saint*

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[1] THE LANCET, July 2[illegible]th, 1901, p. [illegible]

Pierre, which has been on the Iceland station, has had to encounter terrible storms; it is the second vessel of this name sent there by the society, the first having been lost at sea. It is safe and sound up to now, although the weather has been exceptionally bad, for as many as 147 men are reckoned as having perished this year. Apart from this great mortality due to vessels being lost it is ascertained that, thanks to the presence of the *Saint Pierre*, the sanitary conditions of the fishing fleet have this year been better than ever. The medical officer has had to perform numerous small surgical operations, some Icelanders being among the patients. At the places where the vessel puts in it is welcomed by the population and it has even been exempted from harbour dues.

The Hospital at Djibouti.

The announcement of the closing of the hospital at Djibouti has occasioned much regret. It rendered most valuable services to the numerous French ships which call at this port either entering or coming out of the Red Sea. It is true that the hospital was erected as a temporary measure and was not supported by the Government; it owed its existence to a private undertaking for the carrying out of extensive public works and had to be closed because sufficient funds could not be devoted to it; it had only been erected as temporary ambulance premises for the reception of sick workmen. Nevertheless, from its position on the track of steamers bringing home invalids from Madagascar and from the French colonies in Asia it rendered very great services. Since it has been closed patients have died on shipboard in the Red Sea who might probably have been saved if they could have been landed at Djibouti. The entire press, both medical and political, are strongly urging that the Minister for the Colonies should not only re-open the hospital but should create at the place an important sanitary centre such as the circumstances require.

Mosquitoes in Paris.

M. Blanchard has again brought this subject before the Academy of Medicine by reading a valuable report of a commission appointed to inquire into the means of freeing the city from these unwelcome visitors which become more numerous every year during the hot weather. Although the insects of this description found in Paris belong to the genus culex and are not the anopheles which conveys the malaria parasite, it is not unreasonable to suppose that members of the genus culex may transmit some infectious diseases the method of propagation of which is not yet fully explained. Moreover, although the anopheles has not yet been met with, there is no ground for asserting that it may not exist in small numbers unobserved in the predominant mass, or even that it may not come to be acclimatised in Paris some day, since it is known that this kind lives as well in cold countries as in hot. Without a doubt it has recently been found at Chantilly. Three years ago M. Mosny reported a case in point. The patient was a young girl who had never been out of Paris in her life and who was attacked, to all appearance spontaneously, with well-marked malarial symptoms. It was during the mosquito season, and a young soldier from the colonies suffering from intermittent fever had recently come to live in an adjoining portion of the same house. Among the diseases capable of being transmitted by mosquito-bites M. Blanchard enumerated malaria, yellow fever, and filariasis, and he asked if it was not now time to include leprosy in the list. The mode of transmission of this disease has always remained unknown, but numerous facts are in favour of the mosquito hypothesis. Contagion conveyed by mosquito-bites inflicted indoors at night would explain many facts which have hitherto remained incomprehensible, such as the propagation of leprosy in certain families of street-hawkers in Constantinople, families in which Zambaco Pasha has even believed that the disease must be regarded as hereditary, whilst the other inhabitants of the city escape. The circumstance that these people live together in the same neighbourhoods, taking into account also the mosquitoes in the houses, would account for the observed facts better than a hypothetical heredity would. M. Chantemesse upheld the views of M. Blanchard and quoted several illustrative instances. He cited the case of the medical men attending the leper asylum at San Remo who have never contracted leprosy although they are in very close contact with the patients whom they treat by massage of the skin. The explanation given by M. Chantemesse was that the medical men never sleep in the establishment and leave it before night comes on. He also mentioned the case of a young shepherd in the environs of Nice who contracted leprosy from having several times passed the night in a deserted hut which a leper had occupied and in which he had died. He then described the case of a young man who had spent several weeks in a visit to the same part of the country and who became leprous in consequence of relations which he had with a young girl of the place, who was not herself a leper, but there were lepers in her family, and the young man had several times passed the night in her house. The Academy, after hearing M. Blanchard's report, decided to recommend to the Government the prophylactic measures proposed therein. Their principal feature was the getting rid of the stagnant water of which there is so much in Paris, as it is a resort of the mosquitoes when laying their eggs. Of this kind are the sheets of water in the public and private gardens, various pools, the unemptied public water-carts, the reservoirs belonging to manufacturing establishments, &c. The Academy proposes that these reservoirs should be covered over and that the ponds in the public gardens should be supplied with running water; in the event of this latter precaution being impossible a little petroleum should be put on the water every fortnight from the beginning of spring to the end of autumn. Lastly, the water-carts ought to be completely emptied when they return to their yards and should not be refilled until they are going to be used. The water-carts are not to be disregarded in connexion with the breeding of mosquitoes, for the insects find in them the two conditions most favourable for their reproduction—namely, moisture and darkness. In one of these carts as many as 17,000,000 larvæ of mosquitoes have been found.

August 12th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

The Late Empress Frederick.

THE lamented death of the Empress Frederick recalls the sad days of the long illness of her husband the late Emperor Frederick. Although the nature of the malady to which the Empress succumbed has not been officially announced it is known that she suffered from cancer of the kidney; the medical bulletin issued two days before her death only stated that "the disease had attacked the internal organs." The illness of the Empress dated from about two years ago and is said in a daily paper to have been the sequel of an accident sustained whilst riding. The malignant growth caused severe pain with occasional exacerbations so intense that according to current report the cries of the patient could be heard for some distance. Notwithstanding her weakness she was able to take carriage exercise in the grounds of her residence at Friedrichshof until last spring, when her condition became hopeless. For the past two months morphia was administered freely. The medical attendant of the Empress was Dr. Spielhagen of Cronberg, and Professor Renvers of Berlin came frequently as a consultant. Both of these gentlemen were present at the closing scene and received the thanks of the Imperial family for their devoted services. The death of Her Majesty will be deplored by many charitable institutions which were favoured with her patronage. In Berlin she founded the Victoria House, an institution for the training of nurses and for the supply of trained nurses to hospitals and families; English methods are followed, and during the first year of its existence the nurses received their training in London hospitals until the requisite arrangements could be made in Berlin. Other institutions which owed their origin to the late Empress were the Emperor and Empress Frederick Hospital for Children, the Association for the Promotion of Domestic Hygiene (Verein für Häusliche Gesundheitspflege), and the Association for Providing Country Holidays (Ferien Colonien) for Poor Children. The *Deutsche Medicinische Wochenschrift*, after paying due tribute to the conspicuous merits of the late Empress, observes that it was by a singular fate that both husband and wife suffered from malignant diseases and that neither of them had the opportunity of benefiting by an early operation.

Alleged Discovery of Cancer Organisms.

Professor Schüller, whose preliminary announcement relative to his researches on carcinoma and syphilis has already been mentioned in THE LANCET of May 26th, 1900, p. 1551, recently published a detailed description of his work It will be remembered that Professor Schüller claimed to have discovered characteristic corpuscles in malignant growths They were said to be round or oval, their size being three times that of the red blood corpuscles and their colour being golden-yellow or brownish, they had a refracting light-coloured capsule and a protoplasm of a darker tinge. These objects were found by Professor Schüller in every specimen of sarcoma and carcinoma, he also made cultures, the tissue of the growth itself being used as the culture medium, the cultures appeared as gray droplets consisting of bodies of the nature above described The first communication, which appeared in the *Centralblatt für Bacteriologie* was comparatively little discussed, notwithstanding the great importance of any discovery relating to the etiology of cancer, but Professor Schüller's second contribution caused a great sensation not so much in medical circles as among the general public The subject found its way into the daily newspapers which published articles with such headings as "The Etiology of Carcinoma," &c, interviewers made their appearance and notwithstanding the attitude of reserve maintained by eminent men the public supposed that the question of the etiology of cancer was definitely settled Professor Schüller's discovery has not up to the present time been verified by any other pathologist although the details of the process followed by him are comparatively simple, and Dr Volker of Heidelberg, assistant to Professor Czerny, has recently made a remarkable communication to the *Deutsche Medicinische Wochenschrift* He states that although he has examined numerous specimens of cancer tissue, both fresh and preserved in alcohol, he has failed to find parasites like those described by Professor Schüller, but by accident he at last discovered what these parasites might perhaps be A specimen on being cleared with a drop of oil of bergamot taken from a corked bottle showed the characteristic capsules in great masses, which it turned out were contained in the oil and occurred most abundantly at the bottom of the bottle According to Dr Volker the supposed parasites are in reality cork cells disintegrated by the oil. In a specimen sent to him by Professor Schüller he found that the alleged organisms were to all appearance identical with the cork cells, and he is therefore of opinion that these bodies have nothing to do with cancer, but are derived from an accidental admixture with the oil used in the preparation of the specimen It will be interesting to know what answer Professor Schüller will make

Professor Koch's Views on Tuberculosis

The *Berliner Korrespondenz*, one of the official organs of the Government, in a reference to the British Congress on Tuberculosis states that Professor Koch explained his views a few weeks ago before a commission at the Imperial Health Office, and that it was resolved that the experiments should be continued on some of the larger animals, such as cattle pigs and sheep the expense being borne by the Government Meanwhile, till the experiments are concluded, the official paper goes on to say, the public are advised to continue to sterilise milk by the application of heat and not to relax any of the precautions which have hitherto been recommended

August 12th

NEW YORK

(FROM OUR OWN CORRESPONDENT.)

Bellevue Hospital

THE scandals which have occurred at Bellevue Hospital during the past year and the publicity given to these in the medical and lay press have had the good effect of drawing the attention of the citizens of New York to the management and construction of its public hospitals and especially to the most important—Bellevue The State Board of Charities at its monthly meeting on July 10th recommended the abandonment of the present Bellevue Hospital buildings and the construction of new and modern buildings. That this recommendation is well warranted by the circumstances of the case will be better appreciated when it is said that the present main building of Bellevue was built 100 years ago for an almshouse The greater portion of the other hospital buildings is inconveniently situated and ill adapted to the work carried on therein. The board adopted the following resolutions —

> Whereas the State Board of Charities having in view the fact that the demands upon Bellevue Hospital are greater than upon any other hospital in this country and its frequent and thorough inspections having convinced the board that the main buildings of the said hospital are too old and ill-adapted to their purposes to be sufficient to meet the proper demands of the service and being also convinced that the only remedy for present conditions is in a new hospital it is therefore resolved that the authorities of the City of New York are hereby urged favourably to consider the subject of a new and modern hospital to take the place of Bellevue as soon as possible It is further resolved that in the opinion of this board the [illegible] satisfactory help may be retained

It has long been notorious that in addition to the antiquity, incongruity, and inconvenience of the buildings constituting Bellevue Hospital, the accommodation is wofully insufficient Last year 25 000 patients were treated in the institution this being 3000 more than in all the other large hospitals combined It is consequently to be hoped that the city authorities may see fit to give ear to and to adopt the recommendations of the State Board of Charities and that a public hospital may be erected more in keeping with the wealth and intelligence of the citizens of New York than the present ramshackle pile known as Bellevue Hospital

Craig Colony for Epileptics

The annual report of this useful institution has just been published and shows that the system suggested by Dr Frederick Peterson has fully answered the anticipations of its founders Dr Frederick Peterson first mentioned the colony system in America in an article which he published in the *New York Medical Record* in 1887 After the appearance of Dr Peterson's article, the State Charities Aid Association took up the matter this example being followed by the State Board of Charities By the aid of this influential backing a Bill was introduced into the legislature of New York State and after some delay it was passed and was signed by the Governor The report for the past year tells of the rapid and satisfactory progress which the colony has made there was an increase of 340 admissions during the year In the same period there were 106 discharges, deaths or transfers to other institutions some of the colonists being insane some of them not fit subjects mentally for the colony The death rate was low A very large number of colonists were improved to the extent that they were able to return to their own homes and to take up some vocation A point of particular interest in the report is the susceptibility to tuberculosis evinced by the inhabitants of the colony Out of 612 colonists there are now 36 patients suffering from tuberculosis The proposal is made to erect perfectly plain wooden houses, a single storey in height, with plenty of glass in them, with large steam heated sun rooms and plenty of ventilation for the effective isolation of those suffering from pulmonary affections It is further proposed that these buildings should be made so plain and inexpensive that in 12 or 15 years or as soon as they become saturated with disease germs they may be destroyed and others may be constructed A complete pathological and chemical laboratory is also to be established and equipped for the purpose of investigating the pathology and etiology of epilepsy The objects for which the colony was founded are stated in the report to be as follows 1 To treat epilepsy by all the best means known to science and to cure the epileptic if possible 2. To be a home always for those who cannot be cured or as long as they require it 3. To educate in a practical useful and simple way all those who seek its benefits so that they may be able to help themselves These results have been already so successfully attained that the *raison d'être* of the colony has been plainly demonstrated.

The Leper Question in the United States

A commission consisting of Surgeon J H White and Assistant Surgeon G Vaughan and Assistant Surgeon M J Rosenau has been working under the direction of the Surgeon General of the Marine Hospital Service since 1899 making an investigation of the extent to which leprosy prevails in America Although the Surgeon General is not yet ready to publish the results of this enumeration sufficient evidence has been collected to point to the existence of at least 1000 cases of leprosy in the United States, mostly among immigrants and enough to warrant strong recommendations for their segregation. It is said that there are 100 cases, probably more, in New Orleans; in New York seven cases have been reported, in San Francisco 15, and in Chicago three. Dr. Albert S. Ashmead of New York takes a much more serious view of the situation and is of the opinion that leprosy is unquestionably spreading in the United States, and that 5000 is a conservative estimate of the number of persons suffering from the disease in the country. It is thought that the commissioners will almost certainly recommend to Congress, in their preliminary report to be published in December, that national lazarettos should be established in several parts of the country. The commissioners, however, take the view that notwithstanding the widespread distribution of leprosy in the United States and the increase of the disease within the past few years, there is but small cause for alarm. They declare themselves convinced that the malady is neither so deadly nor so readily communicated by contagion or infection or association as tuberculosis. Dr. Ashmead, on the other hand, believes that it may be communicated by physical contact. The relative contagiousness of leprosy is, however, still a moot point; that it is so to a certain degree is generally acknowledged and the plan proposed by the United States Commission should, it would seem, act as an effective check to its spread.

August 6th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

The Outbreak of Small-pox.

THE outbreak of small-pox introduced into the Southern States by the R.M.S. *Ormuz* is gradually declining. The patient who contracted the disease at Perth after boarding the vessel died, as did a passenger from Perth to Adelaide who contracted it on the voyage. A niece of this patient who attended him, although successfully vaccinated, has been severely attacked. There are still 40 people quarantined at Adelaide and these *détenus* are getting up a petition to the Government pointing out what they consider glaring instances of mal-administration on the part of the Health Department. They allege that an inspector of the department was sent to Torrens Island (the quarantine station) to superintend the interment of the fatal case. He returned without taking any precautions against infection, while the officiating clergyman and undertaker had to be disinfected and fumigated. Two of the caterer's employés have been released from quarantine before they had undergone the full period, and although in actual contact with the fatal case; and another person was released on the ground that his mother had suffered from small-pox. Two of the nurses at the Torrens Island quarantine station have contracted the disease. At Melbourne a passenger from Fremantle who was infected on the voyage has died and the body was cremated. In Sydney a quarantined passenger on the *Ormuz* refused several times to be vaccinated and has been attacked by small-pox. Owing to the occurrence of this case 20 days after the last case was reported the Health Department is considering the advisability of detaining the persons still in quarantine for further periods. The practice hitherto has been to allow successfully vaccinated persons to be released at the end of 15 days from the date of the last recorded case, and those unsuccessfully vaccinated, or refusing to undergo the operation, at the expiration of 21 days. In some cases, however, persons coming under the second category have been released at the expiration of 15 days. This will not be permitted in future, and the 50 persons still in quarantine will be kept there for a further term of 21 days. A patient who contracted small-pox in Sydney has died. The Health Department of New South Wales report having satisfactorily established the connexion between the cases that arrived by the s.s. *Chingta* and those which occurred at North Sydney, thus removing the fear that the disease had got an independent hold in the city. In Queensland no cases have occurred and a proclamation has been issued directing persons crossing the border to undergo examination by the health officer and to furnish their names and addresses.

The Plague.

Two further cases of plague—one fatal—have occurred in Brisbane. It is over a month since a case occurred in any of the other states, and the Board of Public Health in Victoria has removed the restrictions on inter-state shipping in connexion with plague. The medical inspection will be dispensed with and the bathing regulations will not be enforced. The restrictions on shipping from plague-infected over-sea ports will be maintained. The Board will continue its policy of rat-destruction.

Plans of the Proposed Hospital for North Sydney.

Competitive designs for the new hospital for North Sydney were invited by the committee and the first premium of £100 has been awarded to Mr. A. E. Shervey. The complete design provides for a hospital containing 200 beds arranged in 13 blocks, with ample accessory accommodation, at a cost of £50,000. It is proposed to erect a portion containing 48 beds for £10,000, including two main wards, on the pavilion plan, each containing 20 beds, two isolation wards, and an infectious ward of four beds, with administration block, operating theatre, and mortuary. The buildings are to be in brick, with stone dressings in Renaissance style, fireproof, and the walls finished with Keen's cement. Ventilation is to be by the Tobin system, with an exhaust fan to carry all vitiated air through ventilators in sanitary towers placed over each building. The pavilions are on an axial line bearing north north-east, so that all sides will have the sun, and are also arranged so as to provide for economy in administration.

Private Hospitals.

Few cities are so amply provided with private hospitals as is Melbourne in proportion to population. There are nearly a dozen in the city itself kept by nurses, while five others are owned and conducted by surgeons themselves exclusively for their own patients. In many of the suburbs also there is a private hospital, generally carried on by a nurse, sometimes by a medical man. The Board of Health has been considering the advisability of regulating these establishments more stringently, and a comprehensive code was recently drawn up, though it has not yet been formally adopted. The regulations refer chiefly to the provision of means of escape in case of fire and the construction of the buildings.

A Second Officer of Health for Sydney.

It has been recommended that a second officer of health should be appointed in Sydney, and it is likely to be carried into effect, and that Dr. F. Stokes, D.P.H., will be appointed. Dr. Stokes is a graduate of Sydney University who has recently returned from England, where he made sanitary science a special study.

The Australian Natives' Association and the Medical Profession in New South Wales.

At the first annual conference of the New South Wales Australian Natives' Association, held in Sydney, a motion was carried to the effect that the various friendly societies should be communicated with and asked to join the association in issuing a circular to Members of Parliament requesting them to support future legislation dealing with the *compulsory* consultation of medical practitioners. This resolution was the outcome of the refusal of the New South Wales branch of the British Medical Association to conform to certain requests of the Australian Natives' Association.

Medical Students' Fees at Melbourne.

At a recent meeting of the Council of the Melbourne University a letter was read from the Medical Students' Society drawing the attention of the Council to the fact that the cost of medical education at the Melbourne University was now £20 more than that at Sydney University, and requesting that it might be diminished. It was pointed out that the increase was due to the action of the committee of the Melbourne Hospital in raising the fees there from £5 5*s*. for the whole course to £5 5*s*. a year. It was finally decided to invite the president of the hospital to join a deputation from the council of the university to the Chief Secretary to see if the matter could not be adjusted.

Peculiar Suicide of a Medical Man.

On June 24th a medical practitioner named Thomas Henry O'Reilly committed suicide in an unusual manner—viz., by opening his femoral artery with the point of a safety-pin and bleeding to death. Dr. O'Reilly had been practising at Huntley, near Christchurch, New Zealand, and then travelled for a time as medical attendant to a patient of unsound mind. He then began to suffer from depression of mind and mental symptoms similar to those of his patient and came to Sydney for the benefit of his health. While staying at the

Metropole Hotel he was found with a rifle pointed at his heart and his toe on the trigger and he voluntarily said that it would be well if he were placed under restraint. He was accordingly taken to the police-station and during the night committed the act mentioned.

Serious Charge against a Medical Man.

On June 14th Frederick William Marshall, a medical practitioner residing in Sydney, was committed for trial on a charge of procuring criminal abortion. He had been attending a girl who was subsequently admitted to the Prince Alfred Hospital with septic peritonitis after an abortion, and who, though she eventually recovered, when in a serious condition made a dying deposition concerning Dr. Marshall and identified him when he was brought to her bedside.

Treatment of Cancer.

In the *Intercolonial Medical Journal* for June is a paper by Mr. J. H. Webb on the Nature and Treatment of Cancer which contains some novel suggestions. He regards cancer as due to chemical changes in glandular secretions which control the proliferation of cells, just as myxœdema is regulated by the thyroid secretion. The gland secretion chiefly at fault in cancer, Mr. Webb maintains, is bile, and the constituent of the bile that is wanting is soap, which holds cholesterin in solution. He therefore advises the use of soap, injected hypodermically near the disease, and also administers thyroid gland extract, which he maintains affects the fibre constituent of cancer as the soap affects the cells.

Antidotes to Cyanide Poisoning.

In the same number of the *Intercolonial Medical Journal* is an interesting communication containing the results of a number of careful experiments conducted at the Physiological Laboratory of the Melbourne University by Dr. C. J. Martin and Mr. R. A. O'Brien, to determine the value of peroxide of hydrogen, chloride of cobalt, and ferrous hydrate as antidotes in poisoning by cyanide of potassium. They conclude that while peroxide of hydrogen completely destroys prussic acid in time it is essentially a slow reaction, and fails for this reason as an antidote, which must act rapidly. Cobalt salts dispose of the prussic acid instantaneously, and in the presence of such amounts of hydrochloric acid as occur in the gastric contents, but the cobalt salts are themselves poisonous, and in order to ensure rapid conversion of potassium cyanide into insoluble cobalt cyanide a considerable excess of cobalt chloride must be taken, enough to produce dangerous or even fatal symptoms. Ferrous salts administered with sufficient alkali are as efficacious as cobalt salts, but possess two disadvantages—the difficulty of keeping them in solution and the absolute necessity of neutralising the acidity of the stomach contents. This can best be effected by the simultaneous administration of magnesium oxide. It is suggested that in mines and places where cyanide is used and opportunities for accidental poisoning occur the necessary antidotes should be kept ready, and the following are recommended: (1) one ounce of 23 per cent. solution of ferrous sulphate; (2) one ounce of 5 per cent. solution of caustic potash, in hermetically sealed tubes, which can be broken into a receptacle; and (3) 30 grains of powdered magnesium oxide, to be added to above in half a pint of water.

July 4th.

Obituary.

RICHARD CHARLES SHETTLE, M.D. ST. AND., M.R.C.S. ENG., L.S.A. LOND.

DR. SHETTLE died at his residence, Carlton Lodge, Nailsworth, Gloucestershire, on July 21st, aged 77 years. He received his medical education at St. George's Hospital and qualified M.R.C.S Eng. in 1846 and L.S.A. in 1847. He then became house surgeon at the Dorset County Hospital, eventually entering into general practice at Donhead, Wiltshire, when he was appointed medical officer to the Tisbury Union; subsequently he removed to Cann, near Shaftesbury, Dorsetshire. In 1858 he obtained the M.D. of St. Andrews University and wishing to relinquish general practice and to devote more time to scientific pursuits he, on the death of Dr. Cowan in 1863, removed to Reading and was appointed physician to the Royal Berkshire Hospital. Subsequently he was appointed medical referee to the National Hospital for Consumption at Ventnor, consulting physician to the Midland Counties Home for Incurables, the Berkshire Friendly Societies, and the Reading Dispensary. He was for some time President of the Reading Pathological Society and besides reading many papers on clinical and pathological subjects before this society contributed papers on the Pathology of Insanity, and Hypnotism, its Nature and its Cause, and whilst conscientiously meeting the claims of patients he experimented much and continuously in the field of electricity and magnetism. His earliest paper, on Electricity as the Principle causing the Vitality and Coagulating Property of the Blood, was written when in general practice and was published in THE LANCET of August 29th (p. 244) and Sept. 12th (p. 304), 1863. From the numerous papers that he published on this subject mention may be made of Experiments showing the Paramagnetic Condition of Arterial Blood as compared with the Diamagnetic Condition of Venous Blood and a New Method of Investigating the Magnetic Lines of Force in Magnets, both being read before the Royal Society and published in its proceedings, and of several letters on the Physiology of Death by Electric Shock, published in THE LANCET of Sept. 14th (p. 694), 28th, (p. 809), and Nov. 23rd (p. 1323), 1895. He also read a paper on the Cattle Murrain before the British Association in 1865. Besides his professional and scientific work he found time for other pursuits and was elected chairman of the Reading School of Science and Art on the death of Dr. Wells, and he took much interest in the founding of the Reading College (of which body he was a governor), contributing liberally to its physical laboratory. He was also a life member of the Victorian Institute and Physical Society of London. He was deeply religious and was highly esteemed by all, and his kind and courteous manner combined with his simple and honourable ways endeared him to all with whom he came into contact. On retiring from practice in 1896 Dr. Shettle was made consulting physician to the Royal Berkshire Hospital, honorary member of the Reading Pathological Society, and was presented by the members of the medical and surgical staff of the hospital at a farewell dinner given by Mr. Oliver Maurice, then senior surgeon, with a pair of silver candlesticks.

He was twice married, and had by his first wife two daughters, one of whom predeceased him; the surviving one is married to the Rev. F. T. Colson, M.A., vicar of St. John's Church, Reading. The funeral took place at Nailsworth, the remains being interred at Amberly. Several people journeyed from Reading to do the last honour and the staff of the hospital sent a wreath. On his death becoming known the flag at the hospital was placed at half mast and remained so until after the funeral.

Medical News.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS AND SURGEONS.—The following gentlemen passed the First Examination of the Board at the July quarterly meeting of the examiners in the subjects indicated:—

Chemistry.—John Henry Dyke Ackland, St. Thomas's Hospital; [illegible] Mary's Hospital; Hugh Lowrie [illegible] stin, Birmingham [illegible] Institute and St. [illegible] Yorkshire College, [illegible] al; John Holdero, [illegible] ur Bright, Gener [illegible] Ronald Andersen [illegible] ery Chamberlain, Cambridge University [illegible]; Horace Charles Colyer, Birkbeck Institute; Eric Alvis Collins and Reginald Branch Dawson, Guy's Hospital; Walter Emery Davies, Owens College, Manchester; Arthur Hubert Davis, St. George's Hospital; Alexander Collingwood Dickson, Cambridge University, Guy's Hospital and Birkbeck Institute; Edmund Michael Dolan, Yorkshire College, Leeds; William Cope Doughty, University College, London; Herbert James Drake, St. Mary's Hospital; Thomas Hugh Edey, Guy's Hospital and Birkbeck Institute; Archibald Finlay and John Eugene Forman, London Hospital; Stanley Elder Gibbs, St. Thomas's Hospital; James Glenny Gibb, Charles George [illegible] Harvey, St. Bartholomew's H[illegible] versity College, Sheffield; Peter [illegible] Manchester; Thomas Reginald [illegible]

Duke Gwynne Howell, St. Thomas's Hospital; Roderick Jackson, University College, Liverpool; Robert Lecky, University College, Bristol; Alfred Vernon Ledger, Guy's Hospital; James [illegible] St. Mary's Hospital; John Ross Lloyd, [illegible], and William Stewart Nealor, St. Bar[illegible] Brian Bentley Metcalfe and Henry [illegible] Hospital; Clayton Conyers Morrell, University College, Liverpool; Richard Denis Neagle, University College, Cardiff, and St. Mary's Hospital; Henry Sandford Ollerhead, St. Mary's Hospital; Jeffery Wimperis Parker, University College of South Wales, Cardiff; Robert Elliot Pitts, Middlesex Hospital; Horace J. D'Arcy Gerrard Price, Birmingham University; Stanislaus Reader, Stonyhurst College, Staffs; Edward Ebenezer Rendle, Guy's Hospital; Felix Stephens Rood, University College, London; Sidney John Rowntree, Birkbeck Institute; John Walter Lennox Scott and Frank Montague Wilson South, Westminster Hospital; Ernest Henry Shaw, St. Bartholomew's Hospital; Hugh Godwin Sherren, London Hospital; Albert Shepperd and Reginald Willan, Guy's Hospital; Charles Ward, Middlesex Hospital; Arthur Christopher Watkin, University College, Aberystwith; Edmund Stanley Whitcombe, Birmingham University; Francis Hugh Ponghill Willis, St. Mary's Hospital; and James Montagu Wyatt, St. Thomas's Hospital.

Pharmacy.—Leonard Ernest Acomb, University College of South Wales, Cardiff; Hugh William Acton, Middlesex Hospital; James Adler and George Bever, London Hospital; Arthur Keith Armstrong, Richard Charles Palmer Berryman and Rowland Alessandro Bowling, St. Bartholomew's Hospital; Thomas St. John Barry and Lawrence Twemlow Booth, University College, Liverpool; Hugh George William Beckett, St. Mary's Hospital; Samuel Landor Benton and John Henry Douglas Bolton, University College, London; Frank Gower Bergin, University College, Bristol; Frederick John Chanter Blackmore, University College, Sheffield; Frederick Richard Bray and Percy Horace Bryant, private study; Albert John Knowles Brayton, Owens College, Manchester, and University College, Liverpool; Wilfrid Buchanan Burr and Edward Cecil Clements, Middlesex Hospital; Sydney Carter and David Kirkpatrick Coutts, St. Thomas's Hospital; Edward Postle Gwyn Causton, Cambridge University and St. Mary's Hospital; Clifford Pendrill Charles and William Rex Collingridge, St. Bartholomew's Hospital; Cyril Thomas Cheatle, King's College, London; John [illegible] ier and Hugh Rose [illegible] College, London; [illegible] ward John Crew, [illegible] University College, Sheffield; Walter C. O. Cornwallis Davies and Ernest Montefiore De Willon, St. Mary's Hospital; Percival Alfred Dingle, St. Bartholomew's Hospital; Alfred Dinnis, Charing-cross Hospital; Edmund Michael Nolan, Yorkshire College, Leeds; Bernard [illegible] St. Thomas's Hospital; Frank Rowe [illegible], London; George Tatham Davison [illegible] and St. Mary's Hospital; Thomas [illegible] Llewellyn Evans, University College of South Wales, Cardiff; George John Eady, Christopher Elliott, Richard Vernon Favell, Charles Henry Fernie, and William Edward Lindsey Fowler, St. Bartholomew's Hospital; George Edward Fritche, Middlesex Hospital; Charles Frederick Fraser and Arthur William Gater, Guy's Hospital; Lawrence George Gibson, London Hospital; Cecil Irving Graham, St. Mary's Hospital; Henry Edwards Griffiths, University College of South Wales, Cardiff; Hugh Evelyn Gotellee and Langton Fuller Hanbury, St. Thomas's Hospital; James Glenny Gibb, Leonard Gray, John Purser Griffin, and Edward William Dacre Hardy, St. Bartholomew's Hospital; Albert Oliver Macarius Heslop, private study; James Gilkinson Higgins, Glasgow University; Sidney-Ernest Holden and Herbert Vawser Humphry, University College, London; William George Hopkins, St. Mary's Hospital; Adrian Russell Fortescue Hubbard, Charing-cross Hospital; Henry Roscoe Ibbotson, Yorkshire College, Leeds; Harold Jacques, London Hospital; William Warwick James, Middlesex Hospital; Aneurin Ernest Jenkins and Thomas Jones Jenkins, University College of South Wales, Cardiff; Thomas Alfred Killby and Henry John Sullings Kimbell, St. Bartholomew's Hospital; George Johnson Langley, St. Thomas's Hospital; Alan Arthur Hinds Lawrence, Cambridge University and University College, London; Arthur Edward Leapingwell, St. Mary's Hospital; William Sherwood Livock and Arthur Harkness MacDonald, London Hospital; Conrad Loddiges, Walter Gerald Loughborough, James Eustace Radclyffe McDonagh and Reginald Charles Pattison McDonagh, St. Bartholomew's Hospital; Walter St. Claire McClure, University College, Sheffield; Frank Derecourt Martyn, Westminster Hospital; George Body Messenger, University College, Liverpool; John Henry Napper, King's College, London; Reginald Cavan Neil, University College, London; Lionel Edward Close Norbury, St. Thomas's Hospital; Douglas Catterall Leyland Orton, Owens College, Manchester; Jeffery Wimperis Parker and Charles Robert Mower Peaty, University College of South Wales, Cardiff; Richard Meynell Pearson, private study; Henry Mallock Prins, University College, London; Philip Alfred Reckless, University College, Sheffield; Edmund Arthur Roberts, King's College, London; Frederick Emilius Roberts, St. George's Hospital; Ralph Raby and Charles Gibbons Seymour, St. Thomas's Hospital; Arthur George Lawrence Reade, Alexander Alfred Smith, and Thomas Stordy, Charing-cross Hospital; Stuart MacKenzie Saunders, private study; Ernest Henry Shaw, St. Bartholomew's Hospital; Armstrong Smith, Middlesex Hospital; James Herbert Sutcliffe, Yorkshire College, Leeds; Nicholas Tarr, St. Geo[illegible] G[illegible] Stanley Thompson, St. Mary's Hos[illegible] tesau, University College, London; Jose[illegible] and John Ronald Rigden Trist, St. [illegible]; Henry Strawson Turner, Amyas [illegible] and William Wynne Williams, King's College, London; Henry Cecil Waldo, University College, Bristol, and St. Bartholomew's Hospital; Cuthbert Gerald Welch and Arthur George Wells, University College, London; John Arthur West, Cyril Oswald Oxford Williams, Everard Lister Wright, Harold Nairne Wright, and Alexander Chamier Wroughton, St. Bartholomew's Hospital; Charles Wheen and David Wilson, St. Thomas's Hospital; Alfred Gurth Whitaker, Charing-cross Hospital; Merwyn Turberville Whitehouse, Birmingham University; Fielding Charles Whitmore, Guy's Hospital, Bristol, and Dublin; and Archibald Paterson Wright, Glasgow and Charing-cross Hospital.

Elementary Biology.—John Aspinall, London Hospital; Edward James Balchin, and George Herbert Curtis, Birkbeck Institute; George Chaikin, University College, Sheffield; Lawrence Drew Ching and Malcolm Robert Coalbank, St. Bartholomew's Hospital; Bevil Molesworth Collard, London Hospital; Eric Abdy Collins, Guy's Hospital; William Cope Doughty, University College, London; Frans Gustaf Edholm, Birkbeck Institute; Thomas Llewellyn Evans, University College of South Wales, Cardiff; Archibald Finlay, London Hospital; John Vere Foster, Birmingham University; Charles George Grey, St. Bartholomew's Hospital; William Harrison, University College, Sheffield; Robert Grey Gillies and Edgar Joseph, Birkbeck Institute; Maurice Aloysius Kenny, Yorkshire College, Leeds; Edward Westcott King, St. Thomas's Hospital; John Alfred Laughton, Charing-cross Hospital; Septimus Joseph Leo, Middlesex Hospital and City of London College; James Charles Robert Lind, University College, London; Raymondo Gabriel Magliono and John Mellor, Owens College, Manchester; William John May, William Morgan, and Clayton Conyers Morrell, London Hospital; Leonard Alexander Stewart Mutch and Arthur Stanley Piper, Birkbeck Institute; Thomas Norman and Felix William Parfitt, Guy's Hospital; Stanislaus Reader, Stonyhurst College; Leslie Lewis Clayton Reynolds, Epsom College; Harold Trenchard Rossiter and George Alan Simmons, St. Thomas's Hospital; John Walter Lennox Scott, Westminster Hospital; Robert Burslem Sparrow, London Hospital; Maurice Redfearn Smith, George Gilbert Timpson, and William Westland Vaughan, Guy's Hospital; Frank Harold Stephens and Alan Geoffrey Wells, St. Mary's Hospital; Reginald Thane Taylor, Birkbeck Institute; Trewyn Richard Williams, University College; Cardiff; and Albert Blagbrough Wolfenden, Yorkshire College, Leeds.

UNIVERSITY OF EDINBURGH: FACULTY OF MEDICINE.—The following is the official list of passes at the recent First, Second, and Third Professional Examinations:—

First Professional Examination.—Thomas Addis, D. C. Alexander A. C. Alport, K. G. Archer, C. R. M. Baker, George Banks, George S. Banks, D. M. Barker (with distinction), G. G. Bartholomew, Douglas Bell, W. J. E. Bell, J. W. Bingham, Norman Black, D. P. Blair, R. A. Blake, Elizabeth H. Brock, Herbert Brown, J. W. Cairns, J. S. Caldwell, Herbert Cargin, N. S. Carmichael, Marjorie Duake-Cohen, William Collins, B.A., H. P. Cook, F. W. Cragg, J. A. Cruickshank, Irene B. Cunningham, Davidina R. J. Davidson, Thomas Davidson, L. F. Dawson, J. M. Dickson, N. C. Dutt, H. A. Edwards, C. E. Elliston, S. C. Fernando, R. S. Frew, F. H. S. Gardner, Jessie H. Gellatly, D. G. Gray, E. J. C. Groves, J. T. Gunn, George Hadden, J. R. Hall, D. G. Harries, W. M. Hewetson, J. R. Holgate, J. C. Holm, G. H. Howe. Joseph Ings, Annie Jackson, Solomon Kark, J. R. Kerr, J. S. Kinross, Ethel Landon, James Lindsay, J. A. Loughridge, A. S. Macbeth, T. A. MacGibbon, B.Sc., K. W. Mackenzie, Helen W. M'Millan, Stewart M'Naughton, W. J. Maloney (with distinction), S. E. Martin, E. S. Massiah, D. M. Matthieson, M.A., Ada E. Miller, A. I. Miller, Aimee E. Mills, B.Sc., O. M. Mirylees, D. L. Morrison, H. L. Morrow, Harold Mowat, R. E. Moyes, Anna M. Mulholland, E. B. Munro, R. R. Murray, R. E. U. Newman, A. J. R. O'Brien, A. A. Ollivierre, William Patton, D. H. Paul, J. L. Pearce, K. A. O. Quainoo, George Raffan, Mabel L. Ramsay, H. E. Rawlence, W. E. Reynolds, C. S. U. Rippon, H. D. Robb, T. E. Roberts, J. Z. H. Rousseau, W. M. Scott, W. J. B. Selkirk, M.A., J. G. B. Shand, Alice C. Sharp, E. S. Simpson, I. Y. Smail, T. R. Smith, R. A. Spence, Alexander Stephen, M.A., A. D. Stewart, W. J. Taggart, S. H. S. Taylor, B.A., R. B. Thomson, Nettie B. Turnbull, A. P. Wall, D. R. P. Walther, J. D. Wells, H. M. Whittell, Richard Wilkins, H. C. Wilson, Marian E. Wilson, and James Young.

Second Professional Examination.—R. T. G. Aickin, John Allen, G. W. Armstrong, Agnes Balfour, William Basson, John Brennan, Robert Buchanan, Samuel Burns, Harry Caird, T. P. Caverhill, D. Halliday Croom, F. D. Crosthwaite, Alice M. Ebden, H. N. Fletcher, F. H. Gibson, T. M. Guthrie, George Harrison, G. W. Harty, Isabel Hill, Janette T. Hill, T. J. H. Hofmeyr, F. E. Larkins, F. T. C. Linton, M.A.; C. D. Lochrane, J. M. Lovett, Alexander Lundie, Henry MacCormac, J. W. M'Ewan, N. D. M'Kay, William Mackenzie, H. C. Martin, A. G. M. Middleton, C. R. P. Mitchell, G. I Moriarty, Helen Morison, Thomas Nicol, C. F. A. Oberlander, Labbhu Ram, Charles Reece, W. J. D. Robertson, W. S. Robertson, L. C. Robinson, J. A. Ross, F. G. Saleeby, William Sanderson, D. J. Scott, J. E. Scott, M.A.; W. H. Selby, W. H. Simpson, J. Henderson Smith, Effie Stuart, John Tait (with distinction), E. J. Taylor, T. T. Thomson, J. P. du Toit, E. A. Turpin, Caroline Twigge, R. M. Walker, J. H. D. Webster, Leonard West, R. M. Manwaring White, W. C. P. White, W. Y. Woodburn, A. C. T. Woodward. *Old Regulations.*—F. R. Bremner, L. A. Drake, S. C. Roy.

Third Professional Examination.—Ninn H. Beath, Constance A. Bennet, G. S. Blandy, J. G. Briggs [illegible] W. C. Burton, E. E. Cassaday, [illegible] H. L. Cumming, Henry Curwen, [illegible] Fairbairn (with distinction), Ag[illegible] R. G. Gordon, J. A. Gray, L. A. Holcroft, C. H. Houghton, John Hunter, Arthur Hutley, Bertha Jex-Blake, J. M. Johnstone, W. F. Knight, W. S. Laidlaw, Abraham Leach, A. B. Leakey, J. C. London, A. W. B. Loudon, J. G. M'Caughey, Alexander M'Ewen. Daniel Mackinnon, Evan Macmillan, J. B. Mason, E. L. Meynell, R. C. Monnington, E. J. Morton, Robert Murray, Charles Nelson, J. H. C. Orr, Harry Overy, A. C. Owen, D. E. S. Park, John Politachi, E. C. Pritchard, A. F. H. Rabagliati, J. A. Raubenheimer. David Sandler, G. D. Sloan, M. W. Smart, Baba M. S. Sodhi, David Sutherland, A. B. M. Thomson, J. F. van de S. de Villiers. *Passed in Pathology.*—G. M. Brunton.

FOREIGN UNIVERSITY INTELLIGENCE.—*Göttingen:* Dr. W. Weber has been recognised as *privat-docent* of

Mental Diseases —*Heidelberg* Dr Julius Hegener has been recognised as *privat docent* of Otology and Dr Martin Jacoby as *privat docent* of Pharmacology Dr H Braus of Wurzburg has been appointed Extraordinary Professor of Anatomy —*Jena* The chair of Pharmacy, vacant by the retirement of Dr Seidel, has been offered to Dr Kionka of Breslau Dr Berger has been recognised as *privat docent* in the Medical Faculty Dr Maurer of Heidelberg has been appointed to the Chair of Anatomy in place of Dr

Baudry has been allowed to nal Pathology for that of the appointment of Dr de Dr Weill has been appointed to the Professorship of Children s Diseases —*Philadelphia* (*Polyclinic*) Dr Francis R Packard has been appointed to the chair of Otology in succession to Dr Seiss resigned —*St Petersburg* (*Military Medical School*) Dr Richard Peters has been recognised as *privat docent* of Children s Diseases — *Wurzburg* Dr Jacob Riedinger has been recognised as *privat docent* of Surgery and Dr Paul Römer as *privat docent* of Ophthalmology

CORNWALL COUNTY LUNATIC ASYLUM, BODMIN —At the meeting of the Cornwall County Council held on August 6th it was decided to apply to the Local Government Board for sanction to a loan of £105 000 for the purposes of the extension of the county lunatic asylum The present building accommodates nearly 800 patients, and the overcrowding of the institution has engaged the attention of the authorities for some time The plans of the proposed extension which have been approved by the Commissioners in Lunacy and the Secretary of State, will provide accommodation for 400 patients When the new buildings are completed it has been decided that nearly the whole of the present asylum shall be allotted to female patients The total accommodation will be for 510 male and 542 female pauper lunatics In the private asylum 49 patients are admitted, making an aggregate of 1101 patients

WORKHOUSE INFIRMARY NURSING DEPUTATION TO THE PRESIDENT OF THE LOCAL GOVERNMENT BOARD —A small deputation from the Workhouse Infirmary Nursing Association consisting of the Hon Mrs J G Talbot (vice president of the association and chairman of the executive committee), the Viscountess Knutsford (a member of the executive committee) Miss Wilson (treasurer) and Miss Gill (secretary) was received on August 2nd at the House of Commons by the Right Honourable Walter Long M P President of the Local Government Board Mr J G Talbot M P, introduced the deputation Mr S B Provis C B (permanent secretary to the Local Government Board) Mr W F Knollys C B (assistant secretary) and Dr A. H Downes (Poor law medical inspector) were present The object of the deputation was to discuss details of a statement which had been submitted by the association to Mr Long early in the year touching upon the present condition of the nursing in country workhouse infirmaries and the dearth of nurses obtainable for those infirmaries The President of the Local Government Board listened to the members of the association most attentively and clearly showed that he took considerable interest in the questions at issue Ample time was placed at the disposal of the delegates and some important points were discussed The serious dearth of nurses available for the Poor law service was brought forward as the main cause for action and the Local Government Board were urged to adopt measures for the special training of nurses for workhouse infirmaries It was suggested that it might be practicable to train nurses in the metropolitan and other Poor law infirmaries of adequate size and organisation and to bind them to the service as Government officials to work for a definite period in provincial and country workhouse infirmaries as well as in metropolitan The desirability of a sub-department of the Local Government Board being formed to deal with the whole question of nursing in workhouse infirmaries was urged by the deputation Mr Long intimated that he had under consideration the possibility of making alterations in the existing regulations affecting the position of nurses in workhouses and infirmaries He promised careful consideration of the suggestions made by the deputation but was unable to hold out much hope that the Local Government Board could themselves undertake the training and placing of nurses

VACCINATION AT BATH —At the meeting of the Bath Board of Guardians held on August 7th it was reported that from July to December, 1900 824 births were registered in the city of Bath 499 children were successfully vaccinated, six were insusceptible, the parents of 63 had certificates of conscientious objections, 82 had died unvaccinated, in 39 cases vaccination was medically postponed, 38 children had removed to places unknown, and 97 were unaccounted for During the year 1900 90 certificates of conscientious objection were received by the vaccination officer and for the half year ending June 30th, 1901 72 such certificates were received

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN —The Mabel Webb Research Scholarship for the encouragement of original work in pathology physiology, or chemistry will be given in October to a past or present student of the school Candidates must state the nature of the work which they propose to undertake in one of the above branches of study and the holder of the scholarship is required to keep the lecturer or lecturers in the department selected informed of the progress of the work The value of the scholarship is £30 a year for two years Applications will be received up to Sept 1st and should be sent to the secretary, 8 Hunter street, London, W C

AT Woodtown, Devon, on August 2nd, an inquest was held respecting the death of an infant which occurred shortly after birth The nurse who attended the mother stated that the child cried lustily at birth but expired five minutes later A medical man who was called in about three quarters of an hour after birth stated that death was due to strangulation owing to the umbilical cord being round the neck of the deceased and added that if the nurse had been more experienced she could have remedied this The coroner in summing up remarked that the nurse, a single woman aged 23 years was too young to undertake midwifery duties and although there was no criminal neglect in this case he advised the nurse not to act in other cases until she had had more experience The jury returned a verdict of Death from accidental strangulation and endorsed the remarks of the coroner

Parliamentary Intelligence.

HOUSE OF COMMONS

THURSDAY AUGUST 8TH

Ptomaine Poisoning

MR CHANNING asked the President of the Local Government Board whether he would direct an inquiry into the circumstances attending the ptomaine poisoning of two ladies by decomposed cream and whether he would take prompt steps to check the improper use of preservatives to enable articles of food to be disposed of to customers when in a state of decomposition dangerous to health —Mr WALTER LONG replied I have seen a newspaper paragraph as to the inquest in the case mentioned in this question and I will endeavour to obtain a report from the medical officer of health of the borough on the subject I expect to receive in a few days the report of the Departmental Committee on Food Preservatives and I hope then to be in a better position to judge how dangerous decomposition in food may be satisfactorily prevented

The Study of Mental Pathology

Mr WILLIAM JOHNSTON asked the Chief Secretary to the Lord Lieutenant of Ireland whether having regard to his reply to the deputation which waited on him in Dublin concerning a proposal to establish a pathological laboratory devoted to research in connexion with insanity for the asylums of the country he could introduce a clause into the Local Government (Ireland) Amendment Bill empowering county councils to [illegible] support of such a central laboratory for the study of mental pathology —Mr WYNDHAM replied Such a clause could not be inserted in the Local Government Act Amending Bill but it would be pertinent to the Lunacy Bill now before the House I earnestly hope to be able to introduce an amendment of this character into the latter Bill

The Nursing Question in Ireland

This question was [illegible] in Committee of Supply on the vote for the Local Government Board in Ireland —Mr WYNDHAM insisted that the nursing in Irish workhouses had not reached a sufficiently high level and that the Local Government [illegible] to raise it and the announcement that [illegible] nursing order though [illegible] to arrange [illegible] still had done good work [illegible] of nurses they were [illegible] in [illegible] the rules of their orders to assist in certain cases of operations and it was obvious that in addition to [illegible] them [illegible] fully-qualified nurses As to the recognition of training in the smaller hospitals and infirmaries that was a matter within the jurisdiction of the Board and he undertook that the Board would give it immediate consideration

Friday, August 9th.

The Army Medical Service.

Major Rasch asked the Under Secretary of State for War whether he could state when the report of the committee on the Army Medical Department would be ready, and if it would be published.—Lord Stanley replied: I am not able to say when the report of the departmental committee will be ready. The question of its publication does not therefore arise at present.

Medical Research in Ireland.

Mr. Field asked the Chief Secretary to the Lord Lieutenant of Ireland (1) whether he was aware that the English Local Government Board had at its disposal a yearly grant of funds for the purpose of promoting scientific investigation; and (2) seeing that the Irish Local Government Board had not at its disposal any sum for a similar purpose, would he recommend the placing of the Irish Local Government Board in this respect on the same footing as the similar Board in England.—Mr. Wyndham replied: The vote for the English Local Government Board contains provision of a sum of money for "auxiliary scientific investigations" in connexion with the medical department of the Board. I am inquiring as to the special objects with which this money is voted; until I receive information on this point I cannot reply to the suggestion in the second paragraph.

Monday, August 12th.

Vaccination Exemptions.

Mr. Corrie Grant asked the Home Secretary whether he was aware that William Venables of Thornton Hough was granted an exemption from vaccination as a conscientious objector by the Birkenhead county magistrates for his first child in June, 1899, and that he was refused exemption by the same court *in July, 1901, for another child*, then under four months old, and whether there was any way in which he could obtain exemption for this child also.—Mr. Ritchie replied: The facts are as stated. It appears that in the second case the applicant failed to satisfy the justices of his conscientious belief that vaccination would be prejudicial to the health of the child in question. It is open to him to apply to any other justices for a certificate of exemption until the child attains the age of four months.

Civil Surgeons in the Army.

Dr. Thompson asked the Financial Secretary to the War Office if civil surgeons now serving with His Majesty's Army in Great Britain and Ireland were entitled to an increase of salary after three years' service, and also to a gratuity of £100 on completion of their engagement.—Lord Stanley replied: No, they are not so entitled, but the question of the increase of salary is receiving consideration.

The Compound Titles of Retired Army Medical Officers.

Dr. Thompson asked the Financial Secretary to the War Office if he would consider the advisability of abolishing the compound titles of retired army medical officers.—Lord Stanley replied: This question has been very carefully considered and it was not held advisable to abolish the compound titles except in the case of retired officers who were recalled or re-employed.

Tuesday, August 13th.

The Ambulance Experiments.

Mr. Round asked the Financial Secretary to the War Office whether he could state what progress had been made in the construction of ambulances of a lighter character than those used at the commencement of the war in South Africa; and if those sent out during last year, as stated by Lord Raglan, had give [illegible] —Lord Stanley replied: Experiments are still [illegible] proved ambulance and a special committee is [illegible] t. No reports have been received in regard to the wagons referred to in the last paragraph.

The New Factory and Workshop Legislation.

The Report stage of the Bill to amend and consolidate the Factory and Workshop Acts was taken at this and the previous sitting of the House. The subjects discussed had not, as a rule, any special medical interest and therefore need not be dealt with in any detail. After a very long debate the House decided by a majority of 22 votes to confirm the action of the Grand Committee in making mid-day the time for "the Saturday stop" in textile factories. The laundry question was also debated at great length, the decision of the House with regard to it being to omit the laundry clause altogether and to leave the law as it stands.—On the motion of Mr. Ritchie words were inserted in the Bill providing that no meal shall be taken in any factory or workshop where lead, arsenic, or other poisonous substance is so used as to give rise to dust or fumes.

Wednesday, August 14th.

The Study of Insanity.

On the motion of Mr. George Wyndham the following clause was inserted in the Lunacy (Ireland) Bill—viz: "The committees for any two or more distinct lunatic asylums may agree to unite in providing and maintaining a laboratory for pathological research in connexion with insanity and nervous diseases, and may defray the expenses incurred in pursuance of an agreement under this section by contributions from the funds at their disposal for the maintenance of their respective asylums."

BOOKS, ETC., RECEIVED.

Allen, George, Charing-cross-road, London.
  Walks in London. By Augustus J. C. Hare. Seventh edition. In two vols. Price 12*s.*

Bale, Sons, and Danielsson, Oxford-street, London.
  Darwin, considered mainly as Ethical Thinker, Human Reformer, and Pessimist. By A. H. Japp, LL.D., F.R.S.E. Price 2*s.*

Braumüller, W., Wien and Leipzig.
  Topographie des Weiblichen Ureters. By Dr. Julius Tandler and Dr. Josef Halban. Price 30 marks.

Kimpton, Henry, Furnival-street, Holborn.
  Progressive Medicine. Vol. ii. Edited by H. A. Hare, M.D. Price not stated.
  A Treatise on Orthopædic Surgery. By Royal Whitman, M.D. Price not stated.
  Diseases of the Stomach. By J. C. Hemmeter, M.D. Second edition. Price 30*s.*
  A Manual of Practical Hygiene. By Charles Harrington, M.D. Price 21*s.*
  A Practical Treatise on Fractures and Dislocations. By Lewis A. Stimson, B.A., M.D. Third edition. Price 25*s.*

Lindley, Percy, 30, Fleet-street, London.
  The Great Eastern Railway Company's Tourist Guide to the Continent. Edited by Percy Lindley. Price 6*d.*

Macmillan and Co., London and New York.
  A Manual of Medicine. Edited by W. H. Allchin, M.D., &c. Vol. iii. Price 7*s.* 6*d.*

Prudential Press, Newark, New Jersey.
  History of the Prudential Insurance Company of America. By F. L. Hoffman, F.L.S. Price not stated.

Sanitary Publishing Co., Fetter-lane, London.
  By-Laws as to House Drainage and Sanitary Fittings made by the London County Council. By G. J. G. Jensen, C.E. Price 3*s.* 6*d.*

Simpkin, Marshall and Co., London.
  Home Exercises for Spinal Curvatures. By Richard Timberg. Price 2*s.*

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to The Lancet *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.*

Arthur, Richard, M.D. Edin., has been appointed Honorary Assistant Surgeon to the Ear and Throat Department of the Sydney Hospital.

Barnes, E. W., L.K.Q.C.P. Irel., L.F.P.S. Glasg., has been appointed District Medical Officer to the Liverpool Union, vice Dr. Caldwell, resigned.

Bartlett, W., M.R.C.S. Eng., has been appointed Government Medical Officer at Port Macquarie, N.S.W.

Clarke, W. H., M.R.C.S. Eng., L.S.A., has been appointed Public Vaccinator for Wellington, N.Z.

Collum, Rowland W., M.R.C.S., L.R.C.P., has been appointed Assistant Anæsthetist to the Hospital for Sick Children, Great Ormond-street, W.C.

Coulter, R. J., M.B., F.R.C.S. Irel., has been appointed Ophthalmic Surgeon to the Newport and Monmouthshire Hospital, vice B. W. Gowring, M.D., resigned.

Curtis, H. J., B.S. Lond., F.R.C.S. Eng., has been appointed Assistant Surgeon to the Royal Hospital for Children and Women, Waterloo Bridge-road.

Dean, E. C., M.R.C.S., L.R.C.P. Lond., has been appointed Medical Officer of Health to Greenbushes, West Australia.

Dix, R. H., M.B., B.S. Durh., has been appointed Junior House Physician to the Royal Infirmary, Newcastle-on-Tyne.

Fennell, Charles H., M.A., M.B., B.Ch. Oxon, M.R.C.S., L.R.C.P., has been appointed Medical Registrar to the Hospital for Sick Children, Great Ormond-street, W.C.

Gresswell, D. A., M.D. Oxon., has been appointed Permanent Head of the Department of Public Health, Victoria.

Heslop, J. W., M.B., B.S. Durh., has been appointed House Surgeon to the Royal Infirmary, Newcastle-on-Tyne.

Johnson, Henry Sandford, M.R.C.P. Irel., L.F.P.S. Glasg., has been re-appointed Medical Officer for the Ashburton (Devon) Urban District Council.

Jones, William Watkins, M.D., C.M. Edin., D P.H. Cantab., has been re-appointed Medical Officer of Health for the Gelligaer and Rhigos Rural District Council.

McClintock, Lawson Tait, M.B., Ch.B. Edin., has been appointed Junior House Surgeon to the Salop Infirmary, Shrewsbury.

Ormerod, Henry Lawrence, M.D., B.Ch. R.U.I., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer to the Shirehampton Isolation Hospital.

Porter, A. E., M.D., D.P.H. Cantab., has been appointed Assistant Medical Officer of Health for the City of Leeds.

Roe, R. W. E., L.R.C.P., L.R.C.S. Irel., has been appointed Medical Officer for No. 2 District of the Ongar Union.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

Ancoats Hospital, Manchester.—Resident House Surgeon. Salary £100 per annum, with board, residence, &c.

Birmingham Workhouse Infirmary.—Assistant Resident Medical Officer. Salary £100 per annum, with apartments, rations, coals, gas, laundry, and attendance.

Borough Hospital, Bootle, Liverpool.—Junior Resident. Salary £80 per annum, with board and laundry.

Bradford Children's Hospital.—House Surgeon. Salary £100, with board, residence, and washing.

Bradford Royal Infirmary.—Dispensary Surgeon, unmarried. Salary £100 per annum, with board and residence. Also Junior House Surgeon, unmarried. Salary £50 per annum, with board and residence.

[illegible] **Hospital.**—[illegible] Surgeon. Salary £75 [illegible]

Denbighshire Infirmary, Denbigh.—House Surgeon. Salary £100, with board, residence, and washing.

District Hospital, West Bromwich.—Resident Junior House Surgeon. Salary £50 per annum, with board, lodging, washing, and attendance.

Eastern Counties Asylum for Idiots, Imbeciles, and the Feeble-minded, Colchester.—Resident Medical Attendant, unmarried. Salary £100 per annum, with furnished apartments [illegible]

[illegible] well, E.—House Surgeon [illegible] board, residence, &c. Also [illegible] Salary at rate of £100 [illegible]

[illegible] Medical Officer of Health [illegible] £500 per annum, with allowances.

Halifax Workhouse Hospital, Salterhebble.—Medical Officer. Salary £105 per annum.

Hull Royal Infirmary.—Casualty Officer. Salary £60 per annum, with board and lodging.

Johannesburg.—Medical Officer of Health. Salary £1500 per annum.

Kent and Canterbury Hospital.—Assistant House Surgeon, unmarried. Salary £60 a year, with board and lodging.

Leicester Infirmary.—Honorary Assistant Physician and Honorary Assistant Surgeon.

Leicester Isolation Hospital.—Resident Medical Officer. Salary £120, with board and washing.

Lincoln County Hospital.—Assistant House Surgeon for six months, eligible for re-election. Honorarium £25, with board, residence, and washing.

Manchester Royal Eye Hospital.—House Surgeon.

Northampton General Infirmary.—House Physician (unmarried). Salary £100 per annum, with apartments, board, attendance and washing.

Owens [illegible] Demonstrator in Physiology [illegible]

Par[illegible] Assistant Medical [illegible] annum, with rations, *apartments, and washing.*

Royal Lancaster Infirmary.—Assistant House Surgeon, single. Salary £60 a year, with residence, board, attendance, and washing.

Royal South Hants and Southampton Hospital.—Junior House Surgeon for six months. Salary at rate of £50 per annum, with rooms, board, and washing.

Salop Infirmary, Shrewsbury.—House Surgeon. Salary £100 per [illegible]

[illegible] Health. Salary £325 [illegible]

[illegible] Junior Assistant Medical [illegible] m, with apartments, board, and washing.

Stamford, Rutland, and General Infirmary.—House Surgeon. Salary £100 per annum, with board, lodging, and washing.

Suffolk General Hospital, Bury St. Edmunds.—House Surgeon. Salary £100, with board, lodging, and washing.

Tow[illegible] Junior Resident [illegible] h apartments, [illegible]

Tor[illegible] ol.—Assistant [illegible] washing, and apartments.

University of Glasgow.—Examiner for Degrees in Medicine and Science, with special reference to Physics. Salary £30.

Victoria Hospital, Folkestone.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.

Wolverhampton Eye Infirmary.—House Surgeon. Salary £70 per annum, with rooms, board, and washing.

Births, Marriages, and Deaths.

BIRTHS.

Churchill.—On the 9th inst., at the Brick House, Billingshurst, Sussex, the wife of J. A. Churchill, M.R.C.S., L.R.C.P., of a son.

Godson.—On August 9th, at Linden House, Cheadle, Cheshire, the wife of John H. Godson, M.B., B.S. Camb., of a daughter.

Hawkins.—On August 5th, at London-street, Reading, the wife of Francis Henry Hawkins, M.D. Edin., M.R.C.P. Lond., of a daughter.

Newbolt.—On the 13th August, at 42, Catherine-street, Liverpool, the wife of George Palmerston Newbolt, M.B., F.R.C.S., of a son.

Probyn Williams.—On August 5th, at Welbeck-street, the wife of R. J. Probyn Williams, M.D. Durh., of a daughter.

DEATHS.

Aldridge.—On August 7th, 1901, at Belle Vue House, Plympton, Mary [illegible] Plympton House, [illegible] Norwood, Samuel [illegible] 81st year, Charles [illegible]

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

A PRESCRIBING QUACK.

An inquest held by Mr. Wynne Baxter at Stepney at the beginning of the week served to introduce to the public, not for the first time, the dangerous habits of one J. C. Purdue, F.C.S.M., a herbalist. The deceased was a male child, aged 12 months, who had been taken by the mother to Purdue's establishment—a druggist's shop having the words "Botanical Herbalist" over the door. According to the mother [illegible] "doctor," Purdue [illegible] liniment for which [illegible] worse he was to be [illegible] due seems to have sounded him, prescribed lemon juice and barley water, visited the patient, and finally advised sending for "another doctor," whom he recommended. Purdue in his evidence, which will be found fully reported in the *Daily Mail* of August 14th, described himself as a "registered herbalist ... registered in 'Kelly's Directory,'" and said that his previous conviction for pretending to be a medical man was "a most disgraceful thing brought about by 'two malicious doctors.'" A juror asked if Purdue was known as the "tea leaves doctor," and Purdue handed to the coroner a paper, which appears to have been an Act of Parliament of Henry VIII. relating to witchcraft and sorcery, under which he claimed to carry on his business of prescribing unmolested. The coroner was not much impressed by Purdue's attempt to obtain a legal status, for he told him that he was "acting as a pirate and imposing on these poor people." Mr. Charles Welch gave evidence that it was not possible to say for certain that calling in a medical man would have saved the infant's life, and described Purdue's nostrum as "smelling very much of Worcester sauce." The coroner said that the bottle was labelled "J. C. Purdue, F.C.S.M., London. Safe Medicine. Member of the Magnetic and Botanic School of Safe Medicine, London. Founded 1893. Advice gratis daily." *He asked if any society would take up the prosecution* of Purdue. We suppose that the London Society of Apothecaries will have no difficulty in securing Purdue's conviction. He is an old and hardened offender. At the beginning of last year we recorded the death under his hands of a man with pulmonary trouble (THE LANCET, Jan. 27th, 1900, p. 234) and there is no doubt that he has for years been trading upon the ignorance of the sick poor by pretending to be a medical man. The cruelty of such offences as Purdue's lies in the fact that the quack deprives the sick poor, if they are very ill, of their chance of recovery. Many patients might be saved if the medical man could see them early enough. Impostors like Purdue waste the precious time of the sick by telling them lies while they exhibit silly potions of tea or barley water. Then when it is obvious that the case is going to the bad and probably when the patient's funds are running low, a medical man is called in—too late. At the inquest it is impossible to say for certain in any particular instance, whatever may be the probabilities, that the life could have been saved, and so the charlatan *gets off*. We hope that an exemplary fine may soon bring Purdue to [illegible] laws of his country. We do not sup[illegible] him that he is a mischievous ass, [illegible] maker.

WANTED—A SCHOOL.

To the Editors of THE LANCET.

SIRS,—I should be obliged if you would allow me to ask in your columns whether there is any school for the orphan daughters of medical men to which I could apply for the admission of my youngest daughter, aged 12½ years. My husband, who was formerly a student of Charing-cross Hospital, died in 1899, leaving me with two young daughters. At the time of his death he had been in independent practice only a short time and had not been able to make provision for us. He had recently lost nearly all his small capital in an unfortunate speculation. I have been obliged to break up my home and to accept a position as housekeeper and am unable to support my youngest child. The eldest is in the care of friends and is receiving a good education. I should be very grateful if any of your readers would kindly give me the name of a school to which I could apply for the admission of my daughter, who is a healthy girl.

I am, Sirs, yours faithfully,

EVELINE GREENLEAF.

Emile Villa, Sunny-gardens, Hendon, August 12th, 1901.

VACCINATION FEES.

To the Editors of THE LANCET.

SIRS,—I have a non-dispensing practice in the suburbs of a large provincial city and charge 3s. 6d. (my lowest fee) for vaccinating children of £1 1s. confinements. Each case is done with calf lymph which costs me 8½d. I should be glad if your readers would kindly tell me if my charge is above the ordinary for such cases, as I have been told lately several times that I charge more than my neighbours.

I am, Sirs, yours faithfully,

August 14th, 1901. M. S.

GRUESOME SUPERSTITIONS.

To the Editors of The Lancet.

Sirs,—In The Lancet of July 6th, p. 41, you refer to "the bleeding Host." Could any of your readers kindly give me some particulars of this reported miracle or tell me where I might obtain details of the same? I should like to know, for example, when first the miraculous power or powers were claimed, their nature and extent, and the circumstances under which they were manifested. Is there any publication on this subject? I can find none. Some time ago you had a reference to dead bodies submerged being located (or alleged to be located) by means of a loaf of bread. Kindly give me the date of this article. Does any reader of The Lancet know of any book or monograph dealing with the subject of trial by ordeal?

I am, Sirs, yours faithfully,

August 6th, 1901. Corpus Vile.

⁎ The note on the location of a drowned body will be found in The Lancet of Nov. 24th, 1900, p. 1536.—Ed. L.

THE KEELEY INSTITUTE.

To the Editors of The Lancet.

Sirs,—Can you favour me with any information about the "Keeley Institute" for the cure of intemperance? I know there have been occasional paragraphs in The Lancet, but unfortunately I send my copies of The Lancet on to a friend, and do not retain them. I daresay you can guess the facts leading to my query—the village "Lady Bountiful," anxious to do anything *to reclaim a neighbour rapidly drinking* himself to ruin and death, and an appeal to me. Of course, on the face of it, it looks like quackery, and probably is, but with the ethical part of the business I have nothing to do, as I should certainly not take any personal action in the matter. Do you happen to know if there is anything in the treatment? The "double chloride of gold" at eight guineas a week reads like bosh, and the "cures" may possibly be on a par with the "Mother Seigel's Syrup" testimonials. But these good ladies, from the most charitable motives, want to do something and are caught by the glamour of the name of Canon Fleming. And I have promised to get what information I can. If you can help me I shall be grateful.

I am, Sirs, yours faithfully,

August 12th, 1901. Provincial.

⁎ Our correspondent will find some information as to the absurd so-called Keeley Cure in Vol. II. of The Lancet for the year 1892.—Ed. L.

AMERICAN MEDICAL DEGREES IN NEW ZEALAND.

To the Editors of The Lancet.

Sirs,—I should be obliged if you would kindly answer the following questions, through the medium of The Lancet. 1. Can a person term herself "Doctor" (if she does not practise) if she holds no diplomas? 2. Can a person who holds a bogus (or bought) diploma legally use the title of "Doctor" and place a brass plate outside the *door* with "Dr. ——, M.D.," on it? 3. If you know that a person holds a diploma from a college (which is registered in the U.S.A.), but which also sells such diplomas, would one be justified in saying that such person was unqualified (even if they seemed well informed as *regards* medicine, &c.) and held a bogus diploma, or would such be actionable? 4. Can you inform me whether the diploma mill of Dr. Armstrong, People's Institute, Buren-street, Chicago, is *still in* existence, and what punishment was meted out to Dr. Armstrong for making use of the mails to defraud? (see The Lancet, Dec. 1st, 1900, p. 1621). 5. Where could one obtain reliable information as to which are the bodies in the United States of America which are able to grant diplomas which would be recognised in Great Britain? Is there any book issued by their Government which would give one information? 6. Could a person practise in the United States with one of these bogus diplomas? 7. Would the following gentlemen, whose qualifications are appended and who are upon the New Zealand Medical Register, be able to register themselves upon these qualifications in Great Britain? M.D. Bellevue Hosp. Med. Coll., New York, U.S.A.; M.D. Jefferson Med. Coll., Philadelphia, U.S.A.; M.D. Univ. Lake Forest, Chicago, Illinois, U.S.A.; M.D. Univ. Michigan, U.S.A.; M.D. Homœopathic Med. Coll. of Missouri, U.S.A.; M.D. Michigan Coll., U.S.A.; M.D. Cooper Med. Coll., San Francisco, U.S.A.; M.D. Univ. Iowa, U.S.A.; M.D. Univ. Southern California, U.S.A.; M.D. Detroit Coll. Medicine, U.S.A.; M.D. Cincinnati Coll. Med. and Surg., U.S.A.

Would you kindly reply to me through the columns of The Lancet, and oblige Yours faithfully,

May 29th, 1901. Porirua.

⁎ 1. It would seem (we refer to this country) to be open to anybody to call himself or herself "Doctor." But if an unqualified person attempts to obtain money or to pass in the public eye as a qualified practitioner he can be prosecuted by law. 2. The owner of a bogus diploma is not qualified, and our correspondent is referred to the answer to the first *question*. 3. We cannot say without knowing what the institution referred to is. 4.—We understand that the People's Institute, Chicago, has been abolished. We do not know what punishment his country meted out to Armstrong. 5. The University of the *State of* New York (Albany) issued last year from the College Department certain hand-books on professional education in the United States; the volume *dealing* with medicine, price 45 cents, contains the information required. 6. This question cannot be answered, as *different* States, unfortunately for the United States as a whole, have different arrangements in these matters. 7. The list of institutions the medical degrees of which can be registered in Great Britain, if obtained prior to June 25th, 1886, but only *in addition* to, not in place of, British qualifications, will be found in the current Medical Register, page 78. The two first institutions named by our correspondent are also on the list in the Medical Register.—Ed. L.

THE METHODS OF A PUBLIC VACCINATOR.

We have received the following specimen of a circular which has been sent by a public vaccinator to a lady in a certain district. Why we have only now received it when it is nearly three months old we do not know, but although it is old it is none the less worthy of *comment*.

"——, May 16th, 1901.

Dear Madam,—As Vaccination Medical Officer of this District, I must ask you to give your earnest and best attention to your little one's case.

The new Act is rich in blessings, proved by the following important facts, which I will explain in a few simple words.

1st. The calf lymph from Government is so carefully selected and tested that its *purity is absolutely guaranteed.*

2nd. The comforts and convenience of the mother are *assured* by the medical officer attending the home and arranging the *almost painless operation in less than two minutes*, with strict regard to gentleness and sanitation.

3rd. Visits, posting certificates to the authorities, and *securing* the mother from future trouble *free of all cost.*

I am very anxious with regard to this grave duty which all of us owe to our families and the public—namely, *protection* from one of the most contagious, deadly, and repulsive diseases, the horrible plague of small-pox.

I am, dear Madam, sincerely yours,

——, M.D., M.R.C.S., L.S.A."

We have no hesitation in saying that this is an improper document for a public vaccinator to circulate. It is part of a public vaccinator's privilege to try to secure that his district should be properly vaccinated, but it is not part of his duty to try for a monopoly of the operations. Such a circular as the one we have quoted could only lead to ill-feeling between the public vaccinator and his professional brethren in the district.

PRESERVING AND MOUNTING MOSQUITOES.

M. I. Cross has the following note in the August number of *Knowledge* with regard to the mounting of mosquitoes.

> "Some time has elapsed since the connexion between mosquitoes and malarial fever was established, yet satisfactory specimens of the former have reached England in very small numbers although medical men and others who are interested in the matter have constantly wished to obtain them. The reasons are that the unmounted specimens are not put up in suitable preservative medium for travelling, or if they are mounted sufficient care has not been exercised in the process. Several methods have been published in medical papers on the subject of preserving mosquitoes, but none of them are really satisfactory ones. The following will be found to answer the purpose. To send unmounted mosquitoes by post they should be preserved in dilute alcohol, two parts of rectified spirit to one part of water. Too many should not be put in one bottle or they become entangled and broken. To make permanent mounts dilute glycerine, say one part glycerine to two parts water, in a shallow cell will be found best. The following is the process:—1. Remove the dilute alcohol and soak in water until all trace of the spirit is removed. 2. Soak in dilute glycerine for about 12 hours. 3. Make cell and when dry fill up with dilute glycerine and carefully place the specimens in it and apply the cover-glass. Should the mosquito be too opaque after soaking in water place it in a strong solution of carbolic acid for a few hours and when transparent wash in water, then place in dilute glycerine."

"PUBLICITY."

To the Editors of The Lancet.

Sirs,—In reference to the above in The Lancet of August 10th, p. 430, may I point out that the practice of inserting in the Irish papers that Dr. So-and-So has left his address for London or elsewhere or has returned to his residence from such-and-such a place, is very common amongst practitioners in Ireland. Hardly a day passes but you will see in the "fashionable" columns of the *Irish Times*, *Freeman's Journal*, &c., such a paragraph. In consequence, as much out of curiosity as otherwise, I about two to three years ago wrote to the secretary of the General Medical Council asking if an intimation in the daily papers such as I have referred to constituted medical advertising or not. In reply I was told that the General Medical Council could not express any opinion on the matter. Determined, then, if possible, to get a definite statement on the point I watched my opportunity and shortly afterwards noticed the following announcement—the text may not be exactly right, but it is not far out—in the *Irish Times*—viz.: "Sir William Thomson, M.D., President of the Royal College of Surgeons in Ireland has returned to 54, St. Stephen's Green, Dublin, from attending the meeting of the General Medical Council." Sir W. Thomson is, I believe, the representative of the Royal College of Surgeons in Ireland on the General Medical Council. Immediately on its appearance I wrote to Sir William Thomson and asked him if he had it inserted, and, in any case, if he did not think the publication of his name and address in such a manner amounted to advertising in a professional way.

After a lapse of a few weeks I had an answer from the secretary of the council of the Royal College of Surgeons in Ireland saying that he was instructed to say in reply to my letter to Sir William Thomson that the Council of the Royal College of Surgeons in Ireland sanctioned the insertion of such paragraphs I believe the paragraphs referred to in the Irish papers are published by the parties themselves or at least with their knowledge and consent. After such an admission I cannot see that Dr Fenton has sinned in any way, even if he inserted the paragraph you take exception to and which was published in the *Daily Telegraph* of August 2nd last

I am Sirs yours faithfully,
WHAT IS SAUCE FOR THE GOOSE OUGHT TO BE SAUCE FOR THE GANDER
August 12th, 1901.

THE WARREN FOUNTAIN PEN

MESSRS BINGE WARREN, AND RIDGLEY of Great Saffron hill, London E C, have sent us one of their Warren fountain pens The price is 5s the nib is described as of 14-carat gold, and the mechanism is extremely simple

"GRAND OPENING FOR A MEDICAL MAN"

To the Editors of THE LANCET

SIRS,—I have been "taken in by the alluring advertisements of house agents anxious to sell and to let their houses In four instances recently the reply I got from each agent was that a grand opening for a medical man existed In three I find the information given to be false, in each case the house had just been vacated by the occupier (a medical man) who had gone across or a few yards down the road The chances of success in each case were very small I write this after having been put to unnecessary and cruel expense

I am Sirs yours faithfully,
August 14th, 1901 C W HARRINGTON L R C P

Medicus writes :—"Can any reader of THE LANCET tell me the publisher of a work by Professor Schutter of Berlin University on the cancer bacillus?

*** In this connexion our correspondent's attention may be directed to the letter from our Berlin Correspondent in our present issue, p 494 —ED L

◆

Mr B Brocks —THE LANCET is not a fashion paper and we do not give advice upon complexion Yet our correspondent might consult [illegible] He will there find various recipes [illegible] practised by Sir Joshua Reynolds [illegible] him a wrinkle (we would even say many wrinkles) if he tries them

M.R C S M P S—With much of the letter we are in accord but it is not worded in a way likely to ensure it attention If the scheme is to receive serious notice it must not be anonymous

A B G—The procedure which our correspondent advocates has been referred to already in our columns

E T—No

Medical Diary for the ensuing Week.

OPERATIONS

METROPOLITAN HOSPITALS

MONDAY (19th)—London (2 P M), St. Bartholomew's (1.30 P M), St. Thomas's (3.30 P.M), St George's (2 P M), St. Mary's (2.30 P.M), Middlesex [illegible] M.), Chelsea (2 P M), Samaritan [illegible] 2 P M), Soho-square (2 P.M), Ro[illegible] Orthopædic (4 P M), Gt. Northern [illegible] lon (2.30 P.M), London Throat (2 P M)

TUESDAY (20th)—London (2 P M) St Bartholomew's (1.30 P.M), Guy's (1.30 P M), St Thomas's (3.30 P M) Middlesex (1.30 P.M), Westminster (2 P.M), West London (2.30 P.M), University College (2 P.M) St. George's (1 P M), St Mary's (1 P M) St. Mark's (2.30 P.M) Cancer (2 P M.), Metropolitan (2.30 P M), London Throat (2 P M and 6 P.M) Royal Ear (3 P.M.), Samaritan (9.30 A M. and 2.30 P M) Throat, Golden square (9.30 A.M)

WEDNESDAY [illegible] London Throat (2 P.M), Cancer (2 P.M.), Throat, Golden square (9 30 A M)

THURSDAY (22nd).—St. Bartholomew's (1.30 P M), St. Thomas's (3.30 P M), University College (2 P.M), Charing-cross (3 P.M) St George's (1 P M) London (2 P.M), King's College (2 P M), Middlesex (1.30 P M), St. Mary's (2.30 P.M.), Soho-square (2 P M), North West London (2 P M) Chelsea (2 P.M) Gt Northern Central (Gynæcological, 2.30 P.M), Metropolitan (2.30 P M), London Throat (2 P M) St. Mark's (2 P M) Samaritan (9.30 A.M. and 2.30 P.M), Throat, Golden-square (9.30 A.M)

FRIDAY (23rd).—London (2 P M), St. Bartholomew's (1.30 P M) St. Thomas's (3.30 P M), Guy's (1.30 P M), Middlesex (1.30 P.M.), Charing cross (3 P M) St. George's (1 P.M), King's College (2 P.M), St Mary's (2 P.M), Ophthalmic (10 A.M), Cancer (2 P.M.), Chelsea (2 P.M), Gt Northern Central (2.30 P.M), West London (2.30 P.M.), London Throat (2 P M and 6 P M), Samaritan (9.30 A M and 2.30 P M), Throat, Golden square (9.30 A.M)

SATURDAY [illegible]

At the Royal Eye Hospital (2 P.M.) the Royal London Ophthalmic (10 A.M), the Royal Westminster Ophthalmic (1 30 P.M), and the Central London Ophthalmic Hospitals operations are performed daily

LECTURES, ADDRESSES, DEMONSTRATIONS, &c

MONDAY (19th)—West London [illegible] (West Lo[illegible]

[illegible]

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS" and not in any case to any gentleman who may be supposed to be connected with the Editorial staff It is urgently necessary that attention be given to this notice

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication

We cannot prescribe or recommend practitioners

Local papers containing reports or news paragraphs should be marked and addressed "*To the Sub-Editor*"

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed* "*To the Manager*"

We cannot undertake to return MSS not used

MANAGER'S NOTICES.

THE INDEX TO THE LANCET

THE Index to Vol I of 1901, which was completed with the issue of June 29th and the Title page to the Volume, were given in THE LANCET of July 6th

VOLUMES AND CASES

VOLUMES for the first half of the year 1901 are now ready Bound in cloth, gilt lettered price 18s, carriage extra.

Cases for binding the half year's numbers are now ready Cloth, gilt lettered, price 2s, by post 2s 3d

To be obtained on application to the Manager, accompanied by remittance

METEOROLOGICAL READINGS.

(*Taken daily at 8.30 a m by Steward's Instruments*)

THE LANCET Office August 15th, 1901

Date	Barometer reduced to Sea Level and 32° F	Direction of Wind	Rain-fall	Solar Radia in Vacuo	Maximum Temp Shade	Min Temp	Wet Bulb	Dry Bulb	Remarks at 8.30 A M
Aug 9	30 00	S W		122	[illegible]	61	62	67	Bright
" 10	29 60	S [illegible]		[illegible]	[illegible]	66	66	72	Cloudy
" 11	29·92	S W	0·14	117	69	[illegible]	[illegible]	64	Cloudy
" 12	29·19	S W		[illegible]	71	57	56	59	Cloudy
" 13	30·03	S W		121	[illegible]	[illegible]	61	61	[illegible]
" 14	30 02	S W	0 50	[illegible]	73	[illegible]	60	[illegible]	Cloudy
" 15	29 77	S W		103	67	59	60	[illegible]	Cloudy

During the week marked copies of the following newspapers have been received —*Leeds Mercury Essex Telegraph Essex County Standard Bristol Mercury Leeds Mercury Hertfordshire Mercury Mining Journal* [illegible] *Yorkshire Post Windsor and Eton Express South* [illegible] *Weekly News* [illegible] *Lancashire Observer &c*

Communications, Letters, &c., have been received from—

A.—Army Medical Department, Director-General of; Messrs. Allen and Hanburys, Lond.; Ancoats Hospital, Manchester, Secretary of; Dr. W. A. Aikin, Lond.

B.—Dr. J. O. Brookhouse, Nottingham; Messrs. J. and H. Bell, Nottingham; Bradford Children's Hospital, Secretary of; Mr. H. Butterfield, Northampton; *Birmingham Daily Post*; Mr. J. Bell, Hong-Kong; Blackman Co., Lond.; Dr. Baradat, Cannes; [illegible] wood and Sons, Edinburgh; Mr. H. Bickford, Lond.; Bristol General Hospital, Secretary of; Messrs. Burroughs, Wellcome, and Co., Lond.; *Beverages*, New York, Editor of; Bootle Borough Hospital, Secretary of; British Preserving Co., Rayne; Messrs. F. B. Benger and Co., Manchester.

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An Address
ON
THE TREATMENT OF TUBERCULOSIS IN SANATORIA.

Delivered before the State and Municipal Section of the British Congress on Tuberculosis on July 26th, 1901,

BY SIR JAMES CRICHTON-BROWNE, M D. EDIN, LL D ST AND, F.R S LOND & EDIN

MR. CHAIRMAN, LADIES, AND GENTLEMEN,—I have undertaken to direct your attention, in the few words I am permitted to address to you, to one narrow scroll of that vast and voluminous subject which is now being discussed in four sections and in many phases by the distinguished men assembled in this metropolis

It is to the subject of sanatoria, or special hospitals for the cure of tuberculosis and more particularly of pulmonary consumption that I have to bring under your notice, and in *saying that I use the word "cure" advisedly* I am aware that pessimistic views as to the curability of consumption are still entertained in some quarters The dictum of Laennec echoing the current opinion of his time, "que l affection [illegible]
absolumen [illegible]
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recently D [illegible]
matters are entitled to respect, has repudiated the word "cure' and strongly urged that we should not commit ourselves to anything beyond an arrest of pulmonary tuberculosis Now, I venture to differ from Dr Theodore Williams on this point, and the difference between us is no mere logomachy but an essential one, calculated to affect the usefulness of sanatoria, for if all that these institutions can offer is an arrest—that is to say, an interruption or stoppage, more or less prolonged, in the course of an incurable disease—they will not commend themselves to public confidence and support as they would do if they could hold out hopes of a complete and permanent restoration to health

No doubt every severe disease by which the human body is visited leaves some residual traces behind it—some scars on the constitution, but for practical purposes these do not count unless they are kept in perpetual remembrance by the suffering they inflict or the disability they involve It is the rarest occurrence to find at a necropsy any human body in which no pathological changes are visible beyond those incidental to the disease that killed or to senile decay In almost every cadaver there are what might be called the fossil remains of palæozoic disease, but because we observe in the ileum the obliteration of some of Peyer's patches we do not say that an attack of enteric fever which happened perhaps 40 years ago was arrested and not cured, because we find on the breast a cicatrix marking the site of a carcinomatous tumour removed 10 years previously we do not maintain the incurability of cancer Then why, I would ask, should the presence of a calcareous nodule or fibrotic patch at the apex of a lung justify us in arguing that phthisis, once planted is ineradicable? The assumption that the tubercle bacilli are lurking in such foci merely waiting the opportunity given by some deterioration of health or lowering disease to break forth again and to spread havoc around is gratuitous, for when in such cases phthisis does again supervene it is just as likely to be due to fresh infection as to any stirring up of slumbering embers Even when caseous masses in which tubercle bacilli can be detected exist in the lung so long as these remain com- [illegible]
with
rtain
debar
us from saying that the morbid process in which they originated was cur [illegible]
nodules round a [illegible]
after an attack of [illegible]
tubercle exists in the lungs of a large number of persons who are unconscious of its existence, who carry it about with them for years, and who ultimately die from other diseases. Dr J Kingston Fowler found that in 2400 post-mortem examinations at the Middlesex Hospital quiescent and extinct tuberculous lesions existed in 9 per cent, while Loomis has recorded a similar state of matters in 71 out of 763 necropsies in New York. Vibert, in Paris, has reported that out of 131 persons *who met with violent deaths and* were examined at the Morgue 17 had healed tuberculous lesions in their lungs Within the last month Dr Frederick P Hearder has carefully analysed for me the last 500 consecutive post mortem examinations of persons from 15 years of age upwards dying in my old hospital, the West Riding Asylum, Wakefield with the result that in 170 of these—that is to say, in 39 2 per cent —tuberculous lesions existed In 93 cases (or 18·6 per cent.) there was active tubercle, and in 103 cases (or 20·6 per cent) there was obsolete tubercle, appearing as contraction and cicatrisation in 24 cases (or 4 8 per cent.), as fibrosis in 35 cases (or 7·0 per cent), as calcification in 23 cases (or 4 6 per cent.), and as encapsulation in 21 cases (or 4·2 per cent) These figures are significant as showing the tremendous prevalence of tuberculosis amongst the insane in asylums and as showing also how tubercle once rendered obsolete may continue so even under conditions most favourable to its renewed activity In 103 persons in whom pulmonary tuberculosis had become obsolete before their admission to the asylum or during their residence there it remained in that state in spite of the impaired nutrition and depressing conditions almost invariably associated with mental disease, and in spite of association in the wards of a large institution with other patients in whom that malady was in its active stages The cure in these cases, such as it was, held good to the last even when it might have been expected to have broken down

No doubt in a large number of cases of consumption, especially in its more advanced stages, a condition that can only be correctly described as an "arrest" is arrived at Pyrexia and the more acute symptoms subside, bacilli are no longer found in the sputum, and there is improvement in general health and diminution of the local physical signs but wheezing, breathlessness, occasional cough loss of strength, and chronic invalidism remain with a constant liability to relapse. In such cases the disease is smouldering but not extinct. But in other cases—a still larger and, we trust, an ever increasing number—what is practically a favourable termination of the disease is reached. The local lesions cease to give trouble the constitutional symptoms vanish, energy and bread earning capacity are restored, a ripe old age is attained with scarcely a reminiscence of the phthisical past, or a long interval of good health is enjoyed before the disease again declares itself. In the two cases which Dr Theodore Williams in his recent paper adduces to illustrate the inveteracy and incurability of phthisis complete immunity from symptoms was enjoyed in one for 19 years and in the other for 11 years Surely under such circumstances it is a misnomer to describe the long interval of health as an arrest—or as anything but a cure of the disease. Koch has cited cases in which tuberculous foci of large size have subsequently contracted and cicatrised and permanently healed and in his judgment the curability of pulmonary tuberculosis in its earlier stages is an indisputable fact. Even a whole lung may be destroyed and shrivelled and the other lung preserved in its integrity But it is in cases less pronounced, where slight infiltration at the apex in young persons from 15 years to 30 years of age undergoes resolution or caseation or fibrosis, that what may be called genuine cures are obtained. In them often enough all unpleasant symptoms disappear, and they remain unmolested by the bacilli for the rest of their days

The pathological evidence of the curability of consumption is convincing and so is the clinical We see cases in what used to be called the pre tuberculous stage but which we now know by the presence of bacilli to be incipient tuberculosis, in which complete resolution with disappearance of local [illegible]
the advantage now to one and now to the other In the long drawn-out struggle, so stubborn is the resistance of the tissues to the invader that our *belief is almost revived in the* exploded *vis medicatrix naturæ* and we see that, even unaided the assailed lung is largely capable of protecting itself The observation of a large group of cases brings home to us the truth that consumption is susceptible of spontaneous cure and

powerfully suggests that in many instances its progress might be stayed and its ravages repaired by some slight reinforcement of the bodily powers. It is to supply this reinforcement that sanatoria have been established. Consumption, as we now know, does undergo spontaneous cure and there can be no doubt that it has from time to time been cured under, and perhaps sometimes notwithstanding, one and all of the infinitely varied kinds of treatment to which it has been submitted. It is impossible to question the diagnosis or judgment of such a clinical expert and faithful historian as Stokes or Niemeyer when he tells us that he has repeatedly seen complete recovery from consumption take place in patients confined to bed, cooped up in hot rooms, kept on low diet and treated by blisters, setons, and cough mixtures. I am not going to trace the several steps in the evolution of a more rational method of treatment that has landed us to-day in measures exactly the opposite of these I have enumerated. That would be an interesting, but a tedious, task for which I have not time, and I will only say that our present system of treatment, that which is organised in the sanatorium, rests on a scientific basis that is irrefragable and is already abundantly justified by its fruits.

I do not claim finality for that treatment. The time may come—pray Heaven it may!—when some sovereign and speedy remedy for tuberculosis will be put in our hands. The resources of pharmacology are not exhausted. Bacteriological science is advancing at automobile pace and any day an agent may be discovered—an improved tuberculin, an antitoxin, a serum, or a germicide—that will seek out and kill the bacilli in their lairs or render them innocuous. Even now the intravenous injection of formalin, as conducted by Dr. Robert Maguire, seems to have a powerful influence in establishing pulmonary asepsis. But pending the authoritative promulgation of some effectual antidote that will operate directly on the bacilli and their products our best hopes are centred in measures calculated to increase the corporeal resistance to their inroads. These measures, which may be summed up under fresh air, feeding, rest, and medical regulation—these measures alone, we now believe, skilfully employed, are capable of effecting a cure in a large proportion of cases of consumption when taken in time, and even should some prompt and infallible remedy for tuberculosis be discovered they will still continue to be of value in promoting its action and in removing the debility engendered by the malady it has extirpated. It cannot be too loudly proclaimed, too widely known, that sanatorium treatment has already largely extended the curability of consumption and that in suitable cases it holds out hopes of recovery and of prolongation of life that could not have been entertained before its introduction. It is as yet too soon to form any exact numerical estimate of its results. Only approximative computations can be made, and these are subject to correction by the subsequent history of cases and to discount for the too sanguine construction of some of those making them. In Germany, where the open-air treatment has most copiously effloresced—though I am glad to remember that it budded first in England—statistics are more reliable than those available in this country, because they extend over a longer period. The experience of 11 years at Görbersdorf, in 1890 patients, gave in the first stage of the disease 27·8 per cent. cured, 31 per cent. nearly cured, and 58·8 per cent. not improved, and Mr. Rube has told us that of 8200 insured men and women treated in the State Sanatoria in Germany 71 per cent. were discharged fit for work, a criterion, not of cure in all cases, but of substantial improvement. Dr. W. Rowland Thurnam tells me that of 78 patients treated at Nordrach-upon-Mendip in the year 1899 24 per cent. left the sanatorium absolutely cured, being able to return to their ordinary walks of life and with no signs of phthisis remaining, stethoscopic, thermometric, or microscopic; while 24 per cent. left relatively cured, not completely recovered, but still equal to a return to work and to a fairly active life. Amelioration short of relative cure was secured in 37 per cent., and in 18 per cent. there was no improvement or death. The absolutely cured cases have all remained perfectly well up to the present date, the relatively cured have suffered no relapses, and some report themselves as better and quite well, while among the ameliorated cases there have been deaths, relapses, and steady improvement. At the sanatorium at Mundesley there were 66 patients up to the end of last year, of whom 21 were discharged recovered and 31 partially recovered, leaving 14 under treatment or unimproved. A return which Dr. F. W. Burton-Fanning has prepared for this Congress dealing with 716 patients treated in 13 sanatoria gives 37·4 per cent. of recovery or arrest and 40·1 per cent. of amelioration, and Professor Koch has told us that if patients be carefully selected and treatment be sufficiently prolonged it will be possible in sanatoria to cure 50 per cent. of cases or perhaps more. Without attaching undue weight to sanatorial statistics published up to the present date this, at any rate, is clear—that these establishments already give results superior to those of the most successful health resorts like Davos, and it may be confidently predicted that as time goes on, and as their merits become known, so that an increased number of patients in the initial and most curable stage of the disease resort to them for treatment, and as the general adoption of those preventive measures which it is the main object of this Congress to recommend leads to a general reduction in the virulence of the disease, their returns will become more and more satisfactory. In their early days they have had to grapple with a large proportion of advanced and hopeless cases, but as a just knowledge of the nature of the disease and its amenability to treatment is disseminated there will be less contributory negligence on the part of sufferers and their friends and more eagerness in seeking relief.

Seeing that the sanatorium treatment is accepted by the medical profession as, upon the whole, the best treatment of consumption available at present—and the unanimity of the profession on this point is remarkable—seeing that it saves many lives, that it prolongs the days and alleviates the sufferings of those whom it cannot altogether rescue; and seeing that it has the collateral advantage of aiding in the work of prevention by isolating a number of active fountains of infection that but for it would be scattering the seeds of the disease throughout the community,—it behoves us to bring that treatment within the reach of all persons affected by consumption who are willing to avail themselves of it. The sick and the sound alike will benefit by its adoption, the public burdens will ultimately be lightened by its beneficial operation, and it is therefore a public duty to provide it for those who cannot provide it for themselves. This public duty is now recognised in almost all civilised countries. In France, Italy, Russia, Norway, Sweden, Denmark, Switzerland, Austria, Hungary, Poland, Spain, Portugal, and in 11 of the States of the American Republic sanatorial hospitals have been provided, and in most of these countries the Government have seen fit to assist in their erection and maintenance and in some cases to assume the entire responsibility for these. In Germany, which leads the van in this good work, upwards of 100 sanatoria with above 5000 beds have already been called into existence for the treatment of consumptives of the working class, and as the funds for these have been largely contributed by the State Insurance Companies we may accept the fact that additional sanatoria are to be forthwith provided as conclusive evidence that from a financial point of view these hospitals have not been disappointing. It is actuarially established that the cure of consumption on the large scale in the working class, costly though it may be, is, in the long run, cheaper than the expenditure on sick pay and death duties and support of dependants when it is left to run its unrestrained course. The exact mode in which sanatorial accommodation is to be provided must, of course, vary in every different country in accordance with its administrative system, its economical conditions, and the habits of its people; and we hope to hear from foreign representatives some interesting particulars as to the methods adopted in their respective localities, but my duty is simply to introduce the question of sanatorial treatment in England and to prepare the way for Mr. E. W. Brabrook, Sir John Burdon Sanderson, and others who, with abundant knowledge and practical experience, will deal with the topic in several aspects and in greater detail.

Now England has been accused of having lagged behind in this matter, and the remarks which have been made almost suggest that she has been callously indifferent to the sufferings and deprivations of her consumptive poor. But that accusation is not more just than those levelled against her for her inhumanity in war. It is not mere British arrogance, but sober truth, to declare that there is no country in the world where more ample and generous provision has been made for the sick and afflicted of all classes than in England. Consumptives have not been neglected. Our workhouse infirmaries, our sick asylums—some of them quite equal to the best continental hospitals—have always been open to them; our general hospitals, as Dr. P. H. Pye-Smith has pointed out, have not refused them admission; and admirably appointed special hospitals, like those at Brompton, at Victoria Park, and at Ventnor, have been provided by the charitable for their accommodation. With characteristic caution England has not rushed into the new sanatorial movement until thoroughly satisfied as to its feasibility, but now that she is convinced on that point there will be no slackness or delay in her participation in it. The progress made in the work of the prevention or cure of consumption since our National Association for that purpose was formed, and since the King gave it his countenance less than two years ago, has been phenomenal, and at the present moment there is scarcely a county of England in which, either by private enterprise or public effort, a sanatorium is not being built or is not in conten [illegible] work before us at this juncture [illegible] local activity, to determine the [illegible] as a whole and of its several districts, to prevent overlapping and extravagant outlay, and to supply the best advice as to construction and management. And in this work the deliberations of a congress such as ours may afford material assistance. My contribution to these deliberations must be a small one, but I would briefly indicate what it seems to me is wanted in connexion with sanatorial treatment in this country.

In making provision for that treatment we have three classes of consumptive persons to bear in mind: (1) the affluent, (2) the competent, and (3) the indigent.

As regards the first of these, the affluent, they may, I think, be safely left under the guidance of the skilled medical advice which they can command to provide what is necessary for themselves. Consumption is always prevalent in the inverse ratio of rateable value, and the problem of dealing with it amongst the rich is therefore a comparatively simple one. For them I am not prepared to maintain that treatment in a special sanatorium is always essential. I am not blind to the advantages of the discipline maintained in a large establishment conducted with a sole eye to salubrity, or of complete subjection to the will of a medical autocrat with a firm faith in his system and the power of inspiring confidence. But such medical autocrats, indomitable and yet genial, are not everywhere to be found, and sanatoria have their drawbacks as well as their advantages. On a highly bred and highly strung person involvement in an agglomeration of disease may have a depressing effect. For a majority even of the affluent class of consumptives the sanatorium with its simple ways and benevolent tyranny is, I believe, the best place, but I cannot contend that for some of them a private house may not, by architectural device, medical direction, and skilled nursing, be converted into a perfect sanatorium. Nay, I would go further and say that for the affluent the sanatorium is not the kind of treatment to be invariably recommended. It cannot, I think, always supersede residence at high altitudes, in Egypt, on the veldt, or even sea voyages, and those who have every method of [illegible] be guided by the phy [illegible] traits and requirements [illegible] that the sanatorial provision for the affluent in this country is already nearly sufficient. I have seen a list of 22 of these establishments already in operation in England and Scotland, and more are promised, and the law of supply and demand may be trusted ultimately to determine their number and characteristics. But the law of supply and demand—being one of the mills of God—"grinds slowly," if it "grinds exceeding small," and in the meantime, until selection has determined the survival of the fittest, a jealous medical eye should be kept on these establishments. The name "sanatorium" is unprotected, open air is a *fera naturæ* that he who will may capture, and the danger is that incompetent persons without scientific knowledge or practical skill, or unscrupulous persons with a dingy dwelling, a meagre curtilage, and a rickety summer-house designated anew "Nordrach-cum-Wolverhampton"—the Black Country being a substitute for the Black Forest—or "Falkenstein in Finsbury," may draw into their nets unwary patients and discredit the system. It is incumbent on members of the medical profession in choosing a sanatorium for their affluent patients to be well assured of the character and qualifications of its medical head. Some existing sanatoria are admirable; in others there is room for improvement in internal arrangements and domestic management. A rough-and-ready system in the service of food and household economy is no integral part of the treatment, which is not incompatible with daintiness and refinement. To call high-class men who have identified themselves with such establishments "hotel-keepers," as has been done, is a gratuitous insult and a grave injustice. They are hospital physicians giving their whole time to their hospital work and therefore properly remunerated directly and they are conferring valuable services on the public. For my part I think that it is much more desirable that sanatoria for the affluent classes should remain entirely in the hands of medical men than that they should be exploited by limited companies or by lay speculators.

In turning to the "competent" class of consumptives—as I have called those drawn from that large section of our people whose means suffice to furnish the necessaries and conveniences of life without superfluity—we reach the point where eleemosynary aid becomes desirable. As long as health is preserved these persons have ample means of subsistence, and during a brief illness they can meet all requisite charges, but when they are prostrated by a protracted disease that diminishes or cuts off their income and demands a costly treatment their resources are inadequate. Their state is really a pitiable one, for their independence of spirit is not lost in their undeserved poverty and often enough they would rather die than apply for relief. Many of them can contribute some part of the cost of their maintenance and treatment while they are ill, and many of them, if restored to health, would gladly, when again earning money, repay to any institution the expenses of their illness. It is for them—for governesses, curates, clerks, young barristers and medical men and civil servants, and for the wives and daughters of professional men, of farmers, and small tradesmen—that sanatoria should be provided by the subscriptions of the charitable or by the assistance of well-disposed capitalists who are willing to do a good work and receive a very small return for their money. And what charity is ready to do for such sufferers is illustrated by the noble gift of £100,000 to the Mount Vernon Sanatorium at Hampstead, announced this morning. In the sanatoria thus procured a certain number of patients would, if the institutions were to be useful, have to be received gratuitously or on the terms of deferred payment should recovery take place—a payment which should, of course, be always voluntary and never enforced. A majority of the patients, however, would pay for their own board in part or in whole; and my belief, founded on my experience of registered lunatic hospitals, is that, when once built and furnished and fairly started, these sanatoria would, under skilful management, become self-supporting. It is the initial expenses that have to be met. The cost of maintenance when they are launched need not, in sanatoria of 60 beds and upwards, exceed £1 10*s.* or £2 a week—a sum which, considering that the duration of the treatment will be on the average six months, a very large proportion of the competent class should be able to pay out of their own pockets At Pinewood Sanatorium, which has been built out of funds advanced by Mr. Rube and Mr. Lionel Phillips at 2½ per cent. interest, and where we shall have rent at that rate on an outlay of £30,000 to pay, we propose to open with a charge of three guineas a week, which we ultimately hope to reduce considerably. In some of the county sanatoria that are now in view, thanks to local efforts, I have no doubt that treatment on a liberal scale will be put within the reach of those who cannot afford more than £1 5*s* or £1 10*s.* per week, and as several counties which are leading the van in this matter have already, even in these pinching times of war, obtained by public subscription the amount required for their sanatorial needs, I am sanguine that their example and the encouraging reports they will soon be able to issue will stimulate other counties to do likewise, and that voluntary contributions and self-aid will do all that is necessary for the competent class of consumptives in this country. As to the constitution and administration of these sanatoria I shall say nothing now but that they should be constructed in the simplest and most inexpensive style, and that their hospital character should be preserved by the appointment of a staff of consulting and visiting physicians. A resident medical officer must, of course, carry out treatment and superintend every detail of domestic economy, but the patients should have the benefit of the highest medical skill and experience that the district affords. Any medical body or corporation putting obstacles in the way of the acceptance of office in such sanatoria would be incurring a serious responsibility and would have to encounter a heavy reckoning with public opinion.

In the indigent class of consumptives is included the great mass of cases of the disease in this country—all those occurring amongst artisans, workmen, labourers, soldiers, sailors, domestic servants, sempstresses, and shop-girls. The line between them and the class immediately above them socially is not clearly defined; for, of course, an enormous majority of them are competent in the sense that they are supporting themselves and those having claims on them while they are well, and that by virtue of their own frugality they are not wholly or immediately destitute in sickness. They are, however, indigent in the sense that they are all in need of help, of greater or less amount, during any prolonged suspension of work (when also those dependent on them must be maintained)—help which in consequence of their number and distribution must almost inevitably come from public funds. Private charity cannot cope with their necessities and the sanatoria by which that valuable commodity, their skill and labour, is to be preserved to the community when it is menaced by consumption must be paid for out of the public purse. The problem of providing these sanatoria for the indigent is a large one to commence with, but as their curative influence is exercised and as preventive measures come into full operation it will become smaller and easier. It is clear that these sanatoria for indigent consumptives must be distinct establishments and cannot properly be tacked on to any existing institutions. It is an infectious disease which they are to harbour and so they must be isolated; its treatment requires uncontaminated air and sunlight, and so they must stand apart in some county district away from centres of population. And as they must be isolated geographically so, I think, they should be isolated morally from other institutions with which there may be a tendency to associate them. They should be kept free from any taint of pauperism and have no point of contact with the Poor-law. I would suggest, therefore, that not district but county councils, acting singly or in combination, should be charged with the duty of erecting and governing them and that they should be designated "county sanatoria." In the metropolitan district, perhaps, the Metropolitan Asylums Board, that has so efficiently dealt with zymotic disease, might undertake this additional duty. In these county sanatoria (once built) the maintenance and treatment should not exceed 15*s.* a week per head, and that sum many of the indigent class could find for themselves throughout their limited treatment, while a still larger number could find a moiety of it. Then an arrangement might be made by which friendly societies and sick clubs would have the right to demand admission for their members who are consumptive and their treatment for a fixed period at the ordinary rate of maintenance, while collieries, manufactories, and works might by small weekly payments of those employed in them retain a call on a certain number of beds. The contributions of indigent consumptives would go far to maintain these county sanatoria and whatever was required beyond these contributions should be drawn from the county rate. The money thus expended would be profitably invested. The medically certified existence of pulmonary consumption should be the one all-sufficient qualification for admission to these sanatoria, and residence in them should be prolonged until the disease has been cured or bread-earning capacity restored, or until death in hopeless cases. A certain amount of internal classification would be necessary in these county sanatoria, but upon that I cannot now enter. They, like sanatoria for consumptives of every class, should, I think, be under the regular inspection of the medical officer of health of the county. The existence of county sanatoria would surely obviate some of the objections to the obligatory notification of tuberculosis.

I have been speaking this morning exclusively of sanatoria adapted to the treatment of pulmonary consumption, but I need scarcely say that the treatment adopted in these institutions is, with modifications, equally applicable to tuberculosis affecting other organs and tissues. The efficacy of what I may call sanatorial schools planted in the keen but salving air of Margate and of other points on our eastern coast, in tuberculous adenitis or glandular enlargements in children, has been long recognised by the medical profession and highly encouraging results have been obtained at the Institut Verneuil in Brittany by exposing the victims of scrofulous joint disease to the blusterous breathings of the vexed Atlantic. The ratepayer of this country is an Issachar, not couching between two burdens but loaded with innumerable heavy bales that are bending down his strong back, and one hesitates, therefore, to propose the addition of even a small bundle to the pile, but when I suggest special schools in suitable localities and under medical control for the reception of poor children with swollen necks or crippled hips and knee-joints, I feel that I am only recommending a readjustment of the load which will give some immediate ease, and will, in the long run, permanently lighten it. Our Metropolitan Asylums Board and our London School Board have both concerned themselves with the education of the weak-minded. That is a beneficent and useful undertaking and no one grudges the large sums of money that have been expended on it, but it has obvious limitations, for you may gild but you cannot expand "the straitened forehead of the fool" Considering the huge multitudes of poor children in our pestiferous city hutches and hovels who are maimed and lamed for life by the burrowings of the tubercle bacilli in their glands and joints, to say nothing of those who go under and are deposited in batches in our suburban cemeteries; considering further that the children thus afflicted are often, not only of rare physical beauty, but of fine mental fibre—for tubercle is greedy of our fairest and best; and considering that their affliction is in its early stages very remediable, I do not hesitate to affirm that the care and cure of scrofulous children is a more pressing and promising public obligation than the education of the weak-minded. If you deal adequately with all your scrofulous children now, taking them away from their squalid homes and from over-crowded asylums, workhouses, and schools, immersing them in a pure atmosphere and feeding them copiously—*pace* Professor Koch— on milk and meat free from bovine tubercle, with surgical aid and such teaching as is needful to guide the growth of their precocious wits, you will relieve much poignant misery, prevent much decrepitude and pauperism, and materially reduce the amount of weak-mindedness in the next generation. A particular case often brings a truth home to us much better than any general statement. Well, I read in the newspapers only a few days ago the sad story of an inquest on a poor cripple, Leonard Paris, who at 19 years of age found what he called "his lonely, miserable existence" unendurable, and so threw aside his crutch and handled the revolver. From six years old he had suffered from hip-joint disease and although he had been liberally supported by his friends and had had the benefit of treatment in several hospitals, he remained unrelieved, for for four months before his death his temperature was feverish. But although his body wasted, his intellect remained vigorous and clear, as the pathetic letters he left behind him prove, while his sense of deprivation became more and more acute. Hope died within him; at last he wrote: "This time I mean to succeed; better a few moments of pain than an unbearable existence, chained by my merciless, hideous fetters to a disease which I know in my inmost heart to be incurable." The case of Leonard Paris appeals to me with peculiar force because the most brilliantly intellectual youth whom it has ever been my lot to meet, whose Oxford associates predicted for him a triumphant career, when stricken down by a recurrence of tuberculous hip-joint disease, also put out the light with his own hands. Had he and Leonard Paris had the benefit of sanatorial treatment at the outset of their malady there is reason to believe that the tragic issue would have been avoided. Thousands of helpless children around us now, with large, anxious eyes and pallid cheeks, are waiting to have their destiny decided. Is it to be health and gleesome toil or pain and dwining incapacity? Sentiency is the measure of my sympathy. I cannot feel the same pity for a happy jabbering idiot, unconscious of his own defects and with blunted sensibility, that I do for the pretty child who is blemished or racked by disease and cut off from all joyous activity while its emotions and imaginations are preternaturally vivid. I would plead most earnestly for the early, generous, scientific treatment of strumous children. That is one of the ways of preventing phthisis. I do not know what Mr. Cockerton would say to sanatorial schools, but this I do know, that our legislators ought to have no hesitation in granting to local authorities all necessary powers for grappling effectually with tuberculosis in the young.

Literary Intelligence.—Messrs. William Blackwood and Sons have just published a work dealing with British serpents by Dr. G. N. Leighton. We see from the prospectus that the book is the result of years of personal observation. The price is 5s. net.

HOW CAN THE TUBERCULIN TEST BE UTILISED FOR THE STAMPING OUT OF BOVINE TUBERCULOSIS?[1]

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PART I.—DIAGNOSIS.

A. *Preliminary remarks.*—The question before us is the stamping out of bovine tuberculosis, and more especially how the use of tuberculin can assist us in obtaining this result. The prominence given to tuberculin in this discussion is due to the fact that in our estimation, as well as in that of the most competent authorities, Koch's great discovery gives us the most efficient means of diagnosing tuberculosis during life. In my estimation the keystone of preventive measures must be a reliable and readily applicable method of diagnosis. I might be excused if, after stating this view, supported as it is by the weight of the highest authorities, I made no further attempt to prove its correctness. By following such a course my right to express a definite opinion might be challenged, and I might offer further food for the criticism of those who are still supporting our responsible governments in their attitude of agnosticism. Such an attitude is well expressed by Mr. Walter Long, the late President of the Board of Agriculture, in his 1899 Newcastle speech, in which he is reported to have said:—1. The data were still too *indefinite and wanting in preciseness to justify them in* asking Parliament for great votes of public money or to impose on stock-keepers compulsory measures entailing great loss. 2. They were not yet sure that those measures would be effectual. 3. *The* tuberculin test might be administered so as to render cattle incapable of reaction on a second application of the test, and that might be productive of fraud. 4. People who had studied the question most closely were not agreed as to the conditions under which the test should be applied. 5. The disease was difficult of detection unless one could rely on some such discovery as the tuberculin test. 6. At present too little was known, too much doubted, for Parliament to be justified in imposing upon the country heavy expenditure on wholesale restrictions which would be strongly resisted in many quarters, and which might not do anything effectual for the *extinction of the disease.*[2] Mr. Long's contentions receive support from Schütz's observations.[3] In 1891 this observer tested 66 head of cattle—51 reacted, of these 43 *only* were tuberculous; 15 did not react, *and of these four* were tuberculous. They are also supported by statements made by Professor Bang at the Congrès pour l'Étude de la Tuberculose chez l'Homme et chez les Animaux, held at Paris in 1898.[4] Mr. Walter Long's criticism, which was made some time after the publication of Professor Bang's communication, seems at first sight to express identical views. A careful consideration of Professor Bang's statements will, however, show that they do not entirely justify Mr. Long's conclusions. Professor Bang emphasises the reliability of positive reactions in the great majority of cases; he points out the conditions which may bring about failure of reaction and also the ways by which such errors may be avoided or considerably reduced. He shows also that most of the tuberculous cases which do not react are, firstly, cases in an advanced state of tuberculosis—i.e., those which can be easily diagnosed by other means; *secondly*, cases which have previously reacted and have acquired tolerance; and thirdly, cases in which a slight tuberculosis has been present but in which the disease is becoming arrested. I will be able to show *that such cases should* be no obstacle to proper administration. I wish also to emphasise the fact that although Professor Bang's restrictions may have been used by others for purposes of adverse criticism their author is *not* responsible for this and is undoubtedly one of the earliest and strongest supporters of the use of tuberculin in diagnosis.

We have, on the other hand, statements made by equally reliable and recognised authorities which are entirely favourable to tuberculin. I will not lengthen this communication by a *detailed account of all the records* available, for my purpose will be equally well served by quoting the conclusions which have been arrived at by Professor Nocard and by the Royal Commission on Tuberculosis after a careful compilation of records available and the carrying out of confirmatory experiments. Professor Nocard in 1892[5] gave a very useful summary of the earlier work done soon after the announcement of Koch's discovery of tuberculin, which he summed up as follows: "Tout le monde admet aujourd'hui l'exactitude et la précision merveilleuse des [illegible]

on tuberculosis state: "*We entirely accept these conclusions* and entertain no doubt as to the value of tuberculin provided the test is applied by a competent veterinary surgeon and that the tuberculin is of trustworthy quality."[6]

B. *Criticism of previous experiments regarding the value of tuberculin.*—It is not difficult to account for the differences of opinion which have arisen out of the results of early experiments with tuberculin.

1. The reaction is not simply manifested by any rise of temperature, but, as Nocard and others have frequently observed, this rise of temperature is characteristic only under certain conditions which must be observed in order that the results should be reliable. (*a*) The animal submitted to the test should not be at the time subject to sudden variations of temperature or be suffering from pyrexia. Before applying the test it is therefore necessary to observe the animal for two or three days and to take its temperature morning and evening. Recently driven cattle especially should be tested only after they have been submitted to this preliminary observation. The calving period is also to be avoided. (*b*) In tuberculous animals a characteristic rise of temperature is usually observed between the ninth and fifteenth hours, but it is occasionally, though rarely, observed after the fifteenth hour. (*c*) A slight rise of temperature, not amounting to more than 1° C. above the normal temperature of the animal, cannot be considered characteristic, since healthy animals are liable to fluctuations of temperature capable of producing such a rise. It is therefore desirable to adopt some scale similar to that recommended by Nocard who considers a rise of 0·8° C. (1·4° F.) as having no significance; a rise of from 0·8° to 1·4° C. (from 1·4° to 2·5° F.) as being only suspicious and requiring the confirmation of a further test at the end of a month; a rise of from 1·5° to 3° C. (from 2·5° to 5·4° F.) as characteristic of tuberculosis when the conditions previously stated have been observed. (*d*) It is almost useless to add that no tuberculin should be used which does not come from a reliable source and which has been exposed to loss of activity by long keeping. *The exact dose of each preparation* should be carefully ascertained. Many of the earlier observers have not paid sufficient attention to these precautions. Thus Schütz has considered a rise of 0·5° C. as indicating a tuberculous reaction.

2. Sufficient care has not always been taken to make a thorough post-mortem search for minute tuberculous lesions on animals which had reacted and in the absence of very careful and minute examination it is unscientific to report an entire absence of tuberculosis.

3. The absence of reaction in animals suffering from advanced tuberculosis does not affect the value of the test. This absence of reaction is only what can be expected in the case of animals which are already saturated with the products of the tubercle bacillus. This state is probably analogous to the state of tolerance produced by frequently repeated doses of tuberculin. But when cows have reached such a stage of tuberculosis their state should be obvious to a competent veterinary surgeon, and as most of these animals would be suffering from advanced phthisis the clinical diagnosis could be confirmed by the bacteriological examination of mucus obtained by swabbing the pharynx according to the method recommended by Grellier.[7] (To excite *secretion pilocarpine*, from 25 to 30 centigrammes, may be previously injected.)

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[1] Abstract of a paper communicated to the British Congress on Tuberculosis. Section I., State and Municipal.

[2] Manchester Guardian, Jan. 30th, 1899.

[3] Schütz: Arbeiten aus dem Kaiserlichen Gesundheitsamte, Band viii. See also Nocard: Annales de l'Institut Pasteur, 1892, vi., p. 50.

[4] La Semaine Médicale, 1898, p. 329.

[5] Annales de l'Institut Pasteur, vol. vii., p. 44.

[6] Report of the Royal Commission on Tuberculosis, Part I., Art. 13, p. 4, 1895.

[7] Bulletin de la Société Centrale de Médecine et Vétérinaire, 1890, p. 445.

4. The absence of reaction in the case of animals in an early stage of tuberculosis will, I think, be found to be very rare when the test is properly applied. The most remarkable feature of the tuberculin test is the power which it gives to detect extraordinarily small lesions, and it is this property which, I think, renders it so specially suitable as a basis for preventive methods and will allow such methods to be carried out economically—i.e., before infected animals have lost their value on the meat-market. But even if a few escaped it is obvious that early tuberculous lesions could hardly be a source of infection in other animals and that under a regular and thorough system of inspection these animals would be detected before they had become a source of danger to other animals or to man.

5. With regard to the tolerance acquired by cattle which have been tested several times I can best indicate to what an extent this might be a source of difficulty by giving the results of some experiments made for the Cheshire County Council by Mr. Laithwood, chief veterinary inspector of the county. I was able to follow these experiments closely, being engaged in another branch of the same investigation. In the space of 80 days several cows were tested five times at variable intervals with the following results (Table I.).

TABLE I.—*Effects of Testing with Tuberculin Repeated at Short Intervals.*

Reference No. of cow.	First testing.	Second testing, 45 days after first.	Third testing, 13 days after second.	Fourth testing, 14 days after third.	Fifth testing, 12 days after fourth.	Result of post-mortem examination and remarks.
5	?	?	–	?	–	Case of distomatosis; temperature irregular.
24	+	+	+	+	–	Advanced tuberculosis.
32	+	+	+	+	?	Slight tuberculosis.
37	+	+	+	+	–	Slight tuberculosis.
41	+	+	+	+	–	Advanced tuberculosis.
42	+	+	?	+	–	Advanced tuberculosis.
27	+	+	Not tested.	+	Not tested.	Advanced tuberculosis.
35	?	–	Not tested.	–	Not tested.	Healthy.
51	+	+	In calf; not tested	+*	...	Tuberculosis slight.

* Tested later than the others.

Three of the cows which had ceased to react were found to be still in the same state 35 days after the last test. ? indicates that the reaction was doubtful.

It was only at the fifth injection that the tuberculous cows all ceased to give a reaction, and this fifth injection had followed the fourth, third, and second testings at intervals of only 12, 14, and 13 days respectively. Nocard had previously obtained more carefully tested results showing that tolerance to tuberculin is not so easily produced as has been stated.

Fear of fraud cannot be considered a very sound argument against the use of a good method.

C. New experiments.—Having shortly referred to some of the evidence already available I must now record the results of experiments which have been conducted under my supervision since 1897 and in which an attempt has been made to observe all the precautions necessary to avoid the fallacies which have been previously discussed. I will also take advantage of the extensive investigation carried out in Aberdeen on behalf of the University Department of Agriculture in 1899. As a result of a conversation which I had with him, Mr. Gair Ashton, M.P., in 1897 decided to test practically the possibility of stamping out tuberculosis from the herd kept on his estate at Ford Bank. The probable cost of the experiment which I fully explained did not deter him, and with great liberality and public spirit he gave me the means of obtaining all the information which I could obtain from such an experiment. The small herd kept at Ford Bank consisted in 1897 of 21 cows, bullocks, heifers, and calves, several of which were tuberculous. The problems before us were, first, to stamp tuberculosis out of Ford Bank; secondly, to estimate the cost of this radical procedure; and, thirdly, to keep the new stock free from tuberculosis. Briefly speaking, these experiments were conducted as follows. All the stock on the farm was tested with tuberculin from the Institut Pasteur by Mr. Locke, assisted at first by Mr. King, the corporation chief veterinary inspector, and afterwards by Mr. Holburn, Mr. King's successor. The test was applied with all the precautions which I thought necessary and which I have previously indicated. In all cases the animals were kept under observation for two or three days before testing and their temperature was taken at least three or four times. After the injection of tuberculin the temperature was taken, with few exceptions, four times between the ninth and twentieth hours at intervals of three hours. The animals which did not react were at once transferred to recently disinfected sheds. Those which reacted were speedily sent to the abattoir. The carcasses of slaughtered animals were examined carefully at the abattoir by Mr. Holburn and the lesions found were carefully recorded. In doubtful cases the organs or parts of organs were referred to me for further investigation. The price obtained for each carcass was also noted. Each animal previously to being slaughtered was valued by an independent expert. All the calves were kept isolated from the first and were fed on boiled milk. No attempt was made to separate the calves of tuberculous dams from the others, of which there were very few. The stables which had been occupied by tuberculous cattle were disinfected thoroughly with chlorinated lime solution and then they were whitewashed. To fill the gaps made in the old stock new stock was bought subject to the tuberculin test, the animals being kept in a separate shed previously to the application of the test. All animals found to react were returned to the seller and only those which did not react were added to the old stock. This was done in order to ascertain the safety of relying on the tuberculin reaction as a basis for contract. The milk of none of the tuberculous cows was again used on the farm without being boiled, although there was no evidence of tuberculosis of the udder in any case. Finally, owing to Mr. Ashton's change of residence, all his cattle were sold by auction and a record was kept of the prices obtained for each animal. Shortly speaking, the results of the tests were as follows in the case of cattle which I have been able to keep sufficiently long under observation. (I have excluded all animals which after being tested once were lost sight of.) *Definite reactions:* 48 out of 49—i.e., nearly 98 per cent. The doubtful reaction gave place to a definite reaction on the second trial within three months, so that the failure was not a permanent one. *Positive reactions:* 19 out of 19 proved to be correct—i.e., 100 per cent. *Negative reaction:* 28 out of 29 proved to be correct at once—i.e., 96·5 per cent. The tuberculous cow which did not react had newly calved; this error was corrected within three months by re-testing. I believe that a method which gives such results may be considered as perfect as any other method of diagnosis can ever be expected to be.[8]

I am fortunately in a position to avail myself of the results of a later investigation bearing on a much larger number of animals examined under conditions such as may be easily observed in practice. I had opportunity to discuss with Professor D. J. Hamilton the conditions under which this set of experiments was carried out and I am fully satisfied that as far as they go the results may be received as absolutely reliable. I feel, however, that, owing to the facts that the temperature of the animals was taken only once before the test was applied and only between the tenth and thirteenth hours after the injection, the value of tuberculin was tested somewhat more severely than was necessary. It is not possible to reproduce here the tables of results given in the report of this experiment published in 1899 by the Department of Agriculture of the Aberdeen University.[9] The authors explain in this report that by arrangement with important butchers and cattle-owners they have been able to test a large number of cattle which were intended for slaughter, generally on the farm before removal, but when this was impossible the test was applied in the byre connected with the slaughter-house after the animals had been kept there for 24 hours. It will be obvious, therefore, that in the second group of cases the test was applied under conditions not altogether favourable to success. The main conclusions of the authors regarding the value of tuberculin are summed up as follows by themselves: "1. Our experience confirms the generally accepted opinion that tuberculin loses its virulency when kept for any length of time. 2. When used with care and under proper conditions tuberculin is a reliable diagnostic of tuberculosis in cattle, except (*a*) when the tubercular lesion is minute, or (*b*) when the disease has become generalised, especially in the case of aged and emaciated animals." The authors sum up these results in four tables giving a detailed account of the age of the animals tested, of the temperatures observed, and of the lesions found in the carcasses after slaughter. I have prepared on the basis of their own records the following table (Table II.).

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[8] See second part of this paper for the other results of this experiment.

[9] Report on an Investigation with regard to the Value of Tuberculin as a Test of the Presence of Tuberculosis in Cattle. By J. McLauchlan Young, F.R.C.V.S., and J. S. Walker, M.B., D.P.H., Aberdeen University, 1899.

TABLE II.—*Analysis of the Sources of Failure in the Aberdeen Experiments.*

—	Number tested.	Age.	Tuberculin reaction.		Tuberculosis found post mortem.	Error in tuberculin reaction.	
			−	+		+	−
						Per cent.	Per cent.
Heifers ...	60	1½ to 2 years.	54	6	10	0·0	6 6*
Bullocks ...	100	2 years.	80	20	24	0·0	5·0†
Bulls	3	3 years.	2	1	1	0·0	0 0
Cows	77	Average 7½ years.	52	25	42	0·0	32 6

* Corrected 1·6 per cent. † Corrected 2·5 per cent.

NATURE OF CASES IN WHICH ERROR WAS OBSERVED.

Heifers.—Nos. 28 and 30: Bad tuberculin used. No. 31: The syringe leaked; quantity injected unknown. No. 60: The dose was possibly too small; this is the only error not fully explained by experimental accidents. This reduces the percentage of failures to 1·6.

Bullocks.—No. 3: The only lesion was a *fibrous* tubercle in the lung. No. 7: There was a rise of 1° F. The animal was not well; this is not a negative but a doubtful reaction. No 19: There was a minute calcareous tubercle in the mesenteric glands, tubercle bacilli were found, but the process was apparently becoming quiescent. It is doubtful whether any of these cases is a complete failure; two cases may be accepted as such. This reduces the percentage of failures to 2 5.

Cows.—Nos. 5, 6, 7, 19 and 33: In all these [illegible]

We may safely exclude from this table all the results which are vitiated by experimental faults clearly admitted. On the other hand, we must retain those results which though of doubtful value may be accepted as necessary defects which would occur under ordinary circumstances. After excluding from the animals one the age of which was not stated and five which cannot be considered as having been properly tested (in two cases old inactive tuberculin was injected; in another the syringe leaked and the quantity was not known; in two others it was doubtful whether there was active tuberculosis or not) I have constructed tables bringing out facts which had not been previously paid sufficient attention to and which corroborate my previous experience in Manchester (Table III.).

Even if the five cases which I have excluded on good grounds from the group of animals under eight years of age were retained in that group the total number of errors would have been nine out of 209 tests, an error equal to 4·3 per cent. I should state also that all the positive tests were found correct, whilst of the nine cases in which a negative reaction was misleading seven were affected with extremely localised tuberculosis arrested or nearly arrested, and only two were suffering from pulmonary tuberculosis and might have been a source of infection. In this group, therefore, the amount of serious and material error amounted to two out of 209, or less than 1 per cent. With regard to the second group of aged cows they were all in an advanced state of tuberculosis and their state would have easily been recognised by clinical examination.

I will show later that under a proper system of inspection tuberculosis should never reach such a degree as to render tuberculin useless as a method of diagnosis. It may be interesting to note that similar experiments conducted in 1891 in the Duchy of Baden by Lydtin, according to the same plan as that adopted in Aberdeen, yielded the following results. Of 110 head of cattle there was negative tuberculin reaction in 70, in none of which were tuberculous lesions found post mortem; there was positive tuberculin reaction in 39, and tuberculous lesions were found post mortem in 37 of them; and there was doubtful reaction in one animal. In this experiment the negative reactions were free from error. The errors in connexion with the positive reactions were two in number, but as no precaution appears to have been taken to allow the animal to rest before the injection of tuberculin, and as perhaps not sufficient attention was paid to deep-seated lymphatic glands, the results obtained were remarkably accurate.

TABLE III.—*Influence of Age and Disease on the Results of the Tuberculin Test.*

—	Number of animals giving a definite reaction.	Tuberculin reaction.		Tuberculosis found post mortem.	Total number of tuberculous animals.	Error on − reaction.	Error on + reaction.
		−	+				
Heifers.					Per cent.		
Under two years of age	57	51	6	7	12·25	1	0
Bullocks.							
2 years of age ...	93	78	20	22	22·44	2	0
Bulls.							
3 years of age ...	3	2	1	1	33·33	0	0
Cows.							
4 years of age ...	5	4	1	1	20 0	0	0
5 ,, ,, ...	9	5	4	4	44·44	0	0
6 ,, ,, ...	19	9	10	10	52·6	0	0
7 ,, ,, ...	10	4	6	6	60·0	0	0
8 ,, ,, ...	8	7	1	2	25·0	1	0
Totals for all animals up to eight years of age	209	160	49	63	25·4	4 = 1·91%	0
Cows.							
9 years of age ...	6	5	1	5	83·0	4	0
10 ,, ,, ...	6	5	1	4	66 4	3	0
11 ,, ,, ...	4	3	1	3	75·0	2	0
12 ,, ,, ...	6	6	0	6	83·0	5	0
13 ,, ,, ...	3	3	0	2	66·6	2	0
Totals for cows above eight years of age	25	22	3	19	76·0	16 = 76%	0

The results of these three sets of experiments which bear upon a total of 408 animals leave, I think, no room for doubt as to the efficiency of tuberculin as a diagnostic agent when it is properly used. The amount of error attributable to failure of the test is very small; indeed, it is trifling when compared to the errors which are inherent to most methods of diagnosis, many of which are, nevertheless, used as a basis for administrative procedure. To the direct evidence which I have already given I may add some indirect evidence which I have collected in the course of my investigations on cow's milk as a source of infection. In the course of six years nearly 2000 samples of milk have been examined in my laboratory; of these samples over 500 were from single cows. I am greatly indebted to the Manchester Sanitary Committee, and especially to Dr. Niven, for the facilities which have been given to me for collecting the information which I wished to obtain; to Mr. Holburn, the chief veterinary inspector; and to Mr. Lloyd, the veterinary inspector attached to the Sanitary Department, for supplying me with all the material I required. I have also to acknowledge similar help received from Mr. Tattersall, the medical officer of health of Salford, and his veterinary inspector, Mr. Fordham. The following table records some of the data which I have thus obtained. The smallness of the numbers is undoubtedly disappointing considering the amount of trouble taken, but the absence of any discordant result renders these figures, small as they are, very significant. Most of the 505 cows the milk of which was examined separately had suspicious udders. A reliable record of the effects of the tuberculin test was obtained in 50 cases only. The following table (Table IV.) shows the effects of inoculation of guinea-pigs with the milk of these 50 cows.

TABLE IV.—*Information Collected in Connexion with the Examination of Milk from Single Cows with Diseased Udders since 1896.*

Year.	Total number of cows examined.	Total number in which a record of the tuberculin test was obtainable.	Number of cows giving a positive reaction.	Number of cows giving a positive reaction and the milk of which was tuberculous.	Number of cows giving a negative reaction.	Number of cows giving a negative reaction and the milk of which was tuberculous.	Doubtful reaction.	Milk tuberculous.
1896–97	30	15	12	5	3	0	—	—
1898	4	0	—	—	—	—	—	—
1899	173	14	12	1	2	0	—	—
1900	208	19	12	2	5	0	2	0
1901	90	2	0	0	0	0	—	—
Total	505	50	36	8	10	0	—	—

This evidence shows that none of the cows giving a negative reaction with tuberculin yielded tuberculous milk. On the other hand, all those cows which yielded tuberculous milk gave a positive reaction.

PART II.—ADMINISTRATION AND FINANCE.

A. Methods which have been recommended for the prevention of tuberculosis in cattle.—When one reviews the various methods which have been recommended, and sometimes carried into execution, for the purpose of checking the progress of tuberculosis, one is struck with the fact that most of these measures had for their chief object the protection of the consumer of tuberculous products, more especially meat and milk. The measures provide the means of controlling to a certain extent cattle which have become tuberculous, but they do not make, in my opinion, any adequate provision for the eradication of existing tuberculosis or for the prevention of the spread of the disease among cattle. I think that the chief causes of the failure of the legislation which has been proposed so far in various countries have been the following. 1. Nowhere has the use of a sufficiently accurate method of diagnosis been made the basis of the measures taken. Tuberculin has been recommended, but option in favour of clinical methods has almost invariably been allowed. This, as I have shown, has for effect to allow a large number (probably from 80 to 90 per cent.) of tuberculous animals to remain undetected. On the other hand, if the use of tuberculin had been made compulsory as a basis of action with regard to cattle under seven or eight years of age, not more than 2 or 3 per cent. would have escaped for a time but would have ultimately been discovered on re-injection. (The proportion of aged cattle kept on farms is gradually diminishing.) 2. With the exception of the short and necessarily incomplete trials which have been made by the State of Massachusetts and the Belgian Government those methods have been partial and not general, so that what good was obtained in one farm or district has been counteracted by the absence of precautions in a neighbouring farm or district and by the shifting of tuberculous cattle from districts under control to those not supervised. 3. When slaughter of tuberculous animals has been resorted to this has generally been done without discrimination, and the necessary compensation has become so costly as to be prohibitive. These have, in my opinion, been the chief causes of failure, and I have therefore attempted to find if it would not be possible to discover some solution of these difficulties.

B. Experimental stamping-out of tuberculosis in a small herd.—1. I have shown by the Ford Bank experiment how, by a careful application of the tuberculin test, disinfection of premises, and thorough disinfection, it is possible in the short space of one year to replace entirely a highly tuberculous stock by stock free from tuberculosis remaining on the original premises. This stock remained entirely free from tuberculosis during a second year. To make this clear I may sum up the results in the following way: May, 1898.—Old stock: 12 milch cows and heifers, 11 tuberculous; three bullocks, two tuberculous; and six calves, all free from tuberculosis. Total, 21 animals, 13 of which were tuberculous, or 61·88 per cent. February, 1900.—New stock, including old stock which had not previously reacted: 20 milch cows and heifers,[10] none of which were tuberculous; one bullock not tuberculous; and nine calves born since the beginning of the experiment, none of which were tuberculous. Total, 30 animals all free from tuberculosis.

2. In my experiments it has been impossible to test the effects of general measures except by the rigid exclusion from the estate of new cattle which had not passed the tuberculin test. This was done by making a negative tuberculin reaction a *sine quâ non* condition to the introduction of any fresh cattle. 24 cows or heifers, apparently healthy and specially selected, were offered to Mr. Ashton's steward under these conditions. They were all isolated and tested with the following results; of 11 cows five years of age or more six reacted, and of 13 cows or heifers from two to three years of age one reacted, giving a total of 24 animals, seven of which reacted.

3. The financial aspect of the question, which from a scientific point of view is not the most important, is probably, from the practical and administrative sides, the chief difficulty which has to be overcome before satisfactory preventive measures can be put in force. The Ford Bank experiment was therefore conducted in such a way as to yield as much information as possible on this point. It will, however, be obvious to those who are acquainted with farm management that it was impossible for Mr. Ashton to have the experiment conducted as economically as it could have been by a practical farmer. Owing to the conditions of a farm kept in pleasure-grounds the Ashton experiments must be considered as indicating the maximum cost of preventive measures. This, however, does not in the least diminish their importance. In May, 1898, the approximate value of the old stock, which consisted chiefly of 21 well-bred Yorkshire Shorthorns (not pedigree cattle), was £262.[11] 13 of these gave a positive reaction at the first testing with tuberculin and were slaughtered at once—viz., eight cows, three heifers, and two bullocks, which were all found post mortem to be tuberculous. Except in one case all the viscera had to be condemned; in addition to this, one whole carcass was condemned on account of generalised tuberculosis, and the half of another was also found to be unfit for food. The sum realised for the carcasses was £159 4*s.* 8*d.*, and the value of the remaining stock was £48 10*s.* (total, £207 14*s.* 8*d.*); the actual loss was therefore £54 5*s.* 4*d.*, to which must be added the veterinary charges, which amounted to £10, making in all £64 5*s.* 4*d.* There was also a serious loss of dairy produce which was due to the immediate slaughter and which would not have occurred to the same extent had arrangements been made to slaughter the diseased cows only at such time when they were in a proper condition and it had been possible to replace them rapidly. (The milk of diseased cows should, of course, be always sterilised before use.) The next step taken was to replace the diseased stock. The shippons having been thoroughly cleansed and disinfected new stock was bought subject to the tuberculin test—that is to say, the cows were kept at Ford Bank for about a fortnight, during which they were tested, and only those not reacting were kept. A fee of £3 was paid to the seller as a general consideration for the trouble caused by this arrangement. But I think he found further compensation in the prices which he charged for the cattle sold under these special conditions.

The experiment carried out by the Cheshire County Council may be compared with advantage with the Ford Bank experiment. This important experiment was conducted on very much the same lines as the Ford Bank experiment, but about one year later The cattle tested at the county council farms at Worleston and Holmes Chapel numbered over 70 The results were very similar to those obtained at Ford Bank.

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[10] The average age of these cows was higher than in the case of the old stock.

[11] The cattle were in these experiments valued by an independent expert, the value of whose opinion is generally recognised in the district.

A general consideration of the results obtained at Ford Bank, Worleston, and Holmes Chapel leaves no doubt as to the value of tuberculin as a diagnostic agent—that is to say, as far as the positive reactions are concerned This is a matter of great importance from an administrative point of view, for tuberculin could hardly be employed for administrative purposes if it were found that many non tuberculous cows gave a reaction similar to that given by tuberculous cows With regard to the value of the negative reactions I have shown in the first part of this communication that by proper attention to certain conditions they are also quite reliable It is also evident that the immediate loss caused by indiscriminate slaughter of all tuberculous animals is very considerable Valuable stock being excluded, there was a loss of £52 11*s* 6*d* on the nine tuberculous animals from Worleston, that is, a little more than £5 16*s* per head[12] At Ford Bank the loss on the 13 animals slaughtered was £64 5*s* 9*d*—i e, a little under £5 (veterinary charges included) On the 22 animals from both places the average loss was nearly £5 7*s* per head

C Influence of age on the losses caused by tuberculous—In order to obtain information on this point I divided all cattle into five groups (1) five years of age and over, (2) three years and up to five years exclusive, (3) two years and up to three years, (4) one year and up to two years, and (5) under one year Then I found for each group the number of tuberculous animals, their estimated value under ordinary circumstances as dairy stock, and their value as meat after they had been slaughtered on account of tuberculosis and thoroughly inspected at a public abattoir by competent veterinary inspectors[13] I cannot give here the details of these calculations which I have summarised in the following table (Table V)

TABLE V—*Showing Losses caused by Slaughter of Tuberculous Cattle of Various Ages*

Ford Bank

—	Percentage of cows and heifers tuberculous	Estimated value of 100 animals before testing	Loss on 100 such animals after slaughter of tuberculous ones	Percentage loss on capital
	Per cent			Per cent
5 years and above	100	£1900	£735	38·00
3 years and up to 5 years	75	£2015	£622	30·86
2 " " 3 "	100	£1400	Nil	Nil
1 year " 2 "	Nil	£800	Nil	Nil
Under 1 year	Nil	£320	Nil	Nil
Worleston and Holmes Chapel				
	Per cent			Per cent
5 years and above	31 25	£1515	£189	12·47
3 years and up to 5 years	20·09	£1800	£240	13 33
2 " 3 "	Nil	£1300	Nil	Nil
1 year 2	Nil	£500	Nil	Nil

It is evident from these figures that if herds are to be kept free from tuberculosis by a method which will not cause unnecessary pecuniary loss this must be done by removing all animals which have become tuberculous before they have reached their third year Before that date the slaughter of tuberculous animals does not involve any serious loss to the farmer, at a later period the loss becomes very serious more especially in connexion with cows between the third and fifth year, when they have reached their greatest value as milkers With regard to bullocks the problem is simpler, but it is equally evident that all tuberculous animals should be isolated before they are two or three years of age and then slaughtered as soon as they can be profitably sold to the butcher If all the tuberculous stock over three years were eliminated from our herds it would be quite easy for the farmer, assisted by competent veterinary inspectors, to keep his stock ever after practically free from tuberculosis without any serious expenditure to himself

D Practical experiment to test the relative meat value of tuberculous and non tuberculous cattle under two years of age—In order to test whether the foregoing conclusions were correct Mr Gair Ashton generously consented to bear the cost of a new experiment This I will call the second Ford Bank experiment Ten barren heifers not over two years of age were to be bought by the steward at a fair or from a cattle dealer They were to be selected in the usual way on the basis of their external appearance and estimated value and *not subject to the tuberculin test* After a few days' rest they were to be tested and the animals reacting were to be entirely separated from those non reacting This young stock was then to be fattened and when ready for the butcher their value as live stock was to be estimated by an expert The animals were then to be tested again and slaughtered at the Manchester abattoir and their carcasses were to be thoroughly inspected by Mr Holburn the chief veterinary inspector, who kindly undertook to report upon them The carcasses were then to be offered for sale at the meat market Mr Jones[14] was to keep a complete account of the cost of agistment, special feeding, and testing, as well as of the amount realised after slaughter By this experiment I hoped to obtain definite answers to the following questions 1 Old tuberculous cattle being removed, what would be the cost of keeping the purified herds free from tuberculosis by the slaughter of young tuberculous animals during the first few years following the first application of the stamping out measures? 2 What loss, if any, would be incurred by the selling to the butcher of young tuberculous carcasses? 3 Would the tuberculin reaction prove a practical basis for the carrying out of the method which I had suggested? The second Ford Bank experiment was carried out according to the general plan indicated above Circumstances, however, prevented our waiting for a time favourable to purchase on suitable terms It was also found impossible to select the best time for fattening and selling The 10 heifers were tested a second time on Nov 15th, with the result that the six which reacted in July reacted again and the four which did not react continued to give a negative reaction They were then sent to be slaughtered at the Manchester abattoir on Nov 22nd Their carcasses were there examined by Mr Holburn in the presence of Mr Locke who had tested the cows, and Mr Jones Mr Jones reported to me as follows In each case Mr Holburn was able to say which of the animals had reacted *without any reference to the testing notes*, it was therefore perfectly clear that tuberculosis was present in all those animals that had reacted In no case was it necessary to condemn any part of the carcass' The original cost of the 10 heifers *plus* the cost of keeping them for four months and fattening them had been £120 11*s* 6*d* The total sum realised after slaughter was only £90 12*s* 2*d* There was therefore a loss of about £3 per head This loss was not so great as that borne in connexion with cattle of all ages, which was over £5 per head; but in my opinion there should have been no loss at all, in fact I expected a profit There are, however, certain features of the experiment which account for the failure 1 The cattle had been bought irrespectively of the conditions of the market and as I understand too late in the season 2 The steward who bought the cattle had not much experience of the value of live stock this was the opinion of two experienced men who warned me before the conclusion of the experiment of the fallacy which this might introduce It was also unfortunate that two heifers in calf should have been bought, as such animals whatever their value might be in life, were not (before calving) suitable beasts for the meat market As a speculation the experiment was not a success, but considering the mode of purchase and selling it could not be expected to be a sound transaction The total sum paid for the 10 animals in July was £96 Their total estimated value as living stock in November was £109 10*s* Their total cost *plus* the cost of keeping and fattening, was in November £120 11*s* 6*d* If from this total expenditure the sum of £5 spent for the carrying out the test is subtracted there remains still a total expenditure of £115 11*s.* 6*d.* It is therefore obvious that even if tuberculosis had been out of the question there would have been a loss in the *transaction* due to some error in the purchase. It is also possible that too much had been spent on special feeding—£1 1*s.* per head. The experiment has not therefore yielded the same results as it would have yielded in the hands of an experienced and skilful farmer. But although it was not successful with regard to management it has nevertheless given very *important results* with regard to the relative value of the flesh of tuberculous and non-tuberculous young cattle. The following table (Table VI.) of results gives the value obtained for eight of the 10 carcasses (two of them were *sold* together and it was impossible to ascertain afterwards their separate value).

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[12] A later estimate based on the losses caused by the slaughter of 19 tuberculous [illegible] £7 7*s* per head This would [illegible] up to £6 [illegible] per head [illegible] valuable animals [illegible] of proportion to the value of their carcasses; the loss on such animals should always be considered separately)

[13] Information regarding the age of cows which cannot be found in the Cheshire County Council Report I have obtained through the courtesy of Mr P P Ward the organising secretary to the Technical Instruction Committee

[14] Mr Jones had charge of the cattle and dairy at Ford Bank

TABLE VI.—*Showing the Prices obtained for Eight Carcasses.*

A. Tuberculous heifers not in calf.	B. Tuberculous heifers in calf.	C. Non-tuberculous heifers.
No. 45. £9 16*s.* 6*d.*	No. 47. £7 15*s.* 0*d.*	No. 44. £9 1*s.* 6*d.*
No. 46. £8 12*s.* 0*d.*	No. 49. £7 12*s.* 3*d.*	No. 52. £7 9*s.* 0*d.*
No. 51. £7 16*s.* 0*d.*	—	No. 53. £6 7*s.* 0*d.*
Totals £26 4*s.* 6*d.*	£15 7*s.* 3*d.*	£22 17*s.* 6*d.*
Averages per head £8 14*s.* 10*d.*	£7 13*s.* 7½*d.*	£7 12*s.* 6*d.*

The same animals were also valued before being slaughtered, and it was found that during life they stood in the same relation as their carcasses did. The same prices had been paid originally for the three tuberculous heifers in Group A and the three healthy heifers in Group C. There seems, therefore, no evidence showing that *a moderate amount of tuberculosis depreciates* the meat value of young carcasses. As a matter of fact, in this case better value was obtained for tuberculous carcasses than for those which were free from the disease—a fact to which I will have to allude again. This matter being one of great importance I thought it desirable to obtain an independent opinion from Mr. Holburn who had inspected the carcasses. I therefore asked him to give me without any reserve his views on the results we had obtained. With his permission I reproduce the answer :—

Markets Department, City Abattoirs, Water-street, Manchester.
Jan. 23rd, 1900.

DEAR PROFESSOR DELÉPINE,—In answer to your inquiry as to the market value of Mr. Ashton's experimental cattle and as to whether there was any difference in the conditions of those animals that reacted to the tuberculin test from those that did not react as regard their saleability, I feel quite confident in expressing the opinion that as regards their carcass value those animals that reacted came out as well as—in fact, one or two of them a little better than—those that did not react to the test.

ALFRED HOLBURN, M.R.C.V.S., Chief Inspector.

This valuable statement is in complete agreement with the results which I have recorded above. It is, however, evident that it would have been preferable to use animals two and a half or three years old for the experiment The age which I had fixed was two years, in order to avoid cows in calf, but this complication was not successfully avoided. Taking everything in consideration it seems, therefore, evident that if young tuberculous cattle be properly prepared for the meat market there could not be a more profitable or convenient way to dispose of them than by that method. It is equally certain that at no other period in their life could their flesh be utilised with less danger to public health [15]—a danger which should disappear entirely if private slaughter-houses were entirely abolished and all the meat submitted to thorough inspection as it is in the Manchester city abattoirs.

E. Disposal of the milk of tuberculous cows.—Whilst I consider it advisable to deal with young stock under three years of age as rapidly as possible, I think that in the present state of things the indiscriminate slaughter of all tuberculous animals above that age would be attended with considerable and unnecessary losses. Only cows in an advanced stage of tuberculosis, showing evidences of wasting or of tuberculosis of the udder, should be slaughtered without delay. They are serious sources of infection and the longer they are kept the less their value becomes, if they retain any at all.

With regard to the cows which are not in an advanced stage of tuberculosis it is desirable that those in milk should be fattened only after lactation had ceased or had been caused to stop. As it is impossible to foretell how soon the udder of a tuberculous cow will become diseased it would be wise to consider *the milk* of all tuberculous cows as suspicious. It should therefore be sterilised before being used. With the object of finding how this suspicious milk could be utilised I made two years ago a number of experiments. I found that it was not easy to obtain butter free from abnormal taste with cream which had been heated for a few minutes to a temperature exceeding 75° C., and that contrary to results obtained by some other observers complete safety could not be obtained by the heating of cream up to 85° C. for 15 minutes. Some of the results obtained are given in Table VII.

TABLE VII.—*General Results of Experiment on the Sterilisation of Cream.*[16]

—	Temperature.	Duration of exposure after the temperature indicated had been reached.	Results of inoculation of guinea-pigs with equal quantities of treated and untreated tuberculous cream.
First set of experiments.	74° C (165° F.)	30 minutes.	Tuberculosis slight and delayed, well-marked after three weeks.
	76° C. (169° F.)	10 ,,	Tuberculosis slight and delayed, well-marked after three weeks.
	82·5° C. (180° F.)	5 ,,	Tuberculosis nearly normal.
Second set of experiments.	85° C. (185° F.)	15 ,,	Tuberculosis considerably delayed (two months).
	70° C. (158° F.)	45 ,,	Tuberculosis delayed but well-marked after three months.
	65° C. (149° F.)	360 ,,	No tuberculosis after three months.
	65° C. (149° F.)	180 ,,	Slight. tuberculosis after one month.
	65° C. (149° F.)	60 ,,	No tuberculosis after one month.
Controls.	—	—	Well-marked tuberculosis after three weeks.

No reliance should be placed on pasteurisation of cream at temperatures up to 85° C. for the times indicated in the above table. I regret to say that in a previous paper I had expressed the opinion that a lengthened exposure of cream to a temperature below 85° C. would probably be sufficient to destroy the tubercle bacilli. I stated, however, at the same time, that I had not completed the experiments which I was making with the view of confirming the experiments of other observers.[17] In my opinion, therefore, the *milk of all tuberculous cows should be boiled before it is used.* I do not venture at present to suggest any special means of utilising this milk; all I wish to do is to express a *warning against an implicit belief in the statements which have been made regarding the ease with which the milk of tuberculous cows can be rendered innocuous.*

F. Innocuousness of tuberculin inoculations.—It has been frequently stated that the use of tuberculin was detrimental to milch cows. Not being able to investigate this matter personally I have asked Mr. J. Jones to give me his impression upon the effects which our experiments had had on the dairy cows kept at Ford Bank. The following was his answers : "The quality of milk from tested stock was all that could be desired. I do not consider testing to be at all detrimental to dairy stock in any way if carefully done." Knowing that Mr. Walter W. Law of Briarcliff Manor, New

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[15] I do not wish to convey by this the impression that the consumption of meat from tuberculous cattle is attended with much danger.

[16] I wish to acknowledge here the cordial assistance which I received from Dr. E. J. Sidebotham and Dr. F. J. H. Coutts in the carrying out of these experiments, some of which lasted for a considerable time.

[17] See Veterinarian, July and August, 1899.

York, had for some years past determined to clear his extensive herds from tuberculosis, and had had for this purpose his cows repeatedly tested with tuberculin, I asked him to supply me with some information on the effects of the testing on healthy cows He had the great kindness to forward my request to Professor Leonard Pearson of the University of Pennsylvania who inspects biannually the Briarcliff Farms dairy herd This herd is composed of over 600 "thoroughbred or high grade" Jersey cows Professor Pearson replied as follows —

> University [illegible] erinary Medicine,
>
> DEAR SIR,—I [illegible] itted by Professor Delépine regard[illegible] althy cows I would [illegible] of [illegible] e to [illegible] est [illegible] per [illegible] ss [illegible] e at [illegible] ove [illegible] ear [illegible] and [illegible] ws) [illegible] Mr [illegible] in [illegible] n of [illegible] is a [illegible]
>
> [illegible]
>
> To Walter W Law, Esq, Briarcliff Manor, New York

G Disposal of valuable stock.—I would urge that pedigree cattle in which tuberculosis has not produced serious lesions should be carefully isolated and watched, that these animals should be used for breeding purposes and slaughtered as soon as possible after they have sufficiently fulfilled the purpose for which they are kept In the event of the disease affecting their general health they should be slaughtered without further delay

H Market value of living tuberculous animals.—Before [illegible] I [illegible] the question which [illegible] out Early tuber[illegible] the appearance of young and middle aged stock, is often associated with all the external appearances of flourishing health Many tuberculous cows are exceptionally good milk producers They have often a very good market value during life It is not therefore easy to persuade the farmer that tuberculosis may be a serious source of loss to him He does not consider it a matter of importance to discover whether a cow is tuberculous or not so long as the animal is a good milk producer or does not lose flesh It is not denied that a herd affected with tuberculosis is liable to greater depreciation than a herd free from tuberculosis, but it is urged that in the present state of things the loss of capital involved by the removal of tuberculous cattle would be so great that the ultimate benefit would not be sufficient or obtained soon enough to prevent ruinous losses It is therefore stated that farmers cannot be reasonably expected to adopt measures which would be contrary to their own interests If the matter could be considered in the light of a commercial transaction affecting only one generation of speculators having no responsibility towards their country or humanity the above argument might be considered sound It is, however, the duty of the State to see that the present generation does not sacrifice for its own benefit the patrimony of future generations, thereby doing great harm to the country It is also the duty of the State to see that any condition of things which tends to perpetuate the existence of a disease which is so detrimental to man as well as to the lower animals is checked as speedily as possible Even if the financial argument against the stamping out of tuberculosis were as sound as it appears to be it does not prove that farmers are justified in remaining passive If through ignorance they have allowed the evil to grow beyond control they cannot consider this a valid excuse for not doing their duty as soon as they know what their duty is The fact, however, that the carrying out of this duty towards the State would mean complete ruin in the case of many small farmers whose welfare is also of importance to the whole country clearly shows that a part of the losses caused by the stamping out of tuberculosis should be borne by the State.

CONCLUSIONS.

1 Tuberculin is an almost infallible test of the presence of tuberculosis in animals under seven years of age when this fluid is used with proper care In older cattle clinical methods are more reliable than the tuberculin test as used at present. (The use of larger doses than the usual ones may, however, be resorted to with advantage in these cases) 2. It is possible by the use of tuberculin and thorough disinfection of cattle-sheds to stamp out tuberculosis from a herd in *the course of one year* 3 *Cases of infection* which may accidentally occur after this preliminary removal of tuberculous cattle can be easily and economically detected by the periodical use of tuberculin 4 Tuberculous animals between two and three years of age can be disposed of on the meat market without serious loss 5 The slaughter of cows in calf or of milch cows not in an advanced stage of tuberculosis involves a serious loss to the farmer, and so long as tuberculosis is as prevalent as it is at the present time it is doubtful whether the measures necessary for the extirpa*tion of tuberculosis can be left to private efforts without* State help 6 To remove the chief sources of infection immediate slaughter should be resorted to in the case of all animals in a state of advanced tuberculosis, and of all cows with tuberculosis of the udder 7 Milch cows and cows in calf in which tuberculosis is not very advanced should be isolated and slaughtered only after they have been suitably prepared for the butcher The milk of tuberculous cows should invariably be sterilised by boiling 8 Valuable breeding animals free from advanced tuberculosis or tuberculosis of the generative organs should be isolated, *they* can be kept *for a time* for breeding purposes provided the calves are isolated and fed on sterilised milk 9 Measures which do not provide for the removal of all tuberculous animals from a district, for the disinfection of all cattle sheds in that district, for the periodical testing of all the animals within the district, and which do not give the means of preventing the importation of tuberculous animals cannot be expected to yield satisfactory results.

MEASURES RECOMMENDED.

On the basis of these conclusions I feel justified in recommending once more the general measures which I have advocated on several occasions during the last few years These may be summed up as follows —1 Division of the whole country into a number of well-defined administrative areas each provided with an efficient staff of inspectors 2 Marking and registration of all cattle for purposes of inspection and notification (This would, of course mean the inclusion of tuberculosis among the recognised contagious diseases) Systematic periodical inspections of herds and cowsheds within each administrative area. Testing with tuberculin of all cattle. 3 Isolation of all tuberculous cattle Disinfection of sheds which have been occupied by tuberculous cattle 4 Immediate slaughter of all cattle in an advanced state of tuberculosis (including all cases of udder tuberculosis) 5 Fattening of all animals not in an advanced state of tuberculosis for the meat market All cattle should be slaughtered in *public abattoirs* so as to insure *thorough meat inspection* 6 Compensation during one year or two for losses incurred by owners of cattle, except in cases regarding which there had been gross or culpable neglect After this *transitional period of compensation* the presence of a case of advanced tuberculosis in a cowshed to render the owner liable to a penalty 7 Testing of all cattle brought into the area so as to prevent the introduction of fresh sources of tuberculosis No cattle above six years of age to be imported 8 All the milk from tuberculous cattle to be boiled before use Control of all imported foreign dairy produce so as to enforce the same standard of purity as in the case of home produce 9 To avoid a sudden national depression in the dairy industry, which would be favourable to foreign produce I further suggest that *the enforcement of these measures should not be simultaneously carried out all through the country*, but that they should be at first enforced in a certain number of administrative areas, to which year after year other districts should be added, until the whole country was under administrative control It is probable that the work could be accomplished in some five or six years

N B —*This paper does not deal with evidence showing that* bovine tuberculosis is communicable to man; this has been done by the author in a series of papers published since 1892 —vide *Medical Chronicle* (1895), THE LANCET (1897), &c

THE TREATMENT OF MELANCHOLIA.

BY LEWIS C. BRUCE, M.D., F.R.C.P. EDIN.,
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AND
H. DE MAINE ALEXANDER, M.D. EDIN.,
ASSISTANT PHYSICIAN TO THE PERTH DISTRICT ASYLUM.

IN the *Journal of Mental Science* for October, 1900, we recorded the results of some observations on the various physical changes occurring during the acute and sub-acute stages of melancholia. In our previous paper we pointed out our belief that the majority of recent cases of melancholia pass through a definite course prior to recovering or becoming chronic; and we divided that course into an acute stage and a sub-acute stage, summing up the symptoms characterising the two stages as follows. A. *Acute stage.*—1. Mental symptoms: great depression, restlessness, vivid hallucinations, and sleeplessness. 2. Pulse rapid, from 90 to 120 per minute, of high tension, and tending to be irregular; arterial pressure high (from 140 to 180 millimetres of mercury). 3 Temperature tending to be febrile (from 99° to 100° F.). 4. Urine scanty; excretion of urea deficient; trace of albumin present. 5. Tongue furred and foul; no desire for food or drink; digestive power of stomach upon coagulated albumin practically *nil;* motor power of stomach weak; bowels constipated and stools very offensive. 6. Skin dry. B. *Sub-acute stage.*—1. Mental symptoms less acute; the patient generally sleeps well; hallucinations, if present, do not affect conduct. 2 Pulse regular, softer, from 70 to 80 per minute; arterial pressure from 120 to 130 millimetres of mercury. 3. Temperature never above 98·4°. 4. Urine more abundant, excretion of urea considerably increased; albumin never detected. 5. Tongue clean; appetite for food and drink returning; digestive power of stomach-juice at first weak but later active; tendency to constipation less marked 6. Skin becoming moist; sometimes perspiration profuse.

Before passing on to the subject of treatment we desire to record certain further observations made upon the urine excreted during attacks of melancholia.

FIG. 1.

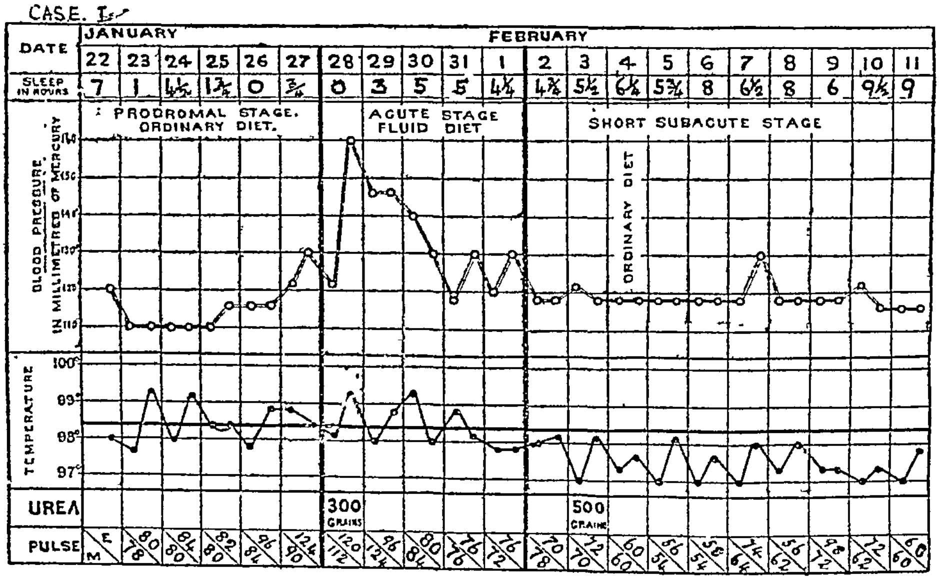

Chart illustrating Case 1.

FIG. 2.

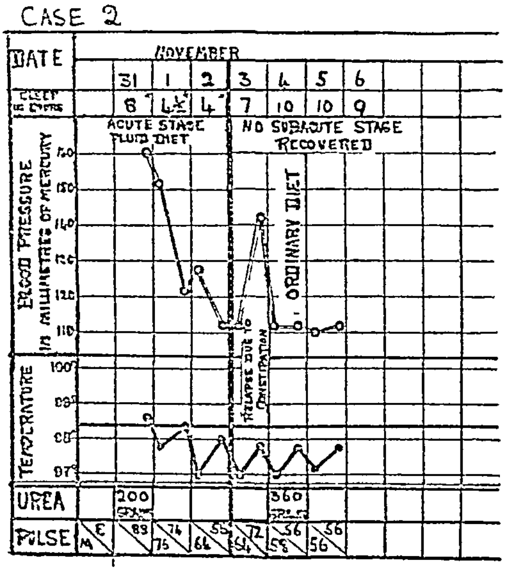

Chart illustrating Case 2.

During the acute stage of the disease we found that the excretion of chlorides was normal, but when this acute stage was unduly protracted they were diminished. The ethereal sulphates were increased during this stage of the disease—an indication of intestinal putrefaction. In the sub-acute stage the chlorides were diminished but rose gradually to normal as the patient recovered. The diminished excretion of chlorides in the urine during melancholia is mentioned by Simon,[1] but without reference to any particular stage of the disease. The ethereal sulphates were not increased, showing that the antiseptic functions of the intestinal secretions had been resumed.

In the course of another year's work we have verified all these observations, and we believe that recent acute melancholia is a disease very amenable to treatment. Our first attempts at treatment were directed towards lowering the blood-pressure by means of erythrol tetranitrate, increasing the excretion of urea by the administration of ammonium carbonate (in 10-grain doses), in obtaining a healthy action of the skin by means of hot-air baths, and assisting digestion and assimilation by artificially digested food. We have discarded erythrol tetranitrate after an extended trial, as, although successful in some cases, it was very uncertain in action. The excretion of urea was certainly increased by the exhibition of ammonium carbonate, but we did not notice any benefit accrue to the patient as a result of its administration, and as this drug only differs from urea in having two more molecules of water it is highly probable that the increased amount of urea obtained in the urine was really due to the oxidation of this alkaline salt in the body Hot-air baths gave little relief and were rather troublesome as a routine practice Artificially digested food soon became intolerably nauseous to patients who already had no desire for food These early attempts at treatment were therefore not encouraging, and more particularly so as they failed to induce a sufficiently increased flow of urine to carry off the accumulating waste products of tissue metabolism

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[1] Clinical Diagnosis, third edition, p. 297.

In our previous paper we recorded the fact that if a patient, while passing through the acute and sub-acute stages of the disease, be placed upon a fixed measured dietary of solids and liquids the amount of fluid excreted by the patient in the acute stage is less by many ounces than [illegible] comes of [illegible] disease[2] [illegible] because the skin is abnormally dry they are not exhaled in the breath, and as we have shown they are not excreted by the kidneys, as the urine is scanty in amount. There is but one explanation and that is, that in the acute stage of the disease the fluids of the body are in some unexplainable way broken up, an insufficient amount of fluid is left for carrying away the products of tissue waste, and these accumulate in the body There is a deficiency of fluid in the tissues and the demand for it must be met by administrating to the patient a copious supply of liquid, and it is essential that part of this fluid should be nutritive and easily assimilated

In the treatment of our last eight cases of acute melancholia we have discarded all our earlier attempts at treatment and have worked upon the lines above indicated The patients upon admission were put to bed and placed upon an exclusively fluid diet of three pints of milk and three pints of weak tea (sweetened with sugar) per diem and as much water as the patient cared to drink The tea must be weak, as if strong it tends to raise the mean blood pressure[3] Persons suffering from acute melancholia are as a rule thirsty and take this fluid diet readily No solid food was given until the patient asked for it and complained of hunger The result of this treatment in these eight acute cases of the disease has been most satisfactory In every case the

FIG 3

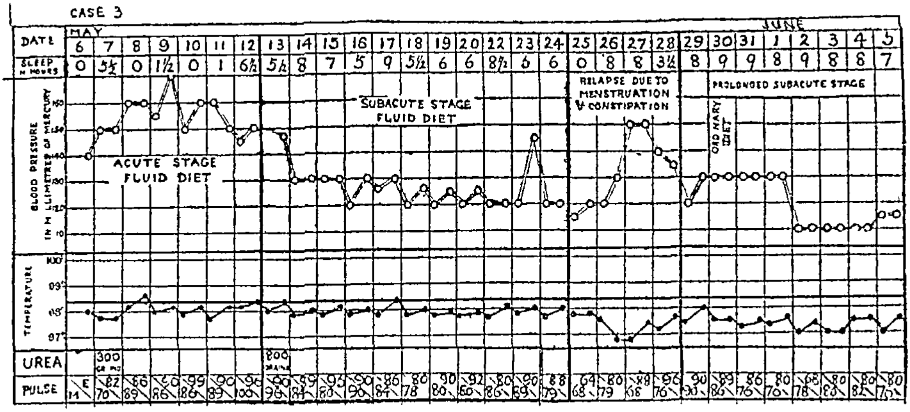

Chart illustrating Case 3

FIG 4

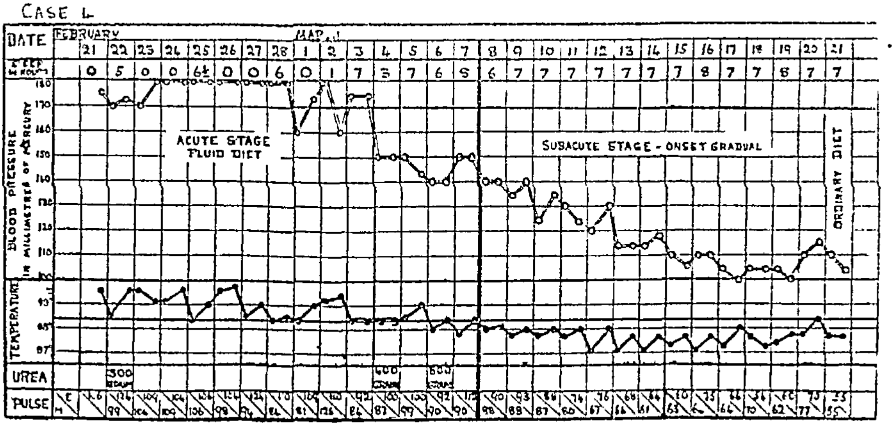

Chart illustrating Case 4

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[3] Oliver Blood and Blood pressure p 195.

urine increased in amount, the skin acted freely, and the excretion of urea was augmented—in some of the cases to 800 grains per diem. The arterial tension fell rapidly and steadily to normal or subnormal and the habit of sleep returned. The only drug administered was citrate of potassium in from 20 to 40-grain doses thrice daily. This was gradually reduced and finally stopped altogether when the nitrogenous equilibrium was re-established.

Early treatment is imperative in this disease, and our experience has shown that those patients who had been ill for some considerable period before admission took longer to recover than those in whom the disease was of comparatively recent onset. Of our eight cases five were treated early and in none of these patients did the acute symptoms last more than a week, and in them the sub-acute stage was either absent or of only a few weeks' duration. The remaining three cases were of long standing, and in them the acute stage lasted from two to three weeks and the sub-acute stage was prolonged for many weeks.

Relapses.—We have had no serious relapse during the treatment of these eight cases, and any threatening of such was due to one or more of the following causes. 1. The obstinate constipation so frequently associated with melancholia if not regularly relieved is a certain cause of relapse. In treating this symptom in our cases we used salines in combination with strychnine and when necessary enemata. 2. Menstruation temporarily accentuated all the symptoms, mental and physical, of the disease. 3. Gastric irritation induced by putting the patient too early or too suddenly upon a solid dietary.

Summary.—We believe melancholia to be a disease of disordered metabolism and that treatment should be directed towards increasing the excretion of waste products of this metabolism through the channels of the urinary and integumentary systems, and we mechanically accomplish this end by administering to our patients an abundant fluid dietary. By means of this treatment the blood gets rid of its overcharge of waste products and the arterial tension falls. We assist digestion by giving milk frequently, and in small quantities, as it is the most easily assimilated food. We consider the forcing of solid food (or such food as custards) upon a patient suffering from acute melancholia just as injudicious treatment as would be the feeding of a patient suffering from typhoid fever exclusively on beef-steaks. We append four charts illustrative of our cases, with a short summary of each case. Each chart shows the temperature, pulse, arterial tension, and the amount of sleep obtained from day to day. The amount of urea excreted on certain days during the 24 hours is also shown diagrammatically. A small additional table illustrates the fact that while the patients were on the fluid diet their loss of weight was practically immaterial.

Weight Table.

Cases.	Length of time on fluid diet.	Weight lost.	Weight gained.
1	7 days.	0	0
2	5 „	0	0
3	23 „	2 pounds.	—
4	28 „	3 „	—
5	8 „	0	0
6	38 „	1 pound.	—
7	33 „	5 pounds.	—
8	11 „	—	5 pounds.

CASE 1.—The patient was a female, aged 34 years. The chart is interesting because it shows the attack from the commencement. The temperature became febrile on Jan. 23rd, but the tension did not rise until the 28th, when the symptoms became very acute. Under fluid diet treatment and rest in bed all the symptoms had subsided by Feb. 1st. On the nights of Jan. 29th, 30th, and 31st sleep was obtained by the administration of two drachms of paraldehyde. She made a good recovery. Weight is rapidly lost during the onset of the disease and this patient lost nine pounds in seven days though she was on ordinary diet.

CASE 2.—The patient was a female, aged 64 years. The attack was treated early—within a week of onset. The acute symptoms lasted only three days. Sleep was obtained by the administration of two drachms of paraldehyde on the nights of Oct. 31st and Nov. 1st and 2nd. There was practically no sub-acute stage. The patient recovered.

CASE 3.—The patient was a female, aged 42 years. She had been ill for one month prior to admission to hospital. The acute stage lasted for seven days. Sleep was obtained upon the nights of May 7th and 9th by the administration of two drachms of paraldehyde. The sub-acute stage was complicated by a threatened relapse and was prolonged, but the patient has now completely recovered.

CASE 4.—The patient was a man, aged 34 years. He had been ill for two months prior to admission. The acute stage lasted for 15 days. The onset of the sub-acute stage was gradual and the patient, though much improved, is not yet recovered at the present date (June 20th, 1901). In the acute stage sleep was obtained upon the nights of Feb. 22nd, 25th, and 28th by the administration of two drachms of paraldehyde.

Murthly, N.B.

THREE CASES OF PRURITUS ASSOCIATED WITH LYMPHADENOMA.

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AND

LEE DICKINSON, M.D. CANTAB.,
ASSISTANT PHYSICIAN TO ST. GEORGE'S HOSPITAL.

CASE 1.—A woman, aged 42 years, was admitted into St. George's Hospital on Feb. 20th, 1901, under the care of Dr. F. G. Penrose who kindly permits this publication of the case. The patient was suffering from well-marked lymphadenoma. Her illness dated from the autumn of 1899, when she lost strength and noticed lumps in the neck. She took to bed in November, 1900. On admission she was depressed mentally and physically and was markedly anæmic. The legs were œdematous; in the neck, the axillæ, and the groins were masses of enlarged glands, and over the anterior mediastinum was found extensive dulness, probably due to a glandular tumour. The patient sweated much and the temperature inclined to be hectic. The blood was examined on several occasions and showed only simple anæmia with moderate leucocytosis. The red corpuscles were generally about 3,000,000 per cubic millimetre; the white varied from 8000 to 14,000—the lymphocytes being in the fairly normal proportion of 18 per cent. Intense irritation of the skin was complained of at times, affecting the whole body, but more especially the neck, the shoulders, the back, and the outer sides of the limbs; and when the patient was uncovered she made violent efforts to scratch. Scratch marks were conspicuous all over the body, and there was brownish discolouration of the skin, especially below the eyes, at the bends of the elbows, in the axillæ, and on the inner sides of the thighs. On March 13th Dr. Cottle was consulted about an eruption of pemphigus which had appeared on the legs, accompanied by increased irritation of the skin. The eruption improved rapidly under an ointment of tar and in a month practically disappeared, though itching continued. The general condition, however, steadily deteriorated, and on May 3rd the patient was removed by her friends to a Home for the Dying. It should be mentioned that before the pemphigus appeared arsenic had been given in the form both of Fowler's solution and of cacodylate of soda. Whether or no the arsenic had any causal relationship to the pemphigus, it was certainly not responsible for the pruritus and pigmentation, both of which were of older standing.

CASE 2.—A female patient, aged about 20 years, was sent to Dr. Cottle by Dr. G. M. Pittock of Margate on Nov. 11th, 1896. The history given was that in June, 1896, being already somewhat ailing with enlarged glands and anæmia, she underwent some worry in her work and was vaccinated upon her appointment to a clerkship in the Post Office. Soon afterwards she came out in an eruption of papules which was suspected of being secondary syphilis from the vaccination. When seen by Dr. Cottle she was thin and very anæmic, with masses of enlarged glands at the root of the neck She complained of intense itching of the skin, especially at night. The skin was much pigmented generally —least on the legs and most on the abdomen, around the eyes, and on the flexures of the elbows—the colour varying from a deep yellow brown to that of light nutgall There were numerous deep scooped-out nail grooves or furrows in the skin, especially at the back of the neck, with some papules on the face and many small white scars on the neck and chest, probably where the skin had been scooped out by the nails Dr Cottle regarded the affection of the skin as due to malnutrition and in no way connected with vaccination or syphilis Sir William Gowers, to whom also the patient was sent, remarked in a letter to Dr Cottle that "she now presents symptoms of subacute lymphadenosis with (possibly pseudo-) Addison's disease" Remarking the enlargement of glands and the profound pigmentation of the abdomen, he observed "The pigmentation may be due to enclosure of the sympathetic plexuses of the abdomen in masses of enlarged glands, though these cannot be felt See article on Hodgkin's disease in Reynolds's System of Medicine, vol. v, p 376" Large doses of iron and arsenic were prescribed, together with rest, good feeding, cod liver oil, tar lotion, and carbolic acid ointment The pruritus was relieved, but the patient died on Feb 2nd, 1897, death being attributed in the medical certificate to lymphadenoma in the first place and to Addison's disease secondarily

CASE 3—This is the case of a male patient, aged 34 years, who had spent some years in India In December, 1896, he met with a dogcart accident in that country, sustaining some cuts and abrasions, as a consequence of which the right leg became inflamed. A month later he was attacked with "septic rheumatism" in a very severe form, affecting almost every joint of the limbs and also the neck, the jaw, and the eyes After a long illness he was sent home to England, where he apparently made a good convalescence, so that at the end of 1897 he was allowed by competent authority to return to India. At this time some glands in the groin, the axilla, and the neck were already slightly enlarged Towards the end of 1899 an abscess or carbuncle formed on the left thigh and failed to heal in spite of frequent incisions A voyage to Australia was undertaken but without resulting in benefit Œdema of the genitals and lower extremities set in and the patient was finally invalided to England, where he arrived in May, 1900 The thigh was now operated upon by Mr F C Abbott who removed a quantity of diseased tissue leaving an area of the size of the palm of the hand to heal by granulation In the course of the summer this area became slowly though securely healed—a point worth mentioning as having some bearing upon the nutrition of the skin. The general condition was now one of pronounced lymphadenoma *the disease being apparently limited to the* lymphatic glands and most advanced in the inguinal, pelvic, and abdominal groups, but all the other groups were obviously affected The blood showed nothing characteristic beyond a leucocytosis which might be referred to the suppurating wound Dr Patrick Manson, who kindly saw the patient in consultation with Dr Lee Dickinson *and* Mr R. T P. Collyns of Wimbledon, made a special examination of the blood for malarial and filarial parasites, but with a negative result. Not to record what is immaterial to the present purpose, the patient, after many vicissitudes of febrile temperature, dropsy, dyspnœa and various abdominal troubles due to continual changes in the size of the glandular tumours, sank from exhaustion and inanition on June 1st 1901 Throughout the illness—certainly for the last 18 months—not the least of his troubles was persistent pruritus of the whole skin, especially, perhaps, of the hands, the shoulders, the neck, and the scalp, but any part which might happen to be exposed and within reach was immediately subjected to scratching On the covered parts of the body small papules and furuncles were of frequent occurrence but the intensity of the pruritus varied quite independently of any eruption Eventually the skin of the trunk, and to a less degree that of the face and the arms became pigmented to a tint that raised some suspicion of suprarenal disease but the pigmentation may have been due to a prolonged course of arsenic which was only stopped upon the appearance of a severe eruption of herpes zoster The arsenic, however was not the cause of the pruritus which set in long before the administration of the drug and continued for several months after its discontinuance

Remarks—*Those three cases suggest the existence of a* real connexion between lymphadenoma and pruritus—something more than mere coincidence To say the least of it, pruritus is not a common or widely recognised complication of lymphadenoma which is itself *a rare disease, and Osler* is the only text-book writer we know of who refers to its occurrence. Neither Trousseau nor Gowers, both of whom describe certain eruptions in lymphadenoma, mentions the occurrence of pruritus, but Nékám of Budapest, in a recent monograph upon the skin affections of leukæmia, refers incidentally to those of pseudo leukæmia or lymphadenoma and includes pruriginous affections in the list. The only unequivocal examples of pruritus in lymphadenoma that we have met with in the dermatological literature of the last few years are two cases recorded by Hallopeau and Prieur,[1] and these two cases seem to be essentially of the same kind as those which we have just described We conclude therefore, that lymphadenoma entails a certain degree of liability to pruritus, and our own three cases would seem to show that this complication is an unfavourable sign. It is unnecessary to allude to the constant and tc [illegible] which is thereby added to a [illegible] will only discuss the nature and [illegible] tion As for the prognostic [illegible] can only point to the rapid course of the lymphadenoma in Case 1 and Case 2, and to its inveterate character in Case 3 in spite of many fallacious improvements and every favourable circumstance of fresh air, luxury, and attention. In this connexion it is of interest to refer to a severe but much more chronic case of lymphadenoma which was shown by Dr Lee Dickinson at a meeting of the Clinical Society of London last April. In this case, although the skin has become extensively affected with lymphoid growth, pruritus is, and always has been entirely absent

In the three cases here reported the pruritus clearly did not depend upon gross skin lesions such as growths or eruptions, although papular eruptions of some sort and lesions due to scratching were generally present, but would seem to have been akin to the itching that occurs in jaundice and may with probability be attributed, in part at least, to a poison in the blood or in the lymph. Whether in such cases some special toxin is produced by the lymphadenoma or whether the pruritus results merely from obstruction of the lymphatic circulation by the glandular tumours and consequent vitiation of the lymph is a matter for speculation, but certainly the former theory is not inconsistent with the febrile temperature that characterises severe cases of lymphadenoma It should be *borne in mind that degenerate and* ill nourished skins itch In the pruritus that occurs in the aged and in those of feeble circulation and health the most appreciable changes in the skin are those associated with malnutrition and atrophy—dryness accompanying paleness or pigmentation, warts and moles, dilatation of vessels, and *in other parts a* wasted state of skin tissue so that it feels thinner than natural and has in great measure lost its elasticity, and in these conditions there is no direct evidence of toxic influences The pruritus of jaundice possibly belongs to the same class for it does not set in, as a rule, till after the jaundice has existed for some time or has begun to decline. At the opposite end of the scale we have the pruritus of gout, which is a pure example of the toxic variety, for it may be and generally is, associated with a perfectly healthy condition of the skin.

The cases which form the subject of this paper would seem to belong to an intermediate class in which it is difficult to know how far to attribute the pruritus to malnutrition of the skin and how far to toxic influence We must even be prepared to allow that the neurosis of sensation which constitutes the pruritus is of reflex character and due to local irritation elsewhere than in the skin—for example, in the abdomen from enlargement of the mesenteric glands Be this as it may, we have little doubt as to the prognostic significance of pruritus in lymphadenoma, and that this complication especially if attended by pigmentation of the skin is of grave augury in cases which upon other grounds do not seem utterly hopeless

With regard to pigmentation in lymphadenoma we have already quoted the views of Sir William Gowers in Case 2, and it may be *opportune to remark* that the late Sir George F Paget founded similar views upon a post mortem basis In a former number of THE LANCET[2] is reported a case under the care of Dr Paget (as he then was) which was described as "lymphadenosis with brown pigmentation of the skin" (characteristic of Addison's disease). On post-mortem examination the suprarenal bodies were found perfectly normal, but the semilunar ganglia and solar plexus were involved in a closely aggregated mass of enlarged glands. It must not be forgotten, however, that long-continued scratching will itself lead to pigmentation, and it is a curious fact that in Sir G. E. Paget's case the patient complained much of irritation on the palms of the hands and soles of the feet, and marks of scratching were noticed on several parts of the body.

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[1] Annales de Derm at [illegible] Syphil [illegible]

[2] THE LANCET [illegible] 22nd [illegible]

We have purposely avoided any discussion of the pruriginous or other skin affections of leukæmia as distinguished from lymphadenoma, but for the convenience of those who are interested in the subject we may refer to Nékám's publication already mentioned and to a long article on the subject, with an elaborate bibliography, by Pinkus.[3]

CONGENITAL HEPATIC CIRRHOSIS WITH OBLITERATION OF THE BILE-DUCTS.

By G. PARKER, M.A., M.D. CANTAB.,
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WITH NOTES OF ADDITIONAL CASES BY E. L. WALKER DUNBAR, M.D. ZURICH, AND THEODORE FISHER, M.D., M.R.C.P. LOND.

THE recent papers of Rolleston, Ford, and others, with the older researches of J. Thomson, show the importance of these somewhat rare cases. It is possible that they may throw light on the problems of the production of biliary cirrhosis in the adult or explain some of the obscure forms of cirrhosed liver in older children, whether we finally regard them as due to congenital absence of the bile-ducts or to obstruction by calculi or to a poison in the fœtal blood acting on the liver-cells and on the bile-ducts. The following case illustrates many of the points which have been raised by previous observers.

CASE 1.—A male infant was under my observation from Feb. 27th, 1901, till his death, at the age of six months, on April 27th. He seemed quite well and strong when born and was fed at the breast for two weeks or more. He had no jaundice and passed at first meconium and then yellow stools, but in the third week violent vomiting occurred for several days. He was in consequence weaned, but became jaundiced and the stools changed to a white hue. About Jan. 1st he had been placed under the care of Dr. E. L. Walker Dunbar for six weeks and was then admitted by her into the Women's Hospital for 14 days. Dr. Dunbar writes that at that time he took food well and passed stools quite devoid of bile, and white, except when ox-gall or calomel had been administered. In the hospital he was fed at first with milk-and-water, then with condensed milk, and finally with Nestlé's food. In the first week he gained weight, but having lost again during the second week he was sent home to be under his mother's care, and the unfavourable diagnosis was made known to her. When seen by me at the General Hospital on Feb. 27th he was well nourished but deeply jaundiced and the stools continued quite white. The abdomen was slightly distended, but nothing else abnormal could be detected. Later the jaundice became of a brownish tint, and the liver and spleen were moderately enlarged and distinctly palpable. There were no symptoms of syphilis. He was treated as an out-patient for about seven weeks, receiving liquor hydrargyri, Scott's emulsion, and other preparations, and with the exception of occasional dyspeptic troubles and the slightly increasing jaundice his health remained good. On April 25th he seemed failing; slight ascites occurred, though without enlargement of the abdominal veins; there was some irritation of the skin over the chest, otitis *media* was noted, and the mother reported that a little blood had been passed per rectum. He was taken into the hospital. On admission he appeared to be fairly vigorous and took his meals well, but the urine was deeply tinted and contained numerous granular casts. The stools became yellow again, possibly from admixture with the urine, and he died suddenly on the 27th.

As regards the family history the mother stated that she had always enjoyed good health except for occasional attacks of tonsillitis. Her first pregnancy had miscarried, in the second she had twins, and in the third she had a healthy child, all of whom were still alive. During her last pregnancy she suffered much from what she took to be dyspeptic troubles and was confined to the house for some weeks. Dr. Dunbar tells me that three years ago the mother brought to her a male infant, one of twins, with a syphilitic lesion on the thigh which rapidly yielded to mercurial treatment. The mother becoming again pregnant fell into bad health, but quickly improved under similar measures which were continued till her confinement. As far as is known no fresh treatment was needed before the last confinement.

The necropsy was made 50 hours after death by Dr. J. M. Clarke. It was noted that the body was stained a deep but bright yellow and that all the organs were similarly coloured. There was very little subcutaneous fat, but the heart and lungs were normal in every respect. The liver weighed about 11 ounces, which is nearly double the normal weight for a child of that age. It was of a very deep green olive or bronze colour and smooth in section. The substance of the organ was not friable or granular and, on the other hand, it was not specially hard. In the neighbourhood of the portal fissure there was much thickened connective tissue, and scattered through the liver around branches of the ducts there was an excessive amount of the same tissue, but this condition did not apparently extend through the whole substance. No concretions could be found in the gall-bladder or the ducts. A portion of the common duct was enormously distended and contained a clear fluid with deposits of dark pigment on the walls. The papilla of the common duct in the duodenum was prominent, and both in the portal fissure, in the mesentery, and behind the peritoneum were several enlarged firm glands of a reddish colour. On further examination the gall-bladder was found to be thickened and apparently completely closed. No trace of the common duct could be discovered for half of its length; the distended portion was about an inch in length and of the size of a pigeon's egg. The spleen weighed five ounces and was large and firm with patches of thickening of the capsule. In the kidneys the cortex was swollen, but the capsule stripped easily. Microscopical examination of the liver showed extensive fibrosis mainly surrounding the lobules, but invading them in places and cutting off islets of liver cells. Small bile-ducts were numerous. Nowhere was there small-celled infiltration of the margin of the fibrous tissue, which may be taken to indicate that the fibrosis was not progressive. The liver cells showed no degeneration and the contents of the bile-ducts were dark and prominent.

By the kindness of Dr. Dunbar and Dr. Theodore Fisher I am able to give notes of two other cases observed by them and not previously recorded.

CASE 2.—Dr. Dunbar says: "I delivered Mrs. L—— of a living boy in 1877 who was deeply jaundiced at birth. The mother remarked at once upon the colour, adding that she had had another child like it who had died. I afterwards learnt that she had lost previously six children in early infancy, all born alive and all deeply jaundiced. They lived from a few days to a few weeks. J. L—— lived for seven months an uneasy existence, suffering from sickness and constipation. The diet was carefully regulated and every effort was made, more or less unsuccessfully, to procure a food acceptable to his digestive organs. The stools were hard and scanty and always smeared rather than incorporated with yellowish-brown colouring matter. I made a post-mortem examination and found the liver enlarged. The bile-ducts seemed to me to be replaced by mere connective tissue, but the condition of the stools made me think that there must have been some communication, however minute, between the liver and intestine. On examination of the fresh liver tissue I could not satisfy myself that there was any definite cirrhosis or destruction of the cells. Four out of 11 children of this family lived to adult life. One of them showed symptoms possibly due to hereditary syphilis, but in the others none were observed."

CASE 3.—Dr. Fisher writes: "A male child, A. B——, was first seen by me nine weeks after birth. It was then deeply jaundiced, of a dirty yellowish colour, with a tinge of green. The colour was sufficiently deep to be perceptible over the gums and soft palate. The child was thin and weighed only seven pounds, but could not be said to be either drowsy or restless and appeared fairly comfortable. There was a rash on the buttocks very suggestive of syphilis. The liver could be felt one and a half inches below the costal margin and the spleen about three quarters of an inch. The mother stated that the child had been of a deep yellow colour from the time of birth and that the motions were generally white, but sometimes of a pale yellow. There were five other children in the family alive and well, and the mother had had no miscarriages. During the time the child was under observation the bowels were moved three or four times daily. The motions were semi-solid and like white lead in consistence and colour. There was never a trace of yellow in them. The urine was of a reddish yellow and gave a marked reaction with nitric acid. The saliva was tested for the sulpho-cyanide reaction and gave a faint colour. Five weeks later the child died. The liver and spleen were found to be much enlarged. The gall bladder was present but the common duct could not be found. There was nothing noteworthy in any of the other organs. Microscopic sections of the liver showed well-marked multilobular and monolobular cirrhosis and numerous small bile ducts. Some of the bile ducts were distended with dark material and dark granules were seen in many of the liver cells."

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[3] Archiv für Dermatologie und Syphilis, October, 1899.

These cases, then, seem to be rare, for Rolleston can only find 59 recorded instances, of which three were operated upon, one of them, Treves's case, being successful. This last case, however, may be of a different kind, for the jaundice had not commenced till the third year instead of within a day or two of birth, and the patient was not operated upon till his nineteenth year. It has been stated that none of the typical cases survive more than eight months, mild ones may survive and be mistaken later for alcoholic cirrhosis in children. They must be carefully distinguished from simple icterus neonatorum and septic jaundice, though umbilical and other hæmorrhages seem not uncommon in them. In this patient no organisms except the bacillus coli were found in the dilated portion of the duct, and the general health remained good in spite of the extreme jaundice. Nor do they resemble the *ictère splénomégalique* of French writers, which seems to occur in older children, and presents a gigantic spleen extending over a large part of the abdomen, and ascites, stunted growth, clubbed fingers, deep jaundice, and enlarged abdominal veins.

Perhaps the most common cause of large liver in childhood is syphilis. Syphilis cannot be traced in many of these patients with obliterated ducts though Thomson thinks that it may intensify the morbid process at times. Moreover, the condition of the liver is quite unlike that which is due to the luetic infection. Finally, the anæmia with a large spleen and liver found in some rachitic and other children may produce slight jaundice, but it shows no other points of resemblance and is frequently cured.

The first question to be solved is whether the changes in the liver are prior to those in the ducts or *vice versâ*. Where no meconium has been passed the disease must have arisen at a very early stage of fœtal life but in this patient and several others neither white stools nor jaundice appeared for some time after birth. If yellow stools are passed for some days it seems strong evidence that the bile channels are open after birth and therefore that no congenital failure of development has existed. We can hardly weigh against this fact the cases referred to by Dr. Rolleston and Dr. Dunbar where the changes in the liver were slight and recent and those in the ducts well developed. If, however, we think that both changes may occur after birth in some patients from inflammatory processes, these cases are not without importance. Thomson, indeed, finds that instances have occurred where the jaundice was very deep and that yet the ducts were pervious. He adds *that if death takes place early no lesion* or only some thickening of the duct walls may be found, while it is in those who live some months that extreme degeneration and even complete absorption of the ducts are generally found. This would seem conclusive, but Thompson suggests that as the bile found is usually much thickened virtual obstruction of the ducts may have been the cause of the cirrhosis of the liver. However it appears proved that the complete destruction of the ducts is a secondary process and the only likely explanation offered is that of Rolleston that owing to their extreme narrowness at birth they are easily destroyed by catarrhal and other inflammation, just as stenosis of the larynx is found more commonly in children from a similar cause. In adults the causes of cholangitis are the presence of calculi and perhaps of typhoid bacilli. Indeed the formation of calculi is referred by some writers to the presence of an infective agent leading to chronic catarrhal changes. Calculi are exceedingly rare in infants, only about eight have been placed on record. It would seem, therefore, that we must reject as causes either developmental failure or calculous obstruction, and recognise an inflammatory process occurring either in fœtal life or afterwards affecting the liver, the ducts, and the bile itself in varying degrees, and bearing in mind the presence of multilobular changes in some patients at least, there is evidence in favour rather of a descending infection than of one ascending the bile ducts. The obliteration of the ducts is a later symptom due in part to mechanical factors.

We may now turn to another line of argument. The cirrhosis is largely of the monolobular or biliary type, though more or less mixed with the multilobular. What, then, is the cause of biliary cirrhosis? The best known class of cases is that known under the name of Hanot, which is usually regarded as infective in origin. Of late much evidence has been brought forward to show that some form of cirrhosis may be due to obstruction of the ducts. Cheadle indeed, says that in the majority of cases of obstructive jaundice no cirrhosis follows,[1] but Vaughan Harley and others have shown by experiments on animals that in them biliary cirrhosis can be produced by ligature identical anatomically with that seen in Hanot's form. Mangelsdorff in 1882 collected 184 cases in man of cirrhosis with duct obstruction and even argued that any form of cirrhosis might accompany this condition. Ford, reviewing the whole subject in the present year,[2] found 24 additional cases and includes several of these congenital ones though he omits alcoholic and syphilitic cases and those due to well known poisons. He regards it as now certain that in animals a damming back of the bile leads of itself to cirrhosis, while in man cirrhosis also follows on obstruction, but this is due in part to the inflammatory conditions which are always present. The cirrhosis, moreover, cannot be anatomically differentiated from that seen in Hanot's type but the general symptoms accompanying it are totally different.

Now in this patient and others the general clinical picture is much more like that of Hanot's type than that which Ford finds in cirrhosis due to obstruction. Ford, indeed, rather strangely reckons these congenital cases among his instances of obstructive cirrhosis in spite of his own teaching, perhaps from grouping them with the few instances of calculi recorded. Thus, in obstruction he points out that the course of the disease is acute, with rapid loss of flesh and symptoms of portal obstruction. Yet in this patient and others like him the course of the disease was chronic, without much emaciation or loss of appetite. There were no enlarged abdominal veins, or œdema, or, until the final stage when nephritis had set in, any ascites. Indeed, but for the kidney poisoning there seemed no reason why he should not have lived a considerable time in fair health. Thomson remarks that the interference with the general nutrition is usually much less than might be expected and that ascites is only occasional in congenital disease. Of course, as obliteration of the ducts is added to the cirrhosis at a later stage we get absolute exclusion of the bile from the bowel without any intermission of symptoms and finally a fatal termination, while in the adults suffering from Hanot's disease there are intermissions. On the whole then we have in some of these cases at least a complete picture of hypertrophic biliary cirrhosis only different from that seen in adults by the results of a secondary obliteration of the bile-ducts. What the poison or infection is which leads to it is by no means certain. The gastro-intestinal disturbances in the parent during pregnancy occasionally noted may point to the source of the mischief as Rolleston suggests, but until we know the cause of the much debated biliary forms of cirrhosis no conclusion is possible.

Clifton, Bristol.

INUNCTION v. INTRA-MUSCULAR INJECTION IN THE TREATMENT OF SYPHILIS.

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A comparison of the different methods of treating syphilis is difficult owing to the length of time during which it is necessary for patients to be under observation. The present contribution, although necessarily imperfect, may be of some value as it deals with 69 cases which were under my continuous observation while I was resident medical officer at the London Lock Hospital, most of them for more than a year. Of the patients in these 69 cases 37 were treated by intra-muscular injection and 32 by inunction during the active symptoms of secondary syphilis. When the active symptoms had cleared up the patients were put on a course of pills—as a rule, two grains of blue pill twice daily. The method of intra-muscular injection employed was that introduced by Mr. J. A. Bloxam some time ago and still employed by him. Ten minims of a solution of sal alembroth, containing one-third of a grain of the salt, are injected by means of a platinum-iridium needle deeply into the muscles of the buttocks. The injections are performed once a week into alternate buttocks. The inunction was done with unguentum cinereum, consisting of one part of mercury, one part of lanolin, and half a part of olive oil. About half a drachm of this is rubbed daily into different parts of the body. The rubbing lasts 20 minutes. A warm bath is taken before each inunction.

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[1] Lumleian Lectures, 1900.

[2] American Journal of the Medical Sciences, January, 1901.

As to the results of the treatment, by referring to the table it will be seen that there were 16 relapses of the disease during or after treatment by intra-muscular injection, including no less than four cases of severe iritis and one case of early tertiary syphilis. On the other hand, out of the 32 cases treated by inunction there were only seven relapses (two of which were doubtful) and only one case of iritis. Considering that nearly all of these cases were under observation in hospital for a year or more I think that it is justifiable to draw the conclusion that relapses are twice as frequent with the injection treatment as with the inunction method. This view is supported by observations on several hundreds of cases which were observed for shorter periods.

The advantages claimed for injection are secrecy, cleanliness, uniformity of dose, and that it is performed by the surgeon himself; the disadvantages of inunction are its irksomeness and dirtiness. I think, however, that inunction is the more reliable method of the two and that it is the best where rapid mercurialisation is required, as in cases of iritis. The great objection to the intra-muscular injection of perchloride of mercury is the pain caused by it, which is often considerable. Injections of sozoiodol of mercury or of Lang's gray oil are said to be less painful. I have had no experience of these. In treating relapsing syphilis the biniodide of mercury seems the most useful drug.

TABLE OF CASES OF SYPHILIS TREATED BY INJECTION AND INUNCTION RESPECTIVELY.

Case.	Time under observation.	Treatment.	Relapses.	Remarks.
		Injection.		
1	November, 1896, to January, 1898.	5 injections, 3 months pills.	Iritis in eighth month during treatment.	Cured by inunction and biniodide.
2	November, 1896, to November, 1897.	6 injections, 3 months pills.	Iritis in sixth month after temporary omission of mercury.	—
3	October, 1896, to September, 1898.	9 injections, 4 months pills.	Tertiary ulceration in eighteenth month.	—
4	December, 1896, to December, 1897.	4 injections, 3 months pills.	Severe iritis in seventh month, one month after temporary omission of mercury.	Cured by inunction and biniodide.
5	January, 1897, to November, 1897.	6 injections, 1 month pills.	Glossitis and ulcerated throat.	Cured by Donovan's solution and pills of mercury with iron.
6	April, 1897, to July, 1898.	5 injections, biniodide	Nodes on tibia.	—
7	July, 1897, to July, 1898.	6 injections, pills.	Relapsing condylomata.	—
8	May, 1897, to October, 1898.	Several injections and pills.	Circinate syphilide.	Cured by salicylate of mercury pills.
9	September, 1897, to October, 1898.	Several injections.	Circinate syphilide.	Cured by salicylate of mercury pills.
10	January, 1897, to February, 1898.	4 injections and pills.	Erosion of tongue.	—
11	April, 1897, to July, 1897.	4 injections.	Recurrent squamous syphilide and leucoplakia of tongue.	Cured by biniodide.
12	December, 1896, to April, 1897.	6 injections.	Iritis and synovitis.	Cured by inunction and Donovan's solution.
13	April, 1897, to January, 1898.	6 injections and biniodide.	Recurrent condylomata.	—
14	June to August, 1897.	6 injections.	Lesions did not clear up.	Cured by biniodide.
15	June to September, 1897.	8 injections.	Circinate syphilide.	„
16	June, 1897, to October, 1898.	6 injections, pills, and biniodide.	Relapsing circinate syphilide.	Cured by salicylate of mercury pills.
17–37	A year or more.	From 3 to 14 injections (average 6) followed by pills.	*Nil.*	—
		Inunction.		
1	February, 1897, to July, 1898.	10 weeks inunction and pills.	Iritis in fifth month.	Cured by inunction and biniodide.
2	June, 1897, to September, 1898.	4 weeks inunction and pills.	Synovitis of knees.	—
3	September, 1896, to November, 1897.	4 months inunction, 2 months pills.	Erosion of tongue.	—
4	September, 1896, to January, 1898.	5 months inunction, 3 months pills.	Laryngitis.	Cured by biniodide.
5	April, 1896, to June, 1897.	4 months inunction, 6 months pills.	? Syphilitic teno-synovitis.	—
6	May, 1896, to October, 1897.	5 months inunction, 2 months pills.	Relapsing ulceration of throat	—
7	July, 1896, to August, 1897.	3 months inunction, 6 months pills.	? Syphilitic synovitis.	—
8–32	A year or more.	Inunction for from 1 to 6 months (usually 2 or 3 months), followed by pills.	*Nil.*	—

Finsbury-square, E.C.

AN EPIDEMIC OF CATARRHAL JAUNDICE PROBABLY DUE TO THE ENTERIC FEVER BACILLUS.

BY J. W. DALGLIESH, M.D. DURH., M.R.C.S. ENG.,
L.R.C.P. LOND.

DURING this last summer and autumn there has been a great epidemic of jaundice in Bloemfontein. I myself have treated over 100 cases. The occurrence of several hundred cases of this disease in a small town in several months is a curious and serious thing and one well worthy of our thought and investigation as to its etiology. At the same time there has raged an epidemic of enteric fever, but not worse than what occurs every summer and autumn after the rains. There has been, in addition, a very great amount of serious acute dysentery. This is quite a new feature in the medical *history of Bloemfontein.* It followed the British occupation and was undoubtedly brought by the troops. These three diseases, then—enteric fever, dysentery, and jaundice—have raged here for months. They have risen and fallen together. The outbreak of enteric fever was later than usual in starting last summer because the rains were late, and enteric fever always follows the rains. As it and dysentery increased so did jaundice. Towards the end of October cases began to occur, but there were not many until the end of the year, when the epidemic of these three diseases commenced in earnest. Increasing *steadily every month it reached its height during* April and May, when the number of cases of these three diseases was enormous. Then, during June, the epidemic rapidly subsided. The weather had then for some time been very dry and very cold and bracing.

This epidemic of jaundice is quite a new feature in Bloemfontein. Before the war, during my six years' residence in this town, I did not see any more jaundice than I saw during my six years' practice in Newcastle-on-Tyne Jaundice has now attacked all sorts and conditions of people. It has occurred in the drunkard, in the moderate drinker, and in the abstainer, in those who were careful and in those who were careless as regards their food; in those who had good houses and good food and in those who were badly housed and badly fed; in those who were able to obtain plenty of fresh foodstuffs, fresh milk, vegetables, and fruit, and in those who were obliged to live on tinned foods; in those who had permits to leave the town and who indulged in horse and other exercises every day on the veldt and in those who were closely confined to town and could obtain neither fresh air nor exercise; in those who were overworked and worried and in those who were not troubled in that way; in those who had good teeth, clean mouths, and good digestion, and in those who had the reverse; in those who were constipated and in those who were not; in the new comer and in the old resident; in the rich and in the poor, in the clean and in the unclean, in the well fed and in the starved. The only thing common to all was the insanitary state of the town and the presence of a vast amount of enteric fever and dysentery. Living in a small town closely surrounded by large hospitals, camps, remount depôts, refugee camps, and immense droves of cattle and sheep and horses, with the soil contaminated with many years of filth and disease, with the air full of clouds of dust, with no water that was safe to drink until it was boiled, with fresh fruit and vegetables and other things at times unobtainable unless one had one's own garden, and with all the depressing conditions associated with a long war, it is not to be wondered at that there was much sickness. Every summer and autumn there is an epidemic of enteric fever; last summer this was reinforced by dysentery and this year by jaundice.

I have already said that this epidemic wave of jaundice rose to its height and fell with that of enteric fever and that of dysentery, but it was also mingled with them in other ways As examples I may say that a father had jaundice *while his son and his daughter had* enteric fever; a husband had enteric fever while his wife had jaundice; one brother had enteric fever while another brother had jaundice and a sister had dysentery; and a mother had jaundice while her child had enteric fever. In a large boarding-house during three months seven cases of jaundice, five cases of enteric fever, and three cases of dysentery occurred. I could find numerous other instances, but the above will suffice. The jaundice occurred most in those classes who suffer most from enteric fever. The young unmarried men from home, coming out to appointments and living in hotels and boarding houses, were the greatest sufferers from enteric fever and afterwards, I may add, from dysentery. They also supplied the greatest number of cases of jaundice. The married men suffered infinitely less from enteric fever from the greater care they experienced in cooking and in food and water, and they also suffered very much less from jaundice. Females have never suffered much from enteric fever owing to their drinking tea, which means boiled water, and they only supplied a few cases of jaundice. Children here do not often have enteric fever and then usually in a mild form—I have not yet seen a child with jaundice. In addition, I wish to add that two men who were convalescent from severe enteric fever developed jaundice, and that I have seen three cases of cholecystitis which is certainly a rare disease.

There has been nothing specially to note about the jaundice. It has crept on gradually, as enteric fever often does I say "often" advisedly, for enteric fever very frequently comes on acutely in this country. The jaundice commences with dull headache, languor, depression of heart and nervous system, epigastric pain, tenderness over the gall-bladder, nausea, vomiting, furred tongue, and complete absence of fever. Patients who were at once sent to bed, and kept there, blistered, starved, and purged, recovered most quickly; and those who struggled about soon found out that they must submit to the same *régime.* Another fact is that gastritis, without obvious cause, has been for some time *very frequent here Sometimes it passed off, leaving the* patient very weak; sometimes it has gone on to jaundice; and sometimes ultimately the patient has developed typical enteric fever.

Now, what has been the cause of all this jaundice? It will be readily seen by those who read this communication that I think that it is due to the germ of enteric fever or its toxin, but in what manner I do not know. Is it a mild enteric affection causing gastritis and cholangitis? I think it is; that is the impression I have received in the midst of a large and busy practice. I think that it is a subject well worthy of attention and elucidation by anyone who has the skill and the time to do it, and I write these lines in the hope that someone may be found to do it and also in the hope that some others practising in this colony may be led to give their experience, for I believe that the jaundice has not been confined to Bloemfontein. I think, also, that the Royal Army Medical Corps reports might be interesting. There has been a considerable amount of jaundice amongst the troops.

Bloemfontein.

MEAT ALBUMIN DIETARY IN THE TREATMENT OF TUBERCULOSIS.[1]

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SUCCESS in the treatment of tuberculous conditions, whatever may be the method for the time being which is most generally approved by competent authorities, must necessarily depend in great part on the problem of diet in this disease. Particularly is this so with cases of pulmonary tuberculosis in which defective alimentation is the most troublesome factor of the disease to be dealt with. Defective alimentation may be understood, for all practical purposes, to be governed, on the one hand by the digestive and assimilative powers of the sufferers, and on the other hand to be dependent on the easy digestibility of the food substances exhibited—that is, calculating the amount and quality of nutriment derived from the particular food by comparison with the *amount of digestive effort expended* and its ultimate nutritive value and power of producing stable nutrition when finally assimilated. The problem presented by the digestive and assimilative powers of consumptive patients is perhaps one of the most complex and difficult which the physician is called upon to face in the daily routine of practical medicine. It is just those very articles of every-day dictary, of tried and proved food-value, which, owing to the peculiar circumstances of a consumptive person, are most difficult and trying for his deranged digestive system to deal with even in only a partially complete manner. The ingestion of ordinary food, such as meat, vegetables, fats, &c., and the effort to extract from them their constituent proteids, carbohydrates, &c., in such a manner as to derive benefit therefrom, are often beyond the strength of the patient's naturally defective powers and more frequently cause a tax upon his or her energies which the small amount of nutriment derived is unable to compensate. Almost any rational line of treatment adopted will prove satisfactory and equal to the demands made upon it, provided that the digestion of the sufferer is good and remains so. When digestive powers begin to give out—which will almost inevitably happen in the vast majority of cases—then the fight to make any progress which may be called favourable begins in grim earnest.

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[1] A paper read before the British Medical Association, Medicine Section (by consent of the President of the section), on August 2nd, 1901.

The above amply accounts for the successes, failures, and general inequalities of results obtained under any of the well-known methods of treating phthisis. Nothing more exhausting and distressing can be well conceived than a continuous effort to derive nutriment from food, unsuitable in quality and quantity, under circumstances of deranged functions and irritative and morbid conditions of the digestive apparatus. Energy is uselessly expended in a stupendous endeavour to extract an amount of benefit miserably incommensurate with the effort and with a result which would only count as a minimum under more favourable conditions. Comprised in the term "digestive power" is the ability of the nervous mechanism of the pulmonary-gastric chain to resist the mutually reciprocal stimuli which the various processes in the one set of organs excite in the other set and *vice versâ.* Marked additional gastric effort, especially accompanied by diminished digestive power as the result of functional or irritative morbid conditions, made more profoundly disturbing by these very conditions, tends to call into action the pulmonary reflexes—i.e.. cough. This last if in itself sufficiently aggravated reacts on the gastric reflex and leads to the manifestation of vomiting, and thus we here have set up a vicious cycle, ending in inability to retain food. As the ultimate result the general nutrition of the patient rapidly fails, his or her powers of resistance to the disease are gravely diminished, and the disease makes swift and devastating progress towards an unfavourable termination.

As proof of the above contention that the easy excitability is due to loss of power, and that the deranged and irritable reflexes require strengthening, the benefit to be derived from small doses of a nerve stimulant such as strychnine, over and above a sedative such as opium, is well known and appreciated. The assimilative powers can be understood to embrace not only the ability to take up and absorb nutriment, but to fix it in the organism, and having done so to be able to retain and keep it in that condition of potential stability and fixation. The stability of the assimilated matter taken up into the organism depends much on the inherent kind and quality of the food exhibited. A good instance of this is shown by the contrast in the behaviour of milk or casein albumin, and meat albumin or myosin albumin[2] as articles of diet in consumptive cases. Milk or casein albumin, where the gastronomic peculiarities of casein albumin can be borne, is taken up with very moderate rapidity, and benefit is obvious only after comparatively large quantities have been consumed. On the other hand, the beneficial results of the assimilation of milk albumin are rapidly dissipated under unfavourable conditions. Meat albumin, on the contrary, quickly and readily manifests its better qualities in the early observable improvement in the sufferer, and the benefit so obtained is not so easily undone as in the case of casein albumin.

Whatever the benefits manifested in the young by a milk diet, the circumstances do not altogether hold good for the adult, and especially an adult needing the utmost possible assistance from food specially adapted for the needs of adult life, which is the case with a consumptive person. Muscularity is the feature of the adult, therefore the proteid of muscle-food is more nearly adapted to the exigencies of that condition of life than the peculiarly adapted food of the infant in whom muscularity is not the predominant note of development. The above can be easily proved by anyone taking the trouble to weigh tuberculous patients fed on either diet mainly. Whether this is due to the fact that the casein albumin of milk is an excreted or excretory albumin and that the albumin of muscle is a fixed and more highly-elaborated and differentiated albumin, or that the marked deficiency of albuminoid-iron in the casein albumin accounts for the superiority of the iron-carrying muscle albumin, has not yet been satisfactority settled. Any benefits accruing from the ingestion of milk albumin can be easily assisted and their stability enhanced and safeguarded by the admixture and addition thereto of the albumins of meat with their many and various good qualities. Further, the resistant and combative forces of the patient to the ravages of the disease seem to be more markedly increased and fortified under a diet of meat albumin, or mixed meat and milk albumin, than under milk alone.

Personal practical experience of the results of feeding consumptive patients tends strongly to confirm the experience of others. Meat albumin or myosin albumin can be used either in a cooked state or as a raw meat-juice prepared from fresh meat and used immediately after preparation. It can be made either by mincing the meat and expressing it, or by the cold extraction process with saline solution.[3] This last can either be used alone as it is or it can be flavoured with port wine, spices, &c. Commercial raw meat-juice preparations on the market possess no advantage over the home-made raw meat extract, and have the additional disadvantage of containing only a small percentage of actual albumin; they are most expensive, and must necessarily be highly charged with chemical preservatives of more or less harmful nature. All the above methods of administering raw meat-juice, home-made and commercial, run the risk of conveying tubercle bacilli from the meat from which they are made; and the meat juices of foreign origin may also contain the spores of anthrax bacilli if they are made from meat where the cattle are subject to that disease. On the other hand meat albumin can be also utilised in a coagulated or cooked condition,[4] and apparently with just as great benefit, judging from practical results. From elaborate experiments made by myself it can be easily and safely put up in tins and sterilised ready for use at very small expenditure.

Héricourt and Richet's[5] researches and experiments with raw meat on tuberculous dogs induce them to attach some importance to the rawness of the meat, its action supposedly being due to a somato-antitoxin existing normally in muscle plasma or serum; actually the reason may really be that more albuminoid nutriment was forthcoming for less digestive effort Perhaps the contention that muscle serum possesses antitoxic influences has some foundation in fact, as persons of well-marked muscular development are known to be less liable to consumption than others not so well developed muscularly. Consumptive patients of good muscular physique do better than those who are not so fortunate. Finally, in cases of profound tuberculosis such as the tuberculous infection of a large serous cavity as the pleura or peritoneum, the patients, however well developed muscularly, seem to lose their muscular tissue at a rate out of all proportion to that occurring in other diseases. This may be that the muscular tissue is used up in a vain attempt at combating the tuberculous poison. Djvorak[6] and Webber[7] speak well of, and recommend, a meat diet strongly in the treatment of phthisis.

At the present time in my wards in H.M. Guards' Hospital, London, is a well-marked case of tubercle of the right apex in a man who began to go down-hill rapidly and to lose weight and become anæmic, with cough and loss of all appetite, under ordinary diet with much milk. He was put upon the albumin made from two pounds of good steak daily and now after three weeks is so much better that all active subjective and objective symptoms have ceased and he expresses himself as *feeling quite well* His condition is *rapidly approaching the* stage known as ‘ arrest ’ [8]

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[2] Forbes Ross: Meat Preparations · The Possibilities of Myosin Albumin, THE LANCET, June 22nd, 1901, p. 1757.

[3] Forbes Ross. Diet in Heart Failure in the Aged, Brit. Med. Jour., Oct. 13th, 1900.

[4] Loc. cit., and Intestinal Intoxication in Infants, Forbes Ross (Rebman, London, 1897).

[5] Bulletin de l'Académie de Médecine. Paris, Nov. 28th, 1899.

[6] Bericht über den Kongress zur Bekämpfung der Tuberculose, Berlin, 1899, p. 619.

[7] Meat in Pulmonary Tuberculosis, Zeitschrift fur Tuberculose und Heilstättenwesen, 1900.

About [illegible] the right pleural cavity c[illegible]eral pints of fluid contain[illegible] Horsell) After paracentesis he was placed on full diet and the right chest was *painted with iodine but this case became one of dry tuberculous* pleurisy, spoken of so unfavourably by Maguire [9] The patient rapidly ran down and became emaciated, weak, and anæmic He was now put on the albumin from one pound of meat daily was sent into the country, and returned after three months with a gain in weight of two stones, ruddy, feeling well, and with what was more important his right pleura apparently well, but thickened This is undoubtedly another case of "arrest" [10] under meat albumin

A case of malaria with a specific taint and beginning tubercle of the lung though doing extremely badly with a most generous diet and appropriate treatment yet is now, under meat albumin as the patient expresses it "a different man" Another striking case was one published in THE LANCET by Dr Fletcher Little and myself [11] which did wonderfully well with meat albumin and open air treatment combined This particular patient had done badly in South Africa, whither he had been sent for cure, but returned much worse with tuberculous laryngitis, yet in two months he had so far recovered as to form h a case of ‘ arrest

The assimilative powers of a consumptive patient are in direct ratio to the relative efficiency of the vital functions of his organism—e g adequate oxygenation of blood leads to increased power of tissue storage and metabolism with withdrawal of pabulum from the blood stream, this in its turn leads to renewed demand for nutrient matter to replace that withdrawn which is met by increased digestive effort of healthier tone The success of the open air or fresh air treatment of consumption is the fact that digestion being improved and appetite sharpened the patient is able to partake of just those articles of food which tend to provide him with nourishment best suited to his needs in return for the increased power of dealing with them

The above factors produced the survival of the high altitude' treatment, "change of air," and in a less degree owing to lack of adequate food the "long sea voyage on a sailing vessel If it be our duty to the consumptive bread earner [12] to provide him with sanatoria for the open air treatment of phthisis, it also behoves us to endeavour to furnish him with easily assimilated foods within the reach of his pocket No matter what method of treatment be found most successful medicinally the factor of diet will ever remain paramount and essential to that method Myosin albumin returns a maximum of nutrient for a minimum of effort, peptonises rapidly and is promptly absorbed throwing little or no stress and irritating over action on the stomach When combined with fresh milk or stimulant extractives it helps to ensure a highly nutritious food and leaves additional power and spare energy for such valuable adjuvants to the dietary as extract of malt, cod liver oil bone marrow hypophosphites &c

Gower street W C

THE CONDITION OF THE BLOOD IN SCARLET FEVER

BY F PERCIVAL MACKIE M R C S ENG ,
L R C P LOND ,
LATE RESIDENT MEDICAL OFFICER AT THE BRISTOL CITY ISOLATION HOSPITAL

As the result of the examination of 25 cases of scarlet fever of different degrees of severity and at different stages the following conclusions have been arrived at

Moderate anæmia was a constant feature In half the cases the red cells numbered between 3,500 000 and 4 000 000 per cubic millimetre The highest count was 4,170 000 per centimetre The percentage of hæmoglobin was in direct *ratio to the number of red cells, so that the individual corpuscular* richness kept very nearly normal All the cases were accompanied by leucocytosis to a pathological degree—that is over 10 000 per cubic millimetre This leucocytosis seems to bear no direct ratio to the temperature but varies rather with the severity of the throat lesion and to a less *extent with that of the rash* In most cases the increase of leucocytes began about 24 hours after the appearance of the rash and reached a maximum after the subsidence of the general symptoms and at times varying in different cases from the third to the tenth day Mild cases show a maximum increase about the fourth day after the appearance of the rash, and therefore generally not less than 24 *hours after the complete disappearance of the* rash In the presence of septic complications the duration and intensity of leucocytosis naturally depends upon the intensity and duration of such complications In anginal cases the leucocytosis may be very high (it was 95 300 per centimetre in one case) and in the one fatal case it diminished as the disease became more severe This seems analogous with the blood condition in pneumonia where a decrease of leucocytes in a severe ca e is looked upon as a bad sign Percentage enumeration of white corpuscles was only carried out in a few instances, but in these the chief increase was in the polymorpho nuclear variety and in several cases increase of eosinophile cells was present (5 per cent or 6 per cent)

The above conclusions though not made on a very large number of cases are very much in accord with those arrived at by other observers Thus Hayem [1] states that about 1,000 000 red corpuscles are lost per cubic millimetre during an attack of scarlet fever The diminution is most marked about 24 hours after the fall of the temperature Kolschethoff [2] finds that there is a gradual diminution of red cells to about 3 000 000 per cubic millimetre regeneration taking place slowly and not being complete till about the sixth week. Felsenthal [3] on the evidence of a few cases found no variation in the red cells Zappert [4] gives 4 150 000 per centimetre as the average number of coloured corpuscles Hayem [5] found that the hæmoglobin diminished in direct ratio to the red cells As regards the question of leucocytosis Cabot states that the increase may be noticed as long as six days before the rash appears and that it attains a maximum two or three days after the eruption of the rash It persists for several days after the temperature has fallen to normal and with this remark Limbeck also agrees. The average leucocytosis is given as between 18 000 and 30 000 per cubic millimetre Cabot sums up the question by saying In general the severest cases are apt to have the highest leucocyte count the figures have no direct relation to the amount of fever glandular enlargement or complications in the ear or kidney In reference to the percentage enumeration of white cells Kanthack found that the chief increase was of the multinuclear forms (that is the polymorpho nuclear) Cabot finds the same and also says that the lymphocytes—presumably also the large mononuclear—are decreased An increase of eosinophile cells is noted to 6 per cent or 8 per cent., and even in one case to 15 per cent (Kanthack) and this has been used as a prognostic sign it being stated that such increase except at the commencement of the disease is a bad sign

These observations as far as they go tend to bring the question of leucocyt is in scarlet fever into line with that found in some other diseases notably in pneumonia, and speaking in general terms it seems that this increase is a favourable sign and perhaps bears some near relation to the questions of natural protection crisis and acquired immunity Conversely a deficiency or absence of leucocytosis in a clinically severe case is of bad import and the same may be said of a sudden or rapid drop in a case of increasing severity Further as far as our experience goes the sign is of value in indicating the presence of septic complication such as deep seated suppuration in the neck or obscure middle-ear disease particularly as neither of these conditions is infallibly revealed by the temperature chart The moderate leucocytosis in simple angina—from 20 000 to 30 000 per centimetre—is increased to from 40 000 to 60 000 per centimetre when suppuration takes place, and this sign may therefore be used to indicate operation, as has been claimed in the case of appendicitis. The condition of the throat has an important bearing on the degree of leucocytosis, but as long as the discharge is free the increase of leucocytes is not excessive. Measles can be readily distinguished from scarlet fever, as it is one of the few febrile diseases where there is no leucocytosis. Contrary to the experience of Cabot I found no leucocytosis until the rash had been out for about 24 hours; the statement of his about there being leucocytosis six days before the eruption is difficult to understand, as in most cases that would be before the child was even exposed to infection.

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[8] C Theodore Williams: The Arrest of Pulmonary Tuberculosis Brit Med Jour July 6th 1901

[9] Harveian Lectures Prognosis and Treatment in Pulmonary Tuberculosis THE LANCET Dec. 8th 1900

[10] Loc cit

[11] The Open air Treatment of Phthisis THE LANCET Dec. 1st 1900 p 1577

[12] Sir J Burdon-Sanderson: Our Duty to the Consumptive Bread earner Brit. Med Jour July 6th 1901 p 4

[1] Petersburger Medicinische Wochenschrift, 18[illegible] [illegible] p 918 (quoted in Coles Diseases of the Blood [illegible] and Cabot's Clinical Examination of the Blood

[2] Ibid

[3] Archiv für Kinderheilkunde 189[illegible] p 10

[4] Zeitschrift für klinische Medicin 1893 p 232

[5] Ibid

That the chief increase should be in the polymorpho-nuclear variety is only what one would expect, but the increase of the eosinophile variety is interesting. Those who believe that the coarsely granular eosinophile cell has to do with the production of antitoxin will find their theory substantiated, though unfortunately it does not hold good in other diseases where antitoxins are produced. It seems rather that the eosinophile cells have some relation to skin conditions, as in many skin diseases they are much increased, and if this is the case the greater number should be found in those cases which present the most intense and lasting rash, but neither on this point nor on the question of leucocytosis in relation to acute nephritis have I been able to collect any evidence.

Addendum, June, 1901.—The finding a deficiency of red blood cells is not surprising, as everyone who has been brought into contact with patients convalescent from scarlet fever notices the frequency of anæmia. It is scarcely necessary to add that this fact establishes as a rational one the custom of administering to all children one of the iron-containing syrups—with the possible exception of those who have had arthritic complications.

Bristol.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

BACTERICIDAL EFFECT OF THE BLOOD OF NATIVES OF INDIA ON BACILLUS TYPHOSUS.

BY F. N. WINDSOR, B.SC. VICT., B.A. CANTAB.,
CAPTAIN, I.M.S.

(From the Pathological Laboratory, Army Medical School, Netley.)

THE opportunity being given by the presence at Netley of four Sikhs (invalided for wounds from West Africa) and one other native of India (an adult Bengali) I have, at Professor Wright's suggestion, investigated the bactericidal power of their blood on bacillus typhosus with a view to a possible bearing of such inquiry upon the problem of the comparative immunity of Indian native troops to typhoid fever. The method employed was that recently described by Professor Wright,[1] the details being as follows. A 24-hour old broth culture of the bacillus typhosus was employed and the number of bacteria contained in it was elicited as described in the paper above referred to. A series of dilutions of the culture were then made and a certain volume (about five cubic millimetres) of each was mixed with an equal quantity of undiluted blood serum (drawn an hour or so previously) in a capillary glass tube. After the serum had remained in contact with the culture for 24 hours at a temperature of 37° C. a comparatively large volume of sterile broth was drawn along with the contents of the tube into the mixing chamber at the upper end. The series of tubes were then incubated for 24 hours at 37° C. When the contents of the chamber remained clear the bactericidal action of the serum was assumed to be complete; when it had become turbid, incomplete. In case of doubt the inoculation of nutrient agar decided the question.

The results are shown below in tabular form and may be compared with those obtained from a similar investigation of the blood of several ordinary Europeans:—

Dilutions of Culture employed and Number of Bacilli in One Cubic Centimetre of each Dilution.

—	1 in 5. 40,000,000 in 1 cubic centimetre.	1 in 10. 20,000,000 in 1 cubic centimetre.	1 in 25. 8,000,000 in 1 cubic centimetre.	1 in 50. 4,000,000 in 1 cubic centimetre.	1 in 100. 2,000,000 in 1 cubic centimetre.	1 in 1000. 200,000 in 1 cubic centimetre.	1 in 10,000. 20,000 in 1 cubic centimetre.
Sikh, N. S.	Growth	Growth	Growth	Growth	Growth	Sterile	Sterile
,, D. S.	,,	,,	,,	,,	,,	,,	,,
,, R. S.	,,	,,	,,	,,	,,	Growth	,,
,, B. S.	,,	,,	,,	,,	,,	Sterile	,,
Bengali, S. B. ...	,,	,,	,,	Sterile	,,	,,	,,
European, E. V. A.	,,	,,	,,	Growth	,,	,,	,,
European, J. S. H.	,,	,,	,,	,,	,,	,,	,,
European, E. A. S.	,,	,,	,,	,,	Sterile	,,	,,
European, F.N.W.	,,	,,	,,	,,	Growth	Growth	,,
European, J. B. C.	,,	Sterile	Sterile	Sterile	Sterile	Sterile	,,

The agglutinative reaction was also tested in sedimentation tubes and gave a negative result with all the above sera.

From these results it would appear that as regards its action towards bacillus typhosus the blood of these five native Indians did not differ to an appreciable extent from that of an ordinary European. The interesting question as to how this action would be affected by an inoculation with typhoid vaccine cannot at present be determined.

Netley.

A CASE OF CYSTINURIA WITH DIAMINURIA.

BY H. A. SCHÖLBERG, M.B. LOND.,
AND
A. E. GARROD, M.D. OXON., F.R.C.P. LOND.

THE observations recorded below have been made on a case of cystinuria in a boy, aged 12 years, an account of whose case appeared in THE LANCET of Feb. 16th, 1901, p. 470. He had been admitted to the Birmingham Children's Hospital for the removal of a cystin calculus from the bladder. We are greatly indebted to Dr. E. A. Sadler of Ashbourne for his kindness in collecting and forwarding samples of the urine and for giving us leave to publish these obse[illegible]tions on the case. The urine was examined at dif[illegible] periods from Feb. 15th to April 18th, the whole tim[illegible] a total of [illegible]0 days. The method employed for de[illegible] is that known as the Udranszky-B[illegible]es the details for those who may wi[illegible]he total urine passed in 24 hours was [illegible]llowing days, the results being tabu[illegible]

Date.	[illegible] 24 hours.	Diamines.
Feb. 15th—16th. ,, 16th—17th. ,, 17th—18th.	670 cubic centimetres.	Absent.
,, 18th—19th.	70 ,, ,,	,,
,, 19th—20th.	40 ,, ,,	,,
March 1st—2nd.	156 ,, ,,	,,
,, 2nd—3rd.	56 ,, ,,	Putrescin.*
,, 3rd—4th.	90 ,, ,,	Absent.
April 16th—17th.	160 ,, ,,	Putrescin and cadaverin.†
,, 17th—18th.	260 ,, ,,	

* The melting point was 175° to 176° C.
† The melting point was 159° to 161° C.

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[1] THE LANCET, June 1st, 1901, p. 1532.

[1] Neubauer und Vogel: Analyse des Harns, p. 265.

It will be seen from this that on three occasions out of 10 examinations diamines were found, in one case putrescin (dibenzoyl derivative) being separated as a pure product This is the second case recorded which has given such a result, the other being described by Garcia[2] who was examining the urine of Baumann's case recorded in the same journal in 1889 The evidence that we had separated dibenzoyl putrescin is as follows (1) benzoylating yielded a crystalline compound having the same melting point as dibenzoyl tetra methylene diamine—175° to 176° C , (2) it was insoluble in water , (3) it was soluble to a certain extent in ether and readily soluble in alcohol , (4) the platinum salt of the compound was prepared and the crystals corresponded with those of the platinum salt of putrescin The yield was insufficient to allow of a further experiment and an ultimate organic analysis could not be done

The results obtained with the samples dated April 16th to April 18th indicated a mixture of the two diamines putrescine and cadaverine The melting points of the two dibenzoyl derivatives of these two compounds are 175° to 176° and 130° C respectively, and a mixture of the two would give a lowered melting point corresponding to the proportions of the two bodies present. The melting point of the crystalline bodies separated was in both cases 159° to 161°, *suggesting that we were dealing with a mixture of* dibenzoyl putrescine and dibenzoyl cadaverine, the greater part of which was the putrescine derivative Ether dissolved the greater portion of the mixture leaving a small crystalline residue An examination of the fæces was not made

In conclusion, we wish to emphasise the intermittent character of the excretion of diamines and the necessity of making a repeated examination of the urinary output before deciding that these bodies are absent We wish to express our thanks to Dr F W Andrewes for allowing us to carry out this work in his laboratory

The Pathological Laboratory, St Bartholomew's Hospital, E C

MALARIAL COMA , PREMATURE DELIVERY ; DEATH

By J BELL M R C S ENG , L R C P LOND ,

ACTING PRINCIPAL CIVIL MEDICAL OFFICER, HONG-KONG

A CHINESE prisoner in about the eighth month of pregnancy was suddenly seized with a fit at Hong Kong gaol on June 1st. When seen she was quite unconscious with contracted pupils, stertorous breathing, insensitive conjunctivæ, and a small, feeble pulse Under the idea that she was suffering from [illegible] mia she was transferred to the Maternity Hospital [illegible] rrival she was much in the same condition , the tempe[illegible] was 100° F and she was quite unconscious She pas[illegible] r urine and fæces in bed but by means of a catheter a [illegible] m of urine was obtained , the specific gravity was 1[illegible] was acid, and it contained a trace of albumin. The [illegible] wing day she was somewhat better and she could be roused by loud shouting The temperature was 101° , *the urine contained one sixth albumin* with blood corpuscles and blood casts The labour ended naturally, the child being dead On the 3rd the temperature was 103°, the urine was normal and the patient was still unconscious A blood slide showed numerous malignant quotidian parasites Ten grains of quinine were given hypodermically twice daily, but without any drop in the temperature or improvement in the mental condition. On the 4th the temperature was 106 8° As the patient was evidently sinking lumbar puncture was performed clear serum coming out of the tube which was left in for 48 hours. This, perhaps, combined with ice packing brought the temperature to normal at midnight. The following day the patient seemed to be much more sensible though the temperature again rose to 104° As the blood still showed malignant parasites in large numbers the quinine was increased to 15 grains twice daily, with iron and quinine every three hours The patient slowly again relapsed into unconsciousness, the temperature varying between 101° and 106° till the 7th, when she died.

Necropsy —At the post mortem examination the heart and lungs were found to be normal save for some old adhesions at the right base The liver was cirrhotic and weighed two and three-quarter pounds The kidneys were normal but were much congested The spleen weighed five ounces The brain was soft and congested but there was no increase in the fluid either at the base or in the ventricles A smear obtained from the spleen teemed with parasites

Remarks —As these comatose forms of malaria invariably show a large increase in the cerebro spinal fluid lumbar puncture was tried in the hope of staving off the effects of pressure until the quinine had time to work The result was disappointing, as also was the effect of quinine which in these comatose forms seems to be useless In five days the patient had 145 grains hypodermically with practically no effect

Hong Kong

A Mirror

OF

HOSPITAL PRACTICE,

BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere et inter se comparare —MORGAGNI *De Sed et Caus Morb* lib iv Proœmium

ST GEORGE'S HOSPITAL

TWO CASES OF INTUSSUSCEPTION TREATED BY OPERATION ; RECOVERY

(Under the care of Mr HERBERT W ALLINGHAM)

THE following two cases are good instances of the successful treatment of intussusception by laparotomy, and the best results are obtained when, as here, no previous inflation or injection has been practised. In one important point, however, these two cases differ from most other cases of laparotomy for intussusception in both the vermiform appendix was removed Inasmuch as shock is the chief cause of death in laparotomy for intussusception this addition to the operation is of doubtful value and the utility of the modification is but little increased by the avoidance of possible appendicitis in the future and by the possible formation of adhesions which may tend to prevent a recurrence of the invagination. For the notes of the cases we are indebted to Mr P L Mummery.

CASE 1.—A well nourished child, aged a year and three months, was suddenly seized with acute abdominal pain at 9 A M on March 11th , this was followed by vomiting and diarrhœa, the stools consisting of blood and mucus. The patient had previously been quite healthy except that he had suffered from worms for some time, a worm having been passed just previously to the onset of symptoms The child was admitted to St George's Hospital at 4 A M on the 12th The abdomen was slightly distended and tender, and a firm roundish mass could be felt extending from the right iliac fossa upwards and then across the abdomen at about the level of the umbilicus towards the left side

The A C E mixture having been administered, an incision was made about four inches long just to the right of the umbilicus and extending about an equal distance above and below it On opening the abdomen an ileo-cæcal intussusception was found nearly a foot in length This was reduced easily by squeezing except for the last portion which was rather adherent. The appendix (about four inches in length) was then removed by turning back a sleeve of peritoneum in the ordinary way The wound was sewn up with fishing gut sutures and the dressings were fixed on by passing broad pieces of strapping completely round the body The child was subsequently allowed to move about in bed as he liked He was rather restless all day but after the administration of two minims of tincture of opium he slept well all night

On March 13th the child was sitting up playing with toys *and seemed* to be quite comfortable Two drachms of castor oil having been given without effect in the morning the child was given half an ounce in the evening which resulted in two good stools during the night The patient made an uninterrupted recovery, the stitches being removed on the sixth day The child was allowed to sit up when he wanted to and in fact, did so most of the day The wound was firmly healed on the 25th and the child left the hospital quite well on the 28th

CASE 2.—A well nourished child was in good health until

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[2] Zeitschrift für Physiologische Chemie, 1893.

April 22nd, when the mother noticed that the stools were frequent and consisted for the most part of blood and slime. It vomited about the middle of the day; this continued and the child was restless and ill until admission to St. George's Hospital on the following afternoon (the 23rd). On admission the child was collapsed, with a subnormal temperature and rapid pulse; it vomited frequently and passed several stools consisting of nothing but blood and mucus. The abdomen was distended and with some difficulty a sausage-shaped mass could be felt on both sides of the abdomen. Nothing was felt on examining the rectum.

An operation was performed at 8.30 P.M. on April 23rd. Chloroform having been administered an incision about four inches long was made as in the first case. An ileo-cæcal intussusception was found involving the whole of the large intestine down to the sigmoid. The bowel was black in colour and slightly œdematous, but still shiny. It was reduced by delivering the mass and reducing it piece by piece by squeezing the intussuscipiens and drawing on the intussusceptum. The last part was rather adherent but was reduced without injury to the bowel. The appendix was then removed as in the first case and the wound was sewn up and dressed. The child stood the operation well and slept for some time afterwards. It was not weaned but was fed by the breast in the ordinary way, the first feed being given by the mother six hours after the operation.

On April 24th the child was very slightly sick after each feed during the day. The bowels acted three times unassisted, the last motion being natural in appearance. The temperature was 102° F. On the 25th the patient was better. The bowels acted slightly. Half a drachm of castor oil was administered with good effect. The temperature was normal. On the 29th the wound was dressed and superficial stitches were removed. On May 4th the remaining stitches were removed; the wound had healed. On the 11th the patient left the hospital quite well.

Remarks by Mr. Mummery.—In neither of the above cases was inflation attempted and in both cases it was found at the operation that such an attempt would have been quite futile. The large incision used in these cases was of great benefit as it allowed of the operation being quickly performed (neither operation took over 25 minutes), a point of the utmost importance in abdominal operations on young children. The appendix was removed in each case with a view to obtaining adhesions in the neighbourhood of the cæcum which we thought might prevent a recurrence of the trouble, while at the same time it removed an organ with unpleasant possibilities before it. Both children were allowed to move about as they liked after the operation and the second child was even taken out of its cot by its mother and put to the breast every few hours, and if this child had had to be weaned it would probably not have recovered. The child being allowed to sit up and crawl about did not appear to interfere in any way with the recovery of the bowel or the healing of the wound which in both cases was perfect.

KETTERING GENERAL HOSPITAL.

A CASE OF RUPTURE OF THE KIDNEY; EXCISION; RECOVERY.

(Under the care of Dr. Daniel D. Lee.)

The question of the removal of a kidney when a urinary fistula has become established must be decided partly by the risk of the operation itself, but chiefly by the functional activity of the other kidney. This should be estimated in all cases before nephrectomy is performed. In uncomplicated cases of injuries to the kidney the mortality is about 30 per cent. and when complicated cases are also included the death-rate may amount to 47 per cent. These percentages are founded on a series of 306 cases collected by Koster.[1]

A labourer, aged 19 years, was admitted into the Kettering General Hospital on Sept. 6th, 1900, 14 hours after an accident at the Kettering Furnaces, in which he was caught between two barrow loads of ironstone. When seen at the hospital he was in a state of extreme collapse. He was very restless, in great pain and distress, and passed blood copiously by the urethra. The hæmorrhage was ultimately checked, but did not cease altogether until the beginning of the third week. His condition was very grave and continued so for several days. The temperature ranged from 99° to 103° F. and the pulse was 140; there were frequent low delirium and almost incessant vomiting. At the close of the first week the cervical glands were inflamed and swollen and in the space between the last rib and the crest of the ilium an ill-defined swelling with faint fluctuation appeared. This gradually increased and could be traced from the outer border of the erector spinæ behind, almost to the middle line in front. Fluctuation became more marked and the presence of pus was suspected. Yet, notwithstanding that on three occasions a trocar was thrust deeply into the swelling, the result was negative. At the same time Dr. Lee felt convinced that he had to deal with a perinephric abscess. It should, perhaps, be mentioned that after the urine had become quite clear the quantity passed was excessive, amounting to 90 ounces in 24 hours.

On Oct. 7th it was decided to operate. Mr. J. P. Roughton gave the anæsthetic and Dr. J. Allinson and Mr. L. W. Dryland assisted. A vertical incision was made along the outer edge of the left lumbar muscles, extending from nearly the last rib to the crest of the ilium. No special difficulty was encountered in the dissection, the deeper stages of which were carried out rather by tearing with the finger and probe than by cutting, and a membrane containing fluid was reached, through which the kidney could be readily felt. The membrane was torn through freely, as was thought at the time, but only a disappointingly small quantity of foul-smelling urine escaped. Two large drainage-tubes were inserted into the cavity and were packed round with strips of cyanide gauze and the wound was dressed. The patient rallied well from the operation; on the two next days there was a considerable amount of discharge on the dressings, but on the third day they were quite dry. The vomiting meanwhile continued and the temperature and pulse showed no signs of improvement. Suspecting that the opening in the capsule was insufficient or that the tubes had either slipped out or got blocked, Dr. Lee put the patient under the A.C.E. mixture and freely lacerated the membrane with the fingers, when an astonishing quantity of urine and pus escaped. The cavity was again drained and the wound was dressed. The vomiting now entirely ceased and the patient gained flesh and strength rapidly. In fact, he was practically well except for the presence of a urinary fistula. It may be remarked that when the cavity was being flushed out on two occasions some kidney tissue came away in the discharges.

After a month's uninterrupted progress it was put to the patient whether he would be content to have a urinary fistula all his life or to have the injured kidney removed. He readily chose the latter alternative and accordingly on Nov. 18th he was put under the A.C.E. mixture, Dr. Lee's colleagues assisting as before. An incision about four inches in length was made a little below and parallel to the last rib, forming an acute angle with the upper end of the wound made in the previous operation. A triangular flap resulted, which when reflected brought the kidney well within reach. The capsule was reflected from the pedicle as far as possible and the kidney was withdrawn partially through the wound. The ureter was now sought for, but from the extremely matted condition of the pedicle it was found impossible to isolate it. It was decided to include the ureter with the blood-vessels in the same ligature. The pedicle was therefore transfixed with a stout double silk ligature and was treated exactly like an ovarian pedicle and the kidney was removed. The cavity was well plugged with cyanide gauze and the dressings were applied. The patient bore the operation well, but became very collapsed on the next day when the dressings were removed. However, after being transfused by Mr. Roughton and Mr. Dryland with normal saline solution, he rallied and subsequently made an uninterrupted progress to complete recovery. He is now, and has been for three months, back at his old work again, feeling, he says, as well as ever.

Remarks by Dr. Lee.—The only comment which I wish to make on the treatment of the case is with regard to the management of the ureter. The authorities on the subject within my reach say that the ureter ought always to be treated separately and Mr. Knowsley Thornton is quoted as advising, in addition, the suturing of the end of the ureter to the lowest part of the wound, especially, I take it, where the kidney is removed by the abdominal method. I do not know if he advises it when the operation is performed by the post-peritoneal method. That there are conditions of kidney met with, for which the operation of nephrectomy is performed, which point to the operator the wisdom of treating the ureter as a separate entity I do not wish to deny, but that it is unnecessary to do so in all cases is, I think, amply demonstrated by this one. The evil results of a leaking ureter were conspicuous by their absence.

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[1] The Surgery of the Kidney and Ureter, by H. Morris, vol. i., p. 178.

Reviews and Notices of Books.

Sexual Dimorphism in the Animal Kingdom: a Theory of the Evolution of Secondary Sexual Characters. By J. T. CUNNINGHAM, M.A., formerly Fellow of University College, Oxford. London: A. and C. Black. 1900. Pp. xi + 317. 32 Illustrations in the text. Price 12*s.* 6*d.* net.

MR. CUNNINGHAM could hardly have selected a more important and entrancing subject upon which to write a book than a consideration of the various problems involved in what is generally called "sexual selection." So obvious is this that he need hardly have adopted so deprecatory a tone in the preface as he has thought fit to adopt. Mr. Cunningham writes: "It is true that many interesting and valuable observations have been made, but as the description of the *behaviour of a living animal adds so much less to a man's* reputation than an anatomical or systematic research the study of habits makes slow progress." The precise opposite appears to us to be the case. There is most unquestionably at the moment a "boom" in bionomics and a decided "slump" in purely anatomical or embryological investigation. The former is not to be regretted, but the latter to our mind is a retrograde step. The professional zoologist is apt to resemble the religious convert, he lives for half his life in crass ignorance that a certain line of work is a possibility and desirable; when he wakes up to the fact he begins by insolent denunciation of other zoologists who prefer other paths. In the palmier days of "section cutting" and "morphology" the systematist was contemptuously treated as was even the anatomist who followed the methods of Cuvier and of Owen. Now we study the influence of temperature upon development and feed birds with gaudily coloured caterpillars. An excellent thing, too, but not to be studied to the exclusion of everything else. If Mr. Cunningham will do once again what he has doubtless often done before—walk into the central hall of the Natural History Museum—he will find bionomics to any amount and will revise the sentence in his preface to which we have referred.

The question arises in considering Mr. Cunningham's book, important and fascinating though the subject is, are there sufficient facts and inferences which have accumulated since the time when Darwin wrote "The Descent of Man" to justify a review of the subject of sexual selection? Perhaps it is easier now than it was some years ago to treat sexual selection from the point of view of destructive criticism but it does not appear to us that a replacement of that theory is yet possible and least of all by a theory so purely Lamarckian as that in which Mr. Cunningham believes. As to the first point such advances as we have made in the knowledge of fact seem not to have strengthened the evidence for sexual selection; but it does, as it appears to us, seem to be a fact incapable of refutation that "preferential mating" occurs in the vertebrate world. *The classical instance of the latter* marriage custom is, of course, "the old pied cock" of Darwin whom the hens preferred to his more attractively coloured and youthful rivals. The two theories are sometimes confounded, but the one has not necessarily anything to do with the other. They may obviously coincide; but this emphatically remains to be established. However, this attitude of mind does not really affect the position taken up by the author of the volume before us. Mr. Cunningham dwells upon the fact that sexual differences of colour and structure other than of the parts concerned in reproduction, are the outward effects of a different mode of life and are at least often caused by direct stimulation of a special kind. To do Mr. Cunningham justice he is not in the least afraid of the inconveniently "tight" places in which the pursuit of his views at times lands him. He has in an eminent degree the courage of his opinions. In dealing, for example, with the marked differences which the two sexes of certain butterflies exhibit, he boldly leans for support upon *the first of the two articles of his creed.* It is a commonplace of zoology that many butterflies (and of course, other animals) closely resemble other species of butterflies to which they are or are not closely related. In many cases this resemblance is limited to one sex, which is then most commonly the female. Mr. Cunningham instances the swallow tail butterfly (*Laertes pammon*); this insect has two kinds of females; the females are, as it is said, "dimorphic." One kind of female imitates another swallow tail (*Menelaides aristolochiæ*), the other a second species of the same genus (*M. hector*). The male imitates neither, but bears carelessly his own peculiar characteristics. Now it is held by the advocates of the theory of "mimicry" that the female escapes destruction by this striking likeness to the nastily tasting *M. aristolochiæ* and its ally. They would add that it is more important that the female should be protected than the male, since upon her devolves the duty of egg laying. When the male has once paired with his mate natural selection has no further interest in him and does not care what becomes of him. Mr. Cunningham attacks this view in a fashion which is not without ingenuity. Why, he asks in effect, should not the male also get to be a mimic? Although it may escape by its activity, why should not it also add to its defences by an imitation of a protected *Papilio?* If selection were the only factor, then thinks Mr. Cunningham, the male would undoubtedly be affected like his mates. "On the theory," concludes the author, "that the similarity of habits between the female and the mimicked species was the cause of the mimicry, the facts at once become intelligible; on the theory of selection they do not." Now it must be conceded that this line of criticism is most damaging to those who are convinced of the adequacy of the theory of mimicry, for the reason that according to most of that party variation is taking place in all directions. But the innate fallacy in that view, and in Mr. Cunningham's criticisms thereof, seems to us to be the assumption that variation does occur in this *radiating way.* Facts of breeding, and other natural facts prove more and more conclusively every day that variation—whatever be its cause—does not proceed in every direction but along definite and circumscribed paths.

Mr. Cunningham has a wider knowledge of the facts of zoology than many who have attempted to write works of a general character like the present. But like most zoologists Mr. Cunningham is not a specialist in every group. In stating that the horned screamer (*Palamedea cornuta*) has two pairs of spurs upon the wings the author is in error; nor is he accurate in stating that the pendulous fleshy process on the head of the turkey is erected when the animal is "love making." The "anseres" are not the only birds with two pairs of extrinsic muscles upon the trachea; there is, moreover, no family cygnidæ which can be distinguished from the *other anatidæ.* The latter criticism may be, perhaps, thought pedantic, but it is not pedantic to remind the author that chamæpetes does not belong "to the turkey family." Mr. Cunningham's own special knowledge relates mainly to fishes, upon which group he has published much in the way of valuable research; when he deals with this group he is more illuminating than he is at times elsewhere. It is generally quite possible to deal with philosophical speculation from a knowledge of one group only; we wish much that this plan were more usually adopted. With the critical destructive part of Mr. Cunningham's work we are as a rule in sympathy. He points out, for instance, a real difficulty to the believer in selection pure and simple in treating of the specific characters of certain fishes. The plaice has red spots and smooth scales with a bony ridge behind the eyes elevated into five tubercles. The dab, on the other hand, has spiny scales, while the flounder differs from both in its small and reduced scales accompanied by other scales which are specially enlarged; and the ridge behind the eyes is smooth. How can we account for these specific differences on any theory of utility, he asks; and as in countless other cases there appears to us to be no answer possible. It would be wiser, we think, to let the matter rest here for the present, but Mr. Cunningham must have a theory, and naturally dwells upon the different kind of life led by the three species of flat fish.

Elsewhere the author is to our mind too anxious to press his views of the close relation between certain habits and concomitant structural peculiarities. To arrive at the conclusion that the complexly branched horns of deer are the result of the habit of butting each other shown by the males is too difficult of acceptance; worse still from the point of view of probability—and what other arguments are there at present?—is his opinion that the grooves on the adorned snout of the mandrill are the results of continued clawing at each other by quarrelsome males. We cannot accept his assertion that the manes of lions, the long feathers of certain birds, warts and combs, are merely due to increased growth caused by pulling and pecking at those spots. In short, while Mr. Cunningham possesses a pleasant and fluent style and has furnished us in this book with many interesting and often little known or absolutely novel points, and has attacked the standpoint of those who believe in sexual selection with much acute criticism, we cannot allow that he has replaced that theory by one which is more convincing. As he admits himself, we require more study and the accumulation of much more fact; the time has not yet come for even the most tentative generalisation.

A Text-book of Practical Obstetrics. By EGBERT H. GRANDIN, M.D., and GEORGE W. JARMAN, M.D. Third edition, revised and enlarged, with 52 full-page Photographic Plates and 105 Illustrations in the text. Philadelphia: F. A. Davis Co. 1900. Pp. 526. Price $4.00.

THIS book has reached a third edition in a comparatively short space of time. From this we may infer that it is appreciated by American students. In our notice of the second edition we pointed out what we considered some of its defects. One of the most important in a book of this character intended for ready reference is the difficulty experienced in finding any connected account of the treatment recommended for varying conditions. This is due firstly to the fact that the index is a very poor and incomplete one and no attempt seems to have been made to improve it, and secondly, to the plan adopted of relegating without adequate cross references the descriptions of the operations of obstetric surgery to the second half of the book, away from the account of the different conditions in which they may be required. We should much like to know upon what number of cases the authors base their statement that in the treatment of placenta prævia "the elective emptying of the uterus enables us to save nearly 90 per cent. of the infants instead of losing this number, as was the record of the past, and the chances of the woman's life being saved may be placed at about 98 per cent." We are surprised to find no notice at all of Champetier de Ribes's bag and the old-fashioned, we had thought obsolete, pattern of Barnes's bag figured and apparently recommended. The authors appear to consider the exceptions to Colles's law as sufficiently numerous to warrant the prohibition of nursing by a healthy mother of a congenitally syphilitic infant and the suckling of a child born without evidence of disease by its mother for fear it may become infected.

For the experienced practitioner able to pick out the good from the bad no doubt the book contains some useful information, but at any rate for the English student we do not feel that we can recommend the third edition any more than we did the second.

A Treatise on Plague: The Conditions for its Causation, Prevalence, Incidence, Immunity, Prevention, and Treatment. By Major GEORGE S. THOMSON, M.B., M.Ch., M.A.O. R.U.I., I.M.S., Bombay; and JOHN THOMSON, L.R.C.S., L.R.C.P. Irel., Special Plague Officer under the Government of Bombay. London: Swan Sonnenschein and Co., Limited. 1901. Pp. 308. Price 7*s.* 6*d.*

THIS volume, which consists of nine chapters and a few pages devoted to Pest Bibliography, after dealing with such subjects as the definition and etiology, historical retrospect, and incidence of plague, proceeds to the consideration of the relation of rats to the pest, the mode of infection in plague, and the use of chemical disinfectants, with a description of the plague epidemic in Satara city, Mr. Haffkine's prophylactic inoculation, and the reports, statistical, clinical, and otherwise, of the Parel plague hospital.

The authors, it will be seen, have a wide field and a large amount of information and material at their disposal, in addition to that which has been acquired from considerable personal experience; and from what may be termed a practical common-sense point of view they have a good deal to say which is deserving of, and commends itself to, attention.

Their treatment of the subject, while it evinces an up-to-date acquaintance with the results of scientific researches, is nevertheless not perhaps so terse and precise as could be desired. It contains a great deal of information, but it is too discursive in style and arrangement and the book does not readily lend itself to analysis and review. We take it, however, that one of the main objects aimed at being proved is made plain enough, and it may be described as something to this effect: that although a micro-organism is the origin and cause (the seed) of plague, as of some other infectious epidemic diseases, it requires a suitable soil and environment for its life, growth, and development. That, in other words, every seed or germ of disease requires, like a vegetable seed, a suitable muckheap or soil for its preservation and growth and that it is often far easier to prevent or to deal with the muckheap than with the seed itself.

"The practice of classifying diseases mainly by the micro-organisms that give rise to them confers on the germs," say the authors, "a wholly factitious and overwrought importance, has caused us to pay less regard to the secondary controllable causes, equally, if not more important. ...... In nature whatever is, is so under certain conditions, some of which are accidental, while others are essential. The difference must be carefully ascertained." The authors allege that the germ has become the dominant process in disease, and the theory overdriven has become a bar to medical progress and true preventive science. They contend that the dreaded scourge of plague can be resisted and stamped out by proper sanitary precautions alone in a sensible manner, based on the true theory of its causation. Experience has proved that the contagion of plague, when diluted with pure atmospheric air, becomes innocuous to those in close contact with the afflicted. The preventive measures are cleanliness, prevention of overcrowding, and perfect ventilation.

The unfortunate thing connected with public hygiene, however, is that whilst the principles by which we should be guided are generally recognised their application in practice is another matter. Other considerations of a more or less prohibitive nature come in and assert themselves, and peoples—especially Eastern peoples—and governments are only too ready to run the risk of being devastated by epidemics rather than to incur the financial and other sacrifices which preventive measures entail. This is so well known that to assert it even has become a platitude. To an uneducated and conservative laity the only interest attending the discovery of a specific microbe is the hope of its immediate destruction or, failing that, the limitation of its spread by measures of quarantine; the former frequently cannot be accomplished and the latter, besides being impracticable and ineffective, often costs more than the provision and execution of obvious sanitary requirements would have done. Practically we have in the meantime to put our main reliance in the case of plague in the East on prompt evacuation of an infected house or locality and prophylactic inoculation against the disease. Without going into all the details set forth in this volume we may say, in conclusion, that this treatise on plague is written from a practical and independent standpoint and containing, as it does, a large amount of information and a record of the results of personal experience on the part of its authors is well worth reading.

Les Processus Généraux. By A. CHANTEMESSE and W. W. PODWYSSOTSKY. Vol. I. of *Pathologie Générale et Expérimentale.* Edited by C. NAUD. Illustrated. Paris: G. Carré et C. Naud. 1901. Pp. 420.

THIS volume, which deals with certain of the general processes of pathology, is the first of a series which will ultimately include all branches of the science which are concerned with what is strictly called general pathology. The volume commences with an account of the morphology of the cell and with the propagation, course, and termination of disease. It then discusses the influence of heredity on the determination of morbid processes and proceeds to a full account of the various degenerations and atrophies.

Although one of the authors—namely, Professor Podwyssotsky—has already published in the Russian language a work dealing with practically the same departments of pathology the present volume is by no means a translation. The text has been entirely rewritten and extended and the illustrations, which constitute a most important feature of the work, are nearly twice as numerous as in the Russian work of Professor Podwyssotsky. As the authors are at pains to make clear in the preface, the reader must be prepared for a more strict interpretation of the term "general processes" than is usually accepted by authors of works on general pathology. Thus they admit that they can draw no sharp distinction between the processes of life which are usually called physiological and those which are usually called pathological. Both of them represent the reaction of the organism to variations in its environment. For this reason the term "pathological physiology" might have been adopted as an alternative title for a work which deals almost as fully with physiological processes as with those which are distinctly within the borderland of pathology. A very fruitful attempt has been made to systematise the morbid processes which are dealt with in this volume according to a rational and genetic classification. The degenerations are shown to be variations of certain more or less similar types which start as simple coagulation of protoplasm (granular degeneration) and proceed through various stages of chemical disintegration until in carbohydrate degeneration (glycosuria and diabetes mellitus) we find protoplasm completely broken down into two *moieties*, a carbohydrate- and a nitrogen-containing half. Hyaline degeneration is considered as a precursor of amyloid degeneration and mucoid as a transitional stage between albuminoid and carbohydrate. In mucoid degeneration there is a liquefaction of albumin with a modification of its chemical composition, whereby the carbohydrate molecule, instead of being set free as in carbohydrate degeneration, is united loosely to an albuminous substance. The relationship between fatty and carbohydrate degeneration is again close, and has this common feature, that in both cases fixed albuminous bodies become transformed during life into bodies which contain no nitrogen. These two forms of degeneration frequently are associated. Although the correlation of these morbid processes is intensely interesting the authors have not allowed themselves to be carried away by merely theoretical considerations. They admit the difficulties and point out the many hiatuses which must be filled in before any classification can be complete.

Closely associated with the question of degenerative processes is the subject of the unorganised ferments of internal secretion. Obesity with diminished combustion of fat may in certain cases be associated with a deficiency of a ferment called lipase which is contained in the blood and has the power of splitting fat into a glyceride and a fatty acid. The extent to which fat can be utilised in the system (limit of utilisation or coefficient of assimilation) may be dependent on the activity or quantity of this ferment, in the same way that glycolysine (Lepine's sugar-splitting ferment) may determine the limit of utilisation of sugar. On the degree of activity of these ferments, which can be measured, it may ultimately be possible to base a more or less trustworthy prognosis in certain cases of obesity and diabetes.

In the chapter which deals with Heredity there are a number of points of extreme interest. The authors accept as established the doctrine of the transmission of acquired characteristics, both physiological (transformism) and pathological (disease). It would appear that a habit of metabolism is the essential feature which is transmitted. This may ultimately conduce to morphological variation. Lowly organisms such as bacteria, which may pass rapidly through many generations, afford the best subjects for inquiries of this kind.

The illustrations, which, as we have before mentioned, contribute in no small degree to the value of this book, are, for the most part, exact reproductions in colours of the original sections which have been prepared mostly by Professor Podwyssotsky according to the most modern and approved histological methods. As a series they are altogether superior to any other with which we are acquainted.

If the high standard of excellence which characterises this the first volume is maintained in those which are to follow this general pathology will be unparalleled as a work of reference

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LIBRARY TABLE.

Practical Hints on the Erection of Baths and Wash-rooms for Public Use and in Factories, &c. Illustrated London: Messrs Andrew and Suter. Pp. 30.—The principal object of this pamphlet is to bring into notice a patent counter-flow water-heater which has only recently been introduced into the English markets, although in Germany, where it was invented, and in the United States of America it has met with favourable acceptance for some time past. The heater consists of a small bundle of copper tubes inclosed in an iron jacket. The supply of water to be heated enters this jacket at the bottom and is controlled by a valve; a second valve admits steam, either direct from a boiler or the exhaust steam from an engine, to the bundle of inner tubes at the opposite direction to the cold supply, and this steam valve is so arranged that it cannot be opened before opening the cold-water valve. A thermometer is fitted to the supply-pipe from the heater to the bath to guide in the regulation of the steam valve, so as to ensure the heating and maintenance of the water at any required temperature according as the steam pressure may vary in the boiler. By this means any chance of over-heating is avoided. The pamphlet illustrates a number of schemes to show how mines, factories, &c., may be fitted at a comparatively small cost with the means for the personal cleanliness of the employés, whether in large or small numbers. Without criticising the several proposals in detail it may be stated than the plans and suggestions have evidently been carefully considered with a view both to efficiency and economy. Any scheme that tends to promote the personal cleanliness of those engaged in manual labour, amidst surroundings not only of a dirty but often of an unwholesome character, is not only a matter of vital importance to the individual worker, but is a boon to the community at large. It is a matter for surprise that the necessity for suitable washing accommodation is not more generally recognised by employers. Seeing that cleanliness tends to health, the producing power of any individual must be raised or lowered as his or her health may rise above or fall below the normal standard. This fluctuation, where many hands are employed, must obviously greatly influence production. We understand that an installation has already been fixed for the Leeds Corporation and doubtless many users of steam-power will avail themselves of the opportunity to promote the comfort and well-being of those under their charge.

Walley's Practical Guide to Meat Inspection. With Illustrations. Rewritten and enlarged by STEWART STOCKMAN, M.R.C.V.S. London and Edinburgh: Young J. Pentland. 1901. Pp. 281.—That Walley's "Meat Inspection" is a work which has been fully appreciated is shown by the fact that it has reached a fourth edition. It is the accepted text-book of those whose duties involve the inspection of flesh used for food, and, indeed, it may be said to be the only trustworthy work of its kind in the English language The method of inspection of carcasses is carefully dealt with, each individual part being taken and described in detail, and the differences are explained between the appearance of the organs of each species of animal. A chapter is devoted to the methods of preparing specimens for the microscope, including the processes of freezing, embedding, cutting, and staining sections. The appearances of diseased flesh are illustrated wherever possible, as are also the bacilli which cause tuberculosis, anthrax, swine fever, tetanus, and other affections. The chapter on Bacillary Diseases is very full and complete, as is also that on Diseases caused by Animal Parasites, and the book concludes with a chapter on Food Poisoning in Man. The fourth edition has been rewritten and brought up to date by Mr. Stockman, M.R.C.V.S., professor of pathology and lecturer on meat inspection in the Royal (Dick) Veterinary College, Edinburgh, and we can with every confidence recommend it to medical officers of health and veterinary inspectors.

JOURNALS AND MAGAZINES.

The Medical Guild Quarterly.—This, the organ of the Manchester Medical Guild, contains in its July number a most interesting article by Mr. Colin Campbell of Saddleworth. The article is headed "The Parish Doctor and Out-door Medical Relief." Mr. Campbell points out how in most places the parish medical officer works under great disabilities. He works under contract and has no stimulating competition to meet. He is often only called in as a last resource, and that, too, in the middle of a long and acute illness, a change of practitioners being made, which is unfair to both practitioners and to the patient. Often, too, the poor will not call in the parish medical officer as a private medical attendant lest they may be suspected by their neighbours of receiving parish relief. The Saddleworth system, which appears to be an excellent one, is as follows. Every registered practitioner in the district who desires it is appointed a district medical officer, "consequently there is no one parish doctor, and poor persons can obtain medical relief from any doctor they desire." The Saddleworth Guardians, acting on the principle of *obsta principiis*, grant medical relief orders before a state of destitution arrives and do not dub an honest man a pauper simply for the crime of being out of work. We commend the Saddleworth method to other unions.

The Journal of Anatomy and Physiology. Conducted by Sir WILLIAM TURNER, F.R.S., D. J. CUNNINGHAM, F.R.S., G. S. HUNTINGTON, M.D., A. MACALISTER, F.R.S., and J. G. M'KENDRICK, F.R.S. Vol. XXXV. New series, Vol. XV. Part 4. July, 1901. With Plates and Figures in the text. London: Charles Griffin and Co. 1901. Price 6*s.*—This part contains the index to the thirty-fifth volume of the journal and the following articles:—1. The Natural Subdivision of the Cerebral Hemisphere, with five diagrams, by Professor G. Elliot Smith, which is an elaborate and successful effort to clear up the confusion at present existing in regard to the nature of the "pallium" which properly includes three structural elements, a ventral part or pyriform lobe, the basipallium, the marginal pallium or hippocampus, and lastly, that large dorsal cap the dorsipallium or neopallium. He goes on to say that if "we regard this term 'neopallium' as the complement of 'rhinencephalon' it will involve a new definition of the latter, which would then include the whole pyriform lobe, the whole hippocampal formation and paraterminal body, in addition to the olfactory bulb, peduncle and tubercle, and the locus perforatus." Professor Smith regards the neopallium as the *sensorium commune*, where the various sensory impulses meet and react upon one another. 2. On Professor Pearson's Contributions to Osteology, by Robert Worthington, B.A., Clare College, Cambridge. This article gives the relations of mathematics to anthropology. 3. The Effect of Thyroidectomy upon Nitrogenous Metabolism, by J. Herbert Parsons, F.R.C.S., Sharpey research scholar. The effects are shown to be slight. 4. A Case of Hereditary Brachydactyly, by T. Law Webb, M.R.C.S. Eng., with two plates. 5. Note on the Superior Tibio-fibular Joint, by S. A. Owen, Trinity College. The author describes an intra-articular lamella as existing in 70 per cent. of the specimens examined. 6. Report of a case in which there occurred an Anomalous Structure at and about the Base of the Bladder, by H. T. Thompson, Christ's College, with a woodcut. The author supposes the structure described to be the lower ends of the ducts of Müller. 7. An Anomaly of the Omohyoid, by J. Ernest Frazer, F.R.C.S. Eng. 8. Double Left Parietal Bone in a Scottish Skull, by Professor Sir William Turner. 9. Eleventh Report on Recent Teratological Literature, by Bertram C. A. Windle, F.R.S. Lastly, the number contains the Proceedings of the Anatomical Society of Great Britain and Ireland.

Annals of Ophthalmology. Vol. X., No. 2, April, 1901. Managing Editor, H. V. WURDEMANN, M.D. St. Louis, Mo., U.S.A.: Jones H. Parker. Price 18*s.* per annum. Published quarterly. — The following articles are contained in this number:—1. Exophthalmos, the result of an Osteoporosis, by P. N. K. Schwenk, M.D. Philadelphia. 2. Myosis and Ptosis resulting from a Gunshot Wound Paralysing the Cervical Sympathetic, by George C. Harlan, M.D. Philadelphia. 3. New Test Types for Determining the Acuteness of Vision, by Edmund Landolt, M.D. Paris. 4. Evisceration without the Necessity of wearing Artificial Eyes, by J. G. Huizinga, M.D. Chicago. 5. A Series of Demonstration Lenses intended for Teaching Purposes, by Charles A. Oliver, M.D. Philadelphia. 6. The Economic Valuation of Vision, by H. V. Wurdemann, M.D. Milwaukee, Wis., with the collaboration of H. Magnus, M.D. Breslau. Lastly, the part contains abstracts by Charles May, M.D., of English and American ophthalmic literature, by Frank Allport, M.D., of English colonial literature, and by other surgeons and physicians of the ophthalmic literature of Germany, France, Italy, Spain, Portugal, Russia, Austria-Hungary, and Holland.

The *Practitioner* has for the main topics of the August number the treatment of fractures, particularly as regards the early use of massage and passive movement, and the value of Roentgen rays in the matter of fractures. Mr. H. H. Clutton's article on the Influence of X Rays on the Diagnosis and Treatment of Fractures should be read by every practitioner, it is full of sound advice with which to temper a blind faith in the indiscriminate infallibility of the rays in questions of diagnosis. Mr. Clutton concludes that for routine examination of common and uncomplicated fractures there is little to be gained from use of the rays, but that for exceptional cases of difficulty this is of paramount importance. Such use may save a patient pain and anxiety and enable a surgeon to arrive at a definite diagnosis without much manipulation. At the same time certain disadvantages are to be borne in mind, the chief of which is the ease with which fallacy arises through inexperienced interpretation of a skiagram or through too limited application of the rays when the truth can only be reached by means of photographs from several aspects. Sir William H. Bennett writes on the advantages of Massage and Early Movement and arrives at the conclusion that with ordinary discretion and average dexterity the result of the method is advantageous, the time elapsing before a patient is fit to resume his vocation being diminished at least one-third. Mr. C. H. Golding Bird discusses the treatment of Simple Fracture, particularly as regards the question of open operation. His views are not of the extreme order and are well supported by sound argument. An article devoted to the subject of Fractures of the Upper Extremity is from Mr. J. E. Platt of Manchester. The editorial remarks upon the British Congress on Tuberculosis include some severe criticism of what is described as Professor Koch's "*coup de théâtre*." He is censured for working a "boom" and running a "sensation." The *Practitioner* does not scorn the vocabulary of less dignified and more frequent periodicals.

The *Medical Magazine* for August is largely occupied with the British Congress on Tuberculosis, which we have already dealt with too fully to permit of any useful description of the articles reproduced in the magazine. Dr. George Heaton contributes an article on Blood Examination as a Clinical Guide in Cases of Obscure Suppuration, with Cases, but does not, we think, make out a very strong case for the method which he advocates. In comparatively mild cases of appendicitis where there is for days doubt as to the presence or not of pus the blood count seems to be of more service than in any other class of case. Leucocytosis is common to so many different conditions that the question of diagnosis must be by other means narrowed down to a small limit of doubt before blood-count helps us much. Mr. J. Foster Palmer concludes his series of articles on Modern Epidemics with some philosophical reflections upon the ultimate causes of disease in general and some worthy admonitions in respect of the "medical ideal."

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The Plague Epidemic.—The Pasteur Institute at Kasauli.—"Epidemic Dropsy" in Calcutta.

AN increase of 457 is reported this week in the number of plague deaths throughout India, the total being 1912 as against 1455 for the week previous. The Bombay Presidency showed a rise from 1174 to 1643, the worst district being Belgaum with 467 deaths. The State of Kolhapur had 390 deaths, and Dharavi 474 deaths. Bombay city returned 106 and the State of Mysore 154 deaths, but elsewhere the mortality was unimportant.

Since its foundation last year I have had occasion to record from time to time the very favourable results which are being achieved by Major D. Semple, R.A.M.C., at the Pasteur Institute at Kasauli. No less than 286 patients have been under treatment during the past 11 months. The army has benefited very largely, as 19 British officers, one warrant officer, and 57 British soldiers have been saved a journey to Paris and have successfully gone through the treatment. Caste prejudice is being gradually broken down and the benefits of the institute are being sought for by all classes. In several instances one or two patients have come from places where five or six persons had been bitten by the same rabid dog or jackal and are now alive and well, while those who remained in their village have died from hydrophobia. Other work is also being done at the institute. Anti-typhoid serum is being prepared, and the diagnosis of typhoid and Malta fevers by the serum test is being undertaken. Quite a little school of bacteriology is being started, and several medical officers are working in the laboratory. There is still much to be done. Anti-venene ought to be turned out in comparatively large quantities instead of having to be procured from Lille at great cost. Anti-tetanic serum, again, is urgently required, but more funds are wanted to provide horses and stables. Tetanus is so very common, both amongst men as well as beasts, that immense benefits could be conferred by the establishment of a ready supply. The success of the institute not merely justifies but demands immediate support on the part of the Government.

Several series of cases which have been described under the title of "epidemic dropsy" have lately occurred in Calcutta. The symptoms consist of œdema of the legs, purpuric eruptions all over the body, fever of a mild type, intestinal catarrh, pain in the limbs and abdomen, slightly jaundiced condition of the eyes, and extreme prostration. The illness has lasted in several cases for over a month. The outbreaks have occurred in groups of families and in a girls' college. In one published case the urine was albuminous and dark red in colour and it contained blood and hyaline casts and a large excess of urates. It is said that a similar series of cases occurred in the year 1878-79 and that they are described in the report of the Calcutta Medical Society for 1880, but no special cause for the disease could at that time be made out. Many of the cases proved fatal, but no deaths this year have as yet been reported. The disease is being investigated by the health officer and by the pathologist to the Medical College Hospital, but it is somewhat premature at present to formulate any opinions.

August 3rd.

COCAINE POISONING.—At Cromer on July 24th an inquest was held on the wife of a pharmaceutical chemist, death having been caused by injections of cocaine administered with a view to the extraction of teeth. The operator was a medical student, an assistant to the deceased's husband. He prepared the solution, gave the injection, and extracted one tooth without much trouble. Deceased, who had previously had cocaine injected by a dentist without any ill effects, insisted on having another injection for the extraction of the second tooth, and convulsions soon afterwards set in. The assistant stated that he dissolved one grain of cocaine and gave it in three injections. He had been in the habit of administering cocaine. Two medical men who [illegible] Movement of the he[illegible] was very slow and [illegible] the pupils were dilated. Artificial respiration was used and restoratives were given, but death took place in about half an hour. No unusual appearances were found at the necropsy.

THE LANCET.

LONDON: SATURDAY, AUGUST 24, 1901.

Dr. Ravenel on Human and Bovine Tuberculosis.

AT Congresses bane and antidote flourish side by side; free expression of opinion makes for truth; and Professor KOCH said well, at the British Congress on Tuberculosis, that all he wished to get at was the truth. Had Professor KOCH'S address not been given Dr. RAVENEL'S paper, published in our columns,[1] valuable as it is, might have been allowed to pass without attracting the attention that it deserves, and, like other evidence hitherto brought forward in the same direction, might have been dismissed as proving what had already been proved. This would have been a great loss, for we have in it evidence of an exceedingly striking character such as is seldom collected into one paper. It is specially valuable at the present time as following up Dr. THEOBALD SMITH'S work. Much of Dr. RAVENEL'S work runs parallel with certain of the work reported by Professor KOCH and corroborates many of his statements based thereupon. At one point, however, diverging from Professor KOCH'S conclusions, most convincing evidence is adduced to show that some fallacy must have crept into Professor KOCH'S experiments, his observations, or his arguments. At the outset Dr. RAVENEL, in agreement with many other workers, comes to the conclusion that there is usually some slight difference in the morphological characters of the bovine tubercle bacillus and the human tubercle bacillus. Further, as the result of a series of well conceived and carefully executed experiments he is of opinion that the human tubercle bacillus is less virulent for most species of animals than is the bovine bacillus. In the case of pigs this general statement does not appear to hold good, as the human bacillus seems to induce death and extensive tuberculous lesions in these animals at least as early as does the bovine bacillus. There appears, however, to be little doubt that where cattle are concerned this difference is at high-water mark and that it is an exceedingly difficult matter to produce tuberculosis in cattle with the tubercle bacillus of human origin. The converse, Professor KOCH maintains, may hold good, though from Dr. RAVENEL'S experiments this appears to be by no means probable; indeed, we should expect, as pointed out by several workers, that a bacillus that is pathogenic for such a large number of species as the tubercle bacillus of bovine origin, if intensified in virulence for one species would probably be intensified for the others. This, of course, does not necessarily follow, as examples are recorded of an organism becoming more virulent for one species and less so for another; but even so it is usually an easy matter for the organism to regain its virulence for a species to which for a time it appeared to be temporarily innocuous. As Professor MCFADYEAN pointed out, there is no micro-organism at present known that is pathogenic in three distinct species of animals which is not also pathogenic in man. The bovine tubercle bacillus, as we have seen, is pathogenic in a very large number of widely diverse species; it is even more pathogenic in these than is the bacillus from the human subject: we should expect, therefore, *a priori*, that it would also be more virulent for the human subject.

At present there is not much direct evidence on this point, but a few well-authenticated cases of a disease which is developed so slowly as tuberculosis, and of which the proof is so difficult, are of enormous value in this connexion, outweighing all the negative evidence that can possibly be brought forward on the opposite side. Dr. RAVENEL has three such cases in which the evidence is clear and well authenticated. He has recovered the tubercle bacillus from one case in which the inoculation was undoubtedly from a bovine subject, another of the cases succumbed to the disease, and in all three cases the veterinary surgeons engaged in handling and treating the tuberculous bovine subjects seem to have incurred inoculation wounds. No doubt in due course other cases will be recorded, but the great value of these is that they are reported at the "psychological moment" and have done more to strengthen the hands of those who are dealing with the question of the prevention of tuberculosis by paying attention to tuberculosis amongst cattle than would hundreds of cases reported at an earlier date or after interest in the subject had evaporated.

It is evident that mixed infection may play a most important part in determining an attack of tuberculosis. We know, for example, that under certain conditions the tetanus bacillus is incapable of inducing an attack of tetanus whilst under others the same organism may prove most effective, and we are gradually coming to understand the conditions under which this takes place; the presence of other septic organisms, of other comparatively innocuous organisms and even of such substances as lactic acid may be sufficient to turn the scale against the tissues and in favour of the tetanus bacillus, with the result that an attack of tetanus may be induced. The action of the erysipelas coccus may be enormously increased by the presence of such a comparatively inert organism as the bacillus prodigiosus, and it will be gathered from Professor CROOKSHANK'S experiments that a mixed infection may have had something to do with the extent and distribution of the tubercle bacillus in his experimental case of tuberculosis produced in a calf by the intra-peritoneal injection of human tuberculous sputum. As has long been pointed out, the tubercle bacillus may be present in the alimentary canal of healthy individuals without giving rise to tuberculosis. On the other hand, tuberculosis is never present without the presence of the tubercle bacillus. Going a step further, it is recognised that it is specially in children who have some disturbance of the alimentary canal that mesenteric tuberculosis is most frequently met with. In fact, the conditions necessary for the invasion of the tubercle bacillus, and even the clinical symptoms associated with tuberculosis, are frequently those of a mixed infection

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[1] THE LANCET, August 10th (p. 349) and 17th (p. 443), 1901.

It is evidently very important that we should continue our study of the tubercle bacillus Professor Virchow and Dr Klein have all along maintained that there are distinct morphological and pathogenic differences between the bovine and the human tubercle bacillus These differences may be, and probably are merely varietal We can as yet, scarcely come to the conclusion that they are specific, indeed, all the evidence yet obtained goes strongly against such a supposition Even in the much debated question of small pox and vaccine as Lord Lister points out Dr Copeman has been able to prove that small pox cannot be transmitted to the calf directly but it can be transmitted to the monkey, whilst from the monkey the virus appears to be sometimes transmissible to the calf and then in the child it produces a condition indistinguishable from that produced by vaccine matter

As regards the appearance of a local lesion at the point of invasion, numerous experiments have been carried on with the object of determining whether this always takes place or not Delépine Sidney Martin, Sims Woodhead, McFadyean, Shennan, Still, and other workers in this country are satisfied that the altered lymphatic gland *rather than any lesion of the free surface* indicates the seat of invasion. Anyone who will make a large series of inoculations cannot but be struck by the fact that it is not the point of infection that suffers in the invasion of tuberculosis, but the nearest lymphatic gland Even in typhoid fever, where the lymphoid tissue comes so near the surface it is only after marked alterations in the lymphatic tissue have taken place that ulceration occurs, and there are cases of typhoid fever in which ulceration practically never ensues Indeed it is only because of the presence of the lymphoid tissue in the alimentary canal mucosa that a local lesion is developed—and this, it may be remarked, in a disease in which the degenerative processes go on very much more rapidly than they do in the case of tuberculosis Most people therefore will be inclined to accept Dr Ravenel s statement that a certain proportion of cases of infection of the alimentary canal by the tubercle bacillus gave not the slightest evidence of any local lesion at the primary seat of infection, and that those cases in which there is infection of the mesenteric glands only are probably the result of infection by the tubercle bacillus—sometimes, no doubt the bacillus from the human subject, but in young children during the milk taking period of their life more frequently the bacillus from a bovine source

The matter cannot be allowed to rest The Government authorities in Germany are apparently so thoroughly convinced of the importance of this question that they are determined to sift it to the very bottom and it is to be hoped—although numerous enthusiastic workers will probably take up this question in order to gain information—that a Royal Commission will be appointed by our own Government to investigate the question thoroughly Should such a commission be appointed it is very desirable that the members should be invested with full powers to carry out inquiry in all directions.

Nursing in Workhouse Infirmaries.

The question of efficient nursing in workhouses and infirmaries is one of the highest importance, whether considered from the point of view of economy or approached on purely humanitarian grounds. Regarding the question on the lower basis, it has been stated that the detection of malingerers and the prompt and proper treatment of disease by thoroughly good nursing would probably save half the present sums expended upon the sick in door pauper If this statement is approximately correct it is surprising on the face of it that over 50 years had elapsed since the Local Government Board had made any reforms in workhouse nursing when on August 6th, 1897, they issued an Order the principal provisions of which were —firstly that no pauper inmate should be employed to perform the duties of nurse in the sick or lying in wards secondly that no person should be appointed to the post of nurse or assistant nurse in the workhouse without having had such practical experience as might render her a fit person to hold such office, thirdly, that when the nursing staff consisted of three or more nurses there should be a superintendent nurse appointed, and fourthly that it should be the duty of the master of the workhouse to engage additional nursing assistance upon receiving a *requisition from the medical officer that it was* required The special attention of medical officers of workhouses should be given to this last provision because from *facts which have come to our notice* it is to be feared that the valuable power placed by it in the hands of the medical officer of a workhouse has sometimes been overlooked It is at any rate not always brought into operation when it might be

The issue of this Order was undoubtedly largely due to the efforts of the Workhouse Infirmary Nursing Association, a voluntary association which was founded in 1879 and which has done valuable service in educating and supplying to workhouses and infirmaries some 400 properly trained nurses during the 18 years 1879 to 1897, voluntary subscriptions being collected from the public for the purpose In the latter year the executive committee reluctantly came to the conclusion that the difficulty of providing trained nurses in adequate numbers for the workhouses in England was too great to be grappled with by voluntary effort For instance, in 1895 the association could only supply 85 nurses in response to 199 applications from boards of guardians and consequently it was decided that they must cease to train and to supply nurses for workhouses. Then came the issue of the Local Government Board Order to which we have referred, and undoubtedly it was a step in the right direction The initial difficulty had been the reluctance on the part of guardians to employ properly qualified nurses, and the issue of the Order set an official seal on the desirability of adequate nursing and it intimated that the Local Government Board were both willing and anxious to pay some attention to the matter But, unfortunately the supply of nurses on the terms offered by the guardians has been totally inadequate, and the results, therefore of this Order have been largely negative It would perhaps have been well if the results had only been negative Unfortunately, in the absence of an adequate supply on the terms offered, the guardians have in many cases adopted a most pernicious system of engaging young inexperienced women under the title of "probationers" at low salaries with the promise of giving them "training." Could anything be more retrograde in the cause of good nursing or more injurious to the interests of patients, than bringing young girls into the sick wards of a workhouse without anything like systematic instruction? One of the inspectors of the Local Government Board has referred in his reports to this most serious aspect of the question. He speaks of the grave results attending the appointment as nurses of untrained women and gives examples of gross ignorance on the part of such "nurses." In one instance which he mentions a "nurse" was quite unable to take a temperature; and in another the death of a patient was attributed to incompetency to perform a duty which every trained nurse should understand. Another of the inspectors of the Local Government Board reports that "the employment of probationary nurses is on the increase, the object generally being to save expense in the way of salaries," and he speaks with disapprobation of the evils of the system at present in vogue.

An influential deputation from the Workhouse Infirmary Nursing Association waited upon the President of the Local Government Board on August 2nd, as noticed in our issue of last week[1] and pointed out the failure of the new Order to provide a proper system of nursing. It appears from the statements then made that the difficulty of obtaining trained women has increased, that many boards of guardians disregard the Order, that unqualified women are still engaged as nurses, that paupers are still employed, and that inexperienced probationers (so called) are being engaged to nurse the sick. This is not the first time by any means that the matter has been brought before the public, and we have often referred to the difficulty of obtaining a supply of trained nurses. The position is becoming more and more impossible. Nor are the causes of these difficulties far to seek. The position of nurse in the official scheme of a workhouse is not always an enviable one; the work is often uninteresting and unattractive, if not actually repellent, while the life in a country institution is dull and monotonous in the extreme. Many other extracts besides those which we have quoted from the reports of the inspectors of the Local Government Board could be given in support of the statements made by the deputation, and altogether there is a very remarkable consensus of opinion in regard to the matter. The serious defects in nursing lead to frequent cases of neglect and, as reports in the lay press reveal from time to time, to tragic consequences. As to the best method of applying a remedy considerable difference of opinion exists, but that the Poor-law nursing service, with but few exceptions, requires thorough reorganisation there can be no question. The object should be to create a permanent staff of nurses who would take a pride in the service, who would be adequately remunerated, whose position should be precisely defined, who would look forward to promotion by merit, and whose aim would be to assist the medical officers under whom they act in the alleviation of suffering, the cure of disease, and the detection of fraud.

The main responsibility for the present condition of matters clearly lies with the authority which issued the Nursing Order of 1897. It is hardly credible, yet it is nevertheless true, that the Local Government Board, with whom rests the sanction of the appointment of nurses, are constantly approving appointments which are in direct contravention of their own Order. We have rarely met with more notable instances of official self-stultification. It clearly is the duty of the Board to enforce compliance with their own Order or at least to take the initiative in seeking for and remedying the causes of non-compliance. Many of the more enlightened boards of guardians would gladly devote the money that they now waste in advertising for nurses to the maintenance of a central training school for the supply of nurses for the service. These guardians in times past subscribed to the funds of the Workhouse Infirmary Nursing Association. How much more willingly would they do so to an organisation of the same kind having official sanction? The whole question is undoubtedly an intricate one, but the solution of it cannot be much longer postponed if further public scandal is to be avoided. The matter urgently calls for the attention of the Local Government Board upon whom the responsibility rests of seeing that a uniform and efficient system of administration obtains in the workhouse infirmaries throughout the kingdom. A small Departmental Committee should be appointed to arrive at a solution of the difficulties to which we have referred. As matters now stand there exist a waste of public money, a grave defect in the care of the sick poor, a manifest injustice to nurses, and a no less manifest injustice to their patients, the sick poor. The Government must be pressed to see things in this light.

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The "Boiled Milk" Question.

The correspondence which has recently appeared in our columns on the subject of "Unboiled *v.* Boiled Milk" furnishes an instructive object-lesson in the want of unanimity which prevails in the minds of medical men, not only as regards the fundamental principles of dietetics, but even in their special application to the uses of the most universal of all foods.

It will not, we suppose, be seriously disputed, and we shall therefore take it for granted, that pure raw milk as it leaves the healthy gland is the most perfect form in which the maternal secretion can be administered to the offspring. We have, however, in the present controversy to consider conditions in which the maternal supply is not available, so that the issue before us practically resolves itself into two finite considerations: firstly, as to whether the dangers attendant on the use of unboiled cows' milk are, from the point of view of infection, real and substantial; and secondly, as to whether its nutritive value is seriously impaired by the usual processes of sterilisation. The first of these two questions must necessarily be approached from the widest possible standpoint, and from one which covers not only the conditions of urban and rural life but is applicable also to a large infant and invalid population. The evidence that typhoid fever, diphtheria, and scarlet fever can be disseminated through the instrumentality of the milk-supply is overwhelming, as also is the evidence that this danger is still operative in spite of numerous reforms in the methods *of distribution and administrative control*. Further than this, the rôle of the streptococcus pyogenes in the determination of disease is daily assuming a phase of greater importance, because in certain bacterial company its degree of virulence in milk is believed to become greatly intensified, and because, owing to the researches of KRUGER, of GUILLEBEAU, of ESCHERICH, of ADAMITZ, and of a host *of other observers, the severe diarrhœas of infancy and* acute gastro enteritis have been definitely connected with the presence of this organism.

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[1] The Lancet, August 17th, 1901, p. 499.

Without entering upon the debateable question of the spread of tuberculosis by means of cows' milk it must be remembered that milk as it leaves the udder of the cow contains on the average in its mixed bacterial flora, though it is of course sterile in the gland, no less a number per cubic centimetre than 100 individual bacteria, and that as sold in the ordinary London dairy it contains something like 3 000,000 or 4,000 000 specimens. If at this point the progressive increase be not checked by some form of sterilisation before the milk is finally consumed the number of micro organisms may become almost infinite. This growth of bacteria can only occur at the nutritive expense of the milk itself, a loss which probably far outweighs any possible detriment to the nutritive value from the ordinary process of sterilisation. Bacteria, as we know, are wasteful and extravagant feeders, the chemical energy of which they deprive the nutritive media in which they thrive is utterly disproportionate to the energy which they re-accumulate in their growth.

With regard to the respective nutritive values of boiled and unboiled milk the question is one of many issues. As has been pointed out by one of our correspondents, there is ample experimental evidence to prove that from the point of view of digestibility and absorbability from the bowel neither variety can materially yield in superiority to the other, if anything the balance inclines to the side of boiled milk. Nor is there any reason for supposing that as measured in calories or any other unit representing its energetical equivalent as a food, the nutritive value of milk presents differences either in the boiled or unboiled condition. There is, however, a quality possessed by milk, in common with other animal and vegetable juices, which cannot be measured, as far as we know, by any ordinary unit of energy. This unknown quality has been variously described as the anti scorbutic or vital element of fresh food substances—a *tertium quid* which has so far remained undefined. We know, however, that in some form or other it is an absolutely essential ingredient of food if animal life is to be maintained for any considerable period of time. We gather, also that in the case of milk this unknown element it is at its maximum of efficiency at the moment when the mammary secretion leaves the udder and that from that time forward it suffers a gradual fall in its index of utility, whether it be merely kept for ordinary periods of time or whether it be exposed to mechanical manipulation, to the action of heat or chemical substances, or whether it be simply diluted with water. The exact *modus operandi* of these deleterious processes is still a matter of speculation. It must, however, be borne in mind that milk represents a special form of disintegrated protoplasm, and that as the dying cell gradually breaks down into a solution containing emulsified fat, proteid, sugars, and salts, the complex chemical affinities of a living tissue are loosened or disunited, so that finally a dead, some say a dying, solution of mixed elements is discharged from the lacteal ducts for the purposes of extraneous nutrition. It seems reasonable to suppose that the sum total of these immeasurable energies must ultimately depend on the degree in which the normal chemical complexes composing the original protoplasm are loosened or disunited in the natural evolution of death, or subsequently by mechanical or chemical processes *in vitro*. The further the analytical disintegration is carried the more difficult must be the subsequent synthetical processes by which a substance so disintegrated is made to live again in the tissues of the animal organism which uses it as a source of energy. And, further, it may depend upon the inherent vital powers of the organism whether or no in any particular case such a source of energy can be utilised in any degree whatsoever. As far as fats, sugars, and proteids are concerned, we know that, as they occur in boiled milk they are readily utilised by the animal economy. We do not know, however, to what extent the organism is capable of re uniting other chemical affinities which may have been disunited in the process of boiling. For instance, BUNGE many years ago asked the pertinent question whether it was not possible that the inorganic cells of milk might be combined with some organic substance and that they were only "digestible in that condition." We are still waiting for an authoritative answer, though for practical purposes the question is narrowed down to one of utilisation by the tissues rather than digestibility by the stomach or bowel. One of our correspondents—namely, Dr. R. HUTCHISON—has referred to the great preponderance of phosphates in the "skin" of boiled milk. The very presence of these "dead" phosphates may be a measure of the degree of chemical disunion between these and other salts and their organic bases brought about by the procedure of boiling. If it be true that the living organism stands in constant need of a supply of anti scorbutic energy in its food, and that this element can be variously destroyed by manipulative processes it follows that when milk constitutes an exclusive dietary extreme care should be exercised in its adequate preservation or provision should be made for providing a substitute. *In the case, however, of* adults, when the normal diet is a mixed one containing an abundance of fresh food it is a matter of indifference whether it be present or whether it be absent in the milk which can at most only constitute an insignificant factor in the daily nutritive supply.

It would be presumptuous to suppose that the last word has been spoken in this controversy, but pending more convincing and unequivocal evidence we are of the opinion that the dangers which have been attributed to boiled milk have been exaggerated. Moreover, boiled or sterilised milk in its application to infant feeding—or for the matter of that to adult feeding—has in competent and experienced hands proved a perfectly safe and satisfactory food for all the purposes of nutrition. At all events, we are satisfied that there is clear and conclusive evidence that boiled milk when scientifically administered can supply all the essential elements of a physiological dietary. It has taken many years of patient insistence on the part of medical men, it has taken men of the calibre of TYNDALL, of PASTEUR, and of LISTER to educate the public to a proper sense of the importance of "cleanliness"—that is to say, cleanliness in its bacteriological interpretation—so that for our part we regard it as regrettable that any opportunity should be given to the public to call in question the value of this principle, whether in its general or particular applications. Such an opening for criticism or distrust is not only fraught with danger to the public, but also lends colour to the charge of inconsistency which has ever been the opprobrium of the medical profession.

Annotations.

"Ne quid nimis."

INDECENT ADVERTISEMENTS.

AT Lambeth Police-court recently a man named Wilkins was committed to take his trial at the Old Bailey on a charge of selling indecent photographs which he advertised in the newspapers, describing them, without too closely veiling their nature, as "continental studies from life." Mr. Wontner, who appeared for the police, appealed to the magistrate asking him for an expression of opinion which might act as a deterrent upon the newspapers which published such advertisements, pointing out that without the aid of advertisement the trade in obscenity of this class could hardly exist and certainly could not prosper. He further stated that he would be sorry to mention the names of some of the newspapers in which the advertisements appeared and which he held in his hand because they were so "respectable" We agree with Mr. Wontner that such advertisements are a disgrace to all newspapers in which they appear, although we do not see why in asking for a public rebuke he should have withheld the names of the "respectable" offenders. We have ourselves protested against the advertisement of professed abortifacients until our readers must be almost tired of the subject; we have given the names of the offenders unsparingly; and this, aided by certain recent prosecutions, has practically stamped out this particular style of advertisement, and scotched, though, perhaps, it has not killed, the trade. We have pointed out again and again that newspapers continually insert advertisements which are obscene by Act of Parliament if exhibited on a gate post or in a urinal, and which found in the places named would be the subject of prosecution. But if we have suggested that a newspaper should keep its columns as free from indecency as a public latrine, we do not see that the police have great cause to complain in the matter. In many cases they could prosecute the newspaper. In any case the advertisement affords them the name and address of the vendor of filth—information of which they so rarely avail themselves that his trade practically goes on without check from the appointed administrators of the law. For years the advertising and selling of would-be abortifacients went on without any hindrance from the police. The Chrimes brothers were prosecuted because they took to blackmail and continued until at last one or more of their victims complained. Some time afterwards the firm that traded under the name of Frain was prosecuted, but in our columns we had given the names, the letters, and the analysis of the goods of such persons as Ottey and others at least as bad as "Frain" whose case we had dealt with long before the police took it up. On the whole, we are of the opinion that the disgraceful trades alluded to owe their prosperity quite as much to the laxity of the police as to the venality of the newspapers, which at any rate inform the police as to what is going on in as plain terms as they inform the public

A CONCOCTION.

WE have a bone to pick with *Truth*. While thinking it proper and becoming to afford publicity to an anonymous and malevolent story,[1] in which a soldier is represented as having had his eyes removed one after the other by military medical officers in the vain hope of relieving pain that in reality was due to an alveolar abscess, the editor explicitly disclaims all responsibility for the statements therein. Yet he proceeds to formulate the following conclusion: "I take this to be an argument in favour of 'post-graduate study' for army medicos, whether British or Indian." Post-graduate study is an excellent thing in every profession, but to find an argument in its favour in what is evidently a cock-and-bull invention is distinctly illogical. *Truth* has rendered so many services to the public and so evidently intends to be fair in the many-sided criticisms which its readers expect that we are disappointed to find in its columns the passage to which we have alluded. Such a story, reflecting so terribly on the scientific position of the Royal Army Medical Corps, should not, we think, have been published until its accuracy was demonstrated beyond contradiction, and even then there are circumstances which might well have determined its suppression. It is, of course, a manifest concoction.

FRUIT IN THE ASSUAGEMENT OF THIRST.

CHEMICAL analysis would assign practically no nutritive value to the juicy fruits, for they consist of little more than a cellulose envelope containing a solution of sugar, the amount varying from 17 per cent., as with grapes, to about 1·4 per cent., as with lemons. The amount of water in fruit is considerable. In water-melons it is no less than 95 per cent., in grapes 80 per cent., in oranges 86 per cent., in lemons 90 per cent., in peaches 88 per cent., in apples 82 per cent., in pears 84 per cent., in plums 80 per cent., in nectarines 83 per cent, and in strawberries 90 per cent., not a fruit in the whole category containing less than 80 per cent. The irresistible conclusion, considering these facts, is that fruit plays an important rôle in diet as a thirst quencher. Certainly when fruits are freely represented in the diet less fluid requires to be consumed and fruits would appear to be endowed with a subtle inimitable flavour which is ample inducement to imbibe fluid in this most wholesome form. The question so prominent in people's thoughts at this hot season of the year as to what to drink might, therefore, on sound physiological reasoning, be answered, eat sound, ripe, juicy fruit. It is noticeable that as fruit enters into the diet the indulgence in alcoholic drinks is diminished. Thus it is most satisfactory to observe people taking a good juicy slice of melon as preparatory to a meal instead of sherry and bitters or a "cocktail." This is a most commendable practice and the proceeding is dietetically speaking perfectly rational. The flavourings of fruits, although of little nutritive value, are undoubted stimulants to the appetite and aids to digestion. Moreover, the juice of fresh cut fruit is perfectly free from microbes, is as sterile as freshly clean-drawn milk, and the fruit acids tend to inhibit the power of those disease-producing bacteria which flourish in neutral or alkaline media. The marked anti-scorbutic properties of fresh fruit due to the vegetable acids and their salts in the juice are of great importance. For the most part these acids are combined with potash and hence a free diet of fruit preserves a healthy alkaline condition of the blood and there is consequently a reduced tendency to the depositing of acids in the tissues. Peaches and that delicious and delicately flavoured fruit the nectarine contain quite a small quantity of sugar and this, coupled with the fact of the tenderness of their pulp, makes them suitable for the gouty and diabetic. There can be no doubt that the juice of sound ripe fruit is an ideal means of assuaging the intense thirst of hot weather—cooling, refreshing, and of an agreeable flavour. It is a common experience that the more a person drinks to satisfy the demands of thirst in hot weather the worse he feels. The temptation is to gulp down huge quantities of fluid with the result that excessive perspiration sets in and a very uncomfortable and unrelieved feeling follows. On the other hand, a judicious amount of sound, ripe, juicy fruit, whilst containing all the water necessary to assuage thirst, would lead to no such distress and would exercise other healthy effects on the bodily functions.

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[1] Truth, August 5th, 1901, p. 409.

THE RELATION OF BODILY MUTILATIONS TO LONGEVITY.

IN the *Boston Medical and Surgical Journal* of August 8th Dr. John Homans of Boston has an interesting article upon the subject of the Relation of Bodily Mutilations to Longevity. Dr. Homans is the medical director of the New England Mutual Insurance Life Company and so he writes from one point of view as an expert. But, so he says, there is but little known about the subject and, so far as he knows, there are no statistics on the matter. The only figures which are illustrative are those concerned with men who lost their limbs in the Civil War and who afterwards applied for the Government artificial limbs. In general, says Dr. Homans, the deprivation of any part of the body would make a man's chance of longevity less than that of sound, unmutilated persons, but in many instances there are ameliorating circumstances which would render such mutilated persons as good lives as most other people of the same age. Loss of the upper extremity increases in importance as regards longevity the nearer that the amputation has been made to the thorax. There is also a certain amount of mental depression attaching to the loss of the whole or part of a limb. Dr. Homans points out that the loss of an arm might affect the respiratory power of the thorax in certain positions, and naturally the loss of both arms would be even more injurious. The late Dr. W. Brinton, who in 1856 gave some lectures at the Royal Free Hospital on "Examinations for Life Insurance," remarked that "amputation of a limb for disease is said to confer an increased risk of visceral—especially of pulmonary—disease." In our own opinion the loss of a limb would increase risks to life from injury. Obviously, a man with only one leg is more likely to fall than a man with two, and a man with only one arm would not be so likely to save himself if he did fall as a man with his full complement of limbs. Dr. Homans gives some figures showing that the death-rate among soldiers who had served in the American Civil War and who had lost a limb or limbs was very high, but, as he says, these statistics are not altogether trustworthy, for many men who had lost a limb had also sustained other injuries. Some five years after the war the Government of the United States offered an artificial limb, or its commuted value once every five years, to all soldiers who had lost a limb in the war. At the close of the war there were 13,052 recoveries from amputations such as would have entitled the sufferers to apply for an artificial limb. In 1870, when the Act of Congress came into operation, only 10,187 applied, so that presumably 2865 maimed soldiers had died, being very nearly 22 per cent. of the total. From the close of the war up to 1890 5621 soldiers died out of the original 13,052, or 431 per 1000. In the first five years the percentage was, as we have said, nearly 22. In the last it was only 7 58 of those alive in 1885. As regards abdominal sections, Dr. Homans says that they all increase risk to life, principally on account of the chance of ventral hernia at one time or another setting in, but removal of small portions of the bowels is, he thinks, not likely to shorten life. Dr. Homans has raised a very interesting point and one which might be further studied with advantage.

THE NEW CHIEF MEDICAL OFFICER FOR CAPE COLONY.

WE have had sent to us from Cape Town copies of a newspaper published in the colony and called *Greater Britain*, in which letters are appearing commenting seriously upon the appointment of Dr Gregory to the post of principal medical officer of the colony. We have been asked to express an opinion upon the appointment, which, we are informed, has not been favourably received by the medical profession; indeed, from the letters published by our contemporary, the medical profession do not consider that Dr. Gregory has any proper claims to the post. We are not in a position to say much upon the matter. Probably those who appointed Dr. Gregory had good reasons for thinking that he was a fit man to fill a difficult and responsible position, for we cannot imagine a more serious offence to the community than the appointment as guardian of its public health of a gentleman of inadequate qualifications. Dr. Gregory seems to have spent the greater part of his time in the colony not so much in acquiring a knowledge of sanitary matters and administrative experience in the details of public health as in one of the departments of Cape Town Colonial Office. In the current issue of the Medical Directory we are unable to find his name, but in the South African Medical Directory of 1896 there is a Dr. Gregory residing in the colony, but he is not given as a D.P.H. The public health of Cape Colony at the present moment is of paramount, even imperial, importance; and we certainly think that no one should be appointed to the position who is not *hall-marked as an expert in sanitary science. Dr. Gregory* may be this, for all we know. We are not reflecting upon him, but stating a truism.

OZONE IN THE RAILWAY CARRIAGE.

THE air of a railway carriage is seldom without an objectionable characteristic; indeed, it has a peculiar smell of its own. The atmosphere may be tainted by the much-used upholstery or by varnish or oil, or the grime deposited by the engine on the seats and hat rails and in the various crevices, of which plenty are usually available for the process. Of course the windows may be flung wide open to get as much change of air as possible, but then dust, smut, and draughts invade the compartment. It is, in fact, difficult to keep the air of a railway carriage in a satisfactory state, and how bad it gets sometimes may easily be ascertained by entering a crowded compartment at the end of a journey. Railway headache is without doubt largely to be attributed to the impure and re-breathed air of the carriage. Many contrivances exist for the ventilation of railway carriages, but the majority of them act with limited success. Nothing sweetens or freshens stale air better than ozone and now that most of the railway companies have successfully adopted a system by which each carriage on its journey develops by means of a dynamo attached to the axle-trees its own current of electricity for lighting purposes there is no reason why the same current should not be utilised at the same time to ozonise the air of the compartment. The quantity of ozone required is small. The result would certainly be good since ozone has a remarkably destructive action on aerial impurities and unpleasant smells, and gives the air a degree of freshness similar to that of the sea-breeze. It rapidly overcomes the smell of stale tobacco-smoke which so persistently lingers in smoking compartments or in rooms where the upholstery is heavy or where cumbersome curtain hangings are the custom. It is reasonable to believe that if this expedient could be adopted much of the distress and fatigue of a railway journey would disappear. It is too much to hope that the same means of maintaining air in a fresh and pure state could be adopted in omnibuses, for even the problem of satisfactorily lighting these vehicles has not yet been solved. Again, the speed of the omnibus, we imagine, would never be high enough to generate a current sufficient for lighting purposes. The Underground Railway or "The Tube" might adopt automatic ozonisers in their trains with advantage; the suggestion might even appeal to the directors and shareholders of the former company as an alternate scheme to electric traction.

CERVICAL AND BULBAR TABES.

Dr. S. Solis Cohen and Dr. W. G. Spiller of Philadelphia report, in the August number of the *American Journal of the Medical Sciences*, a rare and interesting case of tabes affecting the cervical and bulbar regions of the spinal cord, together with the results of necropsy. The condition is one which has been mistaken for, or wrongly diagnosed as, syringomyelia. The patient was a man, aged 67 years at the date of his death in 1900. At the age of 25 years he contracted syphilis. He had had secondary, but not tertiary, syphilis. Later he developed ptosis of the right eye, inequality of the pupils, difficulty in coördinate movements of the lips, so that whistling and smoking were difficult, and the latter habit had to be abandoned. Deglutition was also attended with considerable difficulty. The tongue exhibited fibrillary tremors and some hemiatrophy of its left side. The tactile sense was fair, but the temperature sense was markedly impaired on the right side of the face. Vision was good and ophthalmoscopic examination showed normal discs. He now developed an irritable ulcer of the cornea which under treatment healed in about 10 days. The pupils showed the Argyll-Robertson symptom. The knee-jerks were present and the mental condition was clear. Gait was normal and he could stand steadily with his eyes closed or balance himself on one foot at a time. The above clinical report was made in 1889. He remained under treatment for nearly 12 years afterwards, dying in 1900 from pulmonary œdema [and inanition following complete paralysis of deglutition. At this time the sense of taste had been largely lost for some time, and he had also begun to complain greatly of pain in the abdomen which was very tender to touch. Occasional but severe darting pains were experienced in the right leg and were relieved by morphine. The mental condition was clear to the last. He never at any period of the illness had ataxia or abasia. He had had two attacks of uræmia, one about two years before death and one about 10 days before the same. At the necropsy the following changes were found. The whole of the Rolandic gyri and convolutions were somewhat atrophied and depressed, the sulci thus appearing wide and gaping. This atrophy involved also the whole of the pre-frontal operculum. There was also a localised atrophy of the fore part of the superior frontal convolution on the right side, and the occipital cornu of the lateral ventricle was dilated on the left side to twice the size of its fellow. Examination of the spinal cord showed an absence of degenerated fibres in the lumbar region. In the mid-thoracic region there was very slight degeneration of the posterior spinal roots increasing as the sections passed upwards to the cervical region. At the eighth cervical segment of the cord a narrow band of degeneration began to make its appearance in Burdach's column close to the entry of the posterior roots. This was continued up the cervical region and almost entirely on the right side. With Marchi's method no recently degenerated fibres could be traced in the cord. The anterior cornual cells showed marked pigmentary degeneration. The hypoglossal nucleus was somewhat atrophied on the left side. The ependyma of the floor of the fourth ventricle was granular. The trigeminal nucleus in both its sensory and motor portions was present only on one side, having become entirely degenerated on the other side. The right cerebral peduncle was considerably atrophied. There were atrophy and changes in the oculo-motor nuclei resembling those following section of the nerves. These lesions justified the diagnosis of an atypical and rare form of tabes (cervical tabes), having been noticed but once in 106 cases of tabes studied by Déjerine at the Bicêtre. The present case showed the presence, also, of bulbar tabes, a still rarer condition, of which only three other cases are known to medical literature.

"THE NEW POOR-LAW INFIRMARY AT HALIFAX."

In our issue of last week (p. 462) we commented upon the position at Halifax with reference to the appointment of a medical officer for the new workhouse infirmary. Dr. T. M. Dolan, having refused to take the post without any addition to his present salary, the Infirmary Committee on August 12th offered the post to Dr. J. F. Hodgson. We understand that the reason for the cheeseparing policy of the guardians was that if Dr. Dolan had been granted £105 in addition to his present salary it would have entailed an addition to his superannuation allowance of £80. Notice was given that at a meeting of the guardians held on August 14th a motion was to be brought forward which if carried would do away with the difficulty so far as regarded the superannuation question, but at the time of going to press we have no information as to the result of the meeting in question.

STREET NOISES.

We have received sundry letters from various correspondents upon the intolerable nuisance caused by sellers of newspapers and others. One correspondent ends up his letter by saying, "Surely there is some remedy." The only remedy is as follows. Next time he is annoyed by a newspaper seller yelling he must go out, he must keep the newspaper seller in view with one eye and with the other look for a policeman. When he is lucky enough to see both—the policeman and the yeller—he must complain to the policeman who will ask the yeller for his name and address. Some name and address will be given, and at some future date the complainant will receive a summons to attend the police-court of his district. There he may or may not find the yeller. If by great good luck he does find him the man or boy in question possibly will be fined and the nuisance will go on in exactly the same way as before. This is the only remedy of which we know, and if it resembles the celebrated recipe for killing fleas we must remember that we live in a free country. There are numerous sellers of newspapers who do not yell, but that is not to the point. Why deprive a small boy or a large man of the pleasure of roaring "Three o'clock winner"? True, he annoys a great many hard-working ratepayers, but that only makes his employment more enjoyable. The magistrates are the persons who are to blame. First of all because they will not, with possibly the exception of Mr. Plowden, hear any charge except one made on the authority of a dweller in the district, and secondly because they inflict such ridiculous penalties But why London, which suffers enough from unavoidable noises, should be compelled to endure absolutely unnecessary noises is one of those problems which are as incapable of solution as the idiotic regulations of the Post Office as regards what constitutes one word or two in a telegram We can only advise everybody who suffers from street noises to worry his Member of Parliament, his borough council, and his London County Councilman until something is done

A UNIFORM METHOD FOR THE ESTIMATION OF ARSENIC.

THE apparent ubiquity of arsenic has rendered an accurate method for its estimation even in the minutest amounts very desirable The discordant views expressed by chemists as to the trustworthiness of methods which have hitherto been looked upon as exact and unfailing have done much to complicate the question Careful investigation, therefore, of all the methods known both for the detection and estimation of arsenic was needed and such an inquiry has been approached in an eminently practical way by a joint committee of the Society of Chemical Industry and of the Society of Public Analysts This committee have circulated amongst the members of the two societies a number of samples containing definite quantities of arsenic and have carefully considered the results which have since been returned *We note with satisfaction that they already* report that the results will probably justify them in prescribing a method for dealing with the various substances, but before taking this step they think it advisable to submit this method to continued practical trial. We hope that in this way a standard method will be reached, and further, that some light may at the same time be thrown upon the organic compounds of arsenic, with the view that the arsenic in these compounds may be made to respond to the same tests and to admit of the same method of estimation The cacodyl compounds, which may be taken as leading types of organic arsenic bodies, differ vastly clinically from the inorganic compounds, and a similar difference exists in regard to the chemistry of the arsenic in this particular state of combination The results of this *very sensible inquiry will be of the utmost* importance, and they should be of eminent service to the members of the Royal Commission on Arsenic, who still have a colossal field of inquiry before them which must be thoroughly gone over if the final issue is to be satisfactory

A CASE OF BURROWING EPITHELIOMA OF THE ALVEOLAR PROCESS.

IN the current issue of the Transactions of the Odontological Society an account of an interesting case of burrowing epithelioma of the jaws is given by Mr Stanley Colyer For two years previously to being seen the patient, a female, had suffered from a sinus over the region of the left maxillary lateral incisor which was pulpless Necrosis of the cementum was diagnosed and the root was extracted There were no swelling of the alveolus and nothing in any way to suggest malignant disease An examination of the root showed that the cementum covering the lower third was necrosed, while immediately below the necrosed portion and attached to the pericementum, which appeared otherwise quite healthy, were some small lumps of ragged tissue which had obviously been torn away from similar tissue in the alveolus. *The specimen was placed in formalin* with the intention of making a microscopical examination. Three weeks later the patient returned with acute pericementitis extending from the right central incisor to the left second premolar The sinus had not healed and a suspicion of malignant disease was aroused. A microscopical examination of the tooth which had been extracted was made and epithelioma was diagnosed. The growth on removal was found to extend from the right cental incisor to the left first molar, the antrum not being in any way invaded The interesting features of the case were. (1) the absence of external signs of the disease; (2) the escape of the antrum from implication, even though the growth in the alveolar portion of the bone was extensive, and (3) the origin of the growth, the epithelioma apparently having arisen from the tissue of the pericementum and not the oral epithelium An endeavour was made by Mr Colyer to substantiate the last-named feature, and it was shown that many observers had demonstrated the presence of isolated pieces of epithelium—remnants probably of the epithelial sheath of Hertwig—in the pericementum These remnants were, he thought, an example of Cohnheim's "rests" and could, under suitable circumstances, become the forerunners of malignant disease

THE SURGICAL TREATMENT OF ACUTE NEPHRITIS

IN the last few years the question of the surgical treatment of acute nephritis has from time to time been brought forward, and it formed the subject of a discussion at the late meeting of the British Medical Association It is again to be considered at the approaching meeting of the Scandinavian Medical Congress which is to be commenced on August 29th in Copenhagen Professor K G Lennander of Upsala University will contribute a paper on this subject *to open a discussion While refraining from undue expectations* of the benefit to be derived from the recent surgical departure, we are justified in hoping for some improvement in the treatment of a very refractory condition

POPULAR MEDICINE.

OUR contemporary the *Globe* on August 14th published a "turnover," entitled "*Curious Cures*" *The writer, after* quoting the example of the sea captain who, not being able to supply the medicine numbered 15 in his book of directions, proceeded to give his patient Nos 7 and 8 mixed, goes on to give examples of various popular superstitions in medicine The singularly nasty concoctions which our ancestors prescribed for all and sundry were mostly derived from animals, and later researches have shown the belief in them to possess—in some instances, at least—a modicum of foundation Thus a toad boiled in wine gave a very strong poison which if administered to a dropsical person would probably kill him, but which sometimes effected a cure It has been shown, however, by sundry observers that the skin of the toad secretes a substance having an action closely allied to that of digitalin and so it might be of great use in cases of *cardiac dropsy To anyone, however, who is* inclined to pursue this subject further we recommend a perusal of the work of that ingenious gentleman the Reverend Edward Topsell, who was vicar of East Heathly and who died about 1638 His "History of Four Footed Beasts and Serpents" will be found a mine of information To the edition of 1658 is appended "The Theater of Insects, by Tho Mouffet, Doctor in Physick." This work is also full of remedies For instance, says the learned Doctor "That knotty Whip of God, and mock of all Physitians the *Gout*, which learned men say can be cured by no remedy, finds help and cure by a Spider layd on, if it be taken at that time when neither Sun nor Moon shine, and the hinder legs pulled off, and put into a Deers skin and bound to the painful foot and be *left on it for some time*" Dr Mouffet relates a story of a quack who cured a lady of a tympany by giving her a spider to swallow and concludes his essay with the following eminently sound remarks which are as suitable now as they were when originally written: "Truly in this present corruption of manners and times, how highly is such a Mountebank esteemed, wherein chance is accounted for skill, and one accidental rash cure of a disease, with danger ofttimes of the patient's life, makes a Quacksalver a great Physician, and he is judged worthy of praise and honour? But a better revenging Judge will correct these things; we pass on to Pismires."

THE DISTRIBUTION OF PLAGUE.

A TELEGRAM from the Governor of Hong-Kong received at the Colonial Office on August 19th states that for the week ending August 17th there had occurred 4 fresh cases of bubonic plague, together with 5 deaths. For the week ending August 11th 8 cases of plague and 3 deaths from the disease, all among natives, have been reported from all Egypt. Six cases and 1 death were reported from Port Said, 1 case and 1 death from Zagazig, and 1 death out of hospital at Alexandria.

MEDICAL OFFICERS IN THE HIGHLANDS AND ISLANDS.

THE *Orkney Herald* of August 1st contains the following advertisement:—

WANTED.—A LADY MEDICAL OFFICER for PAPA WESTRAY, to enter on duties 3rd October. Salary £55 with fees. Apply to John Hourston, Inspector of Poor.

Papa Westray is, as its name shows, one of the lonely little islands like Papa Strona and Papa Stronsay, which were occupied by Celtic missionaries, probably from Ireland, in the sixth century. The island in question lies off the larger island of Westray, from which it is separated by about three miles of sea. It is three and a half miles long by about three-quarters of a mile wide, and its population, according to the *Times Gazetteer* for 1899, is 377. The people are mostly of the poorer class and the medical officer cannot expect to make more than from £3 to £5 in addition to the official salary. This latter, though small, is generous as compared with those offered by a Shetland parish council, namely, £25 for Whalsay and the Skerries, and £15 for Nesting.[1] The Scottish medical officer, it must be remembered, has no security of tenure. He is liable to be dismissed at any moment by the parish council and no appeal lies to the Scottish Local Government Board. We have no desire to prevent the inhabitants of Papa Westray from being able to obtain medical aid if they need it, but we earnestly implore all candidates to make certain that if elected they will obtain three things—namely, fixity of tenure, a free annual holiday, and an adequate salary. The life would be very lonely, the winter is very long and the days are very short—although as against this may be set the fact that there is no night in the summer, or practically none; but it would require the zeal and energy of a Columba or of a Cormac for an educated man or woman who had not been brought up to agricultural pursuits or a sea-faring life to be able to occupy the many hours which necessarily must be passed in exercises outside purely professional employments. Lord Balfour is recommended to consider the need for further legislation.

TREATMENT OF TUBERCULOSIS BY GOAT'S SERUM.

WE have received a pamphlet entitled "Remarks on Tuberculosis and its Treatment," by Dr. Baradat of Cannes, which contains observations made by him at the recent Congress on Tuberculosis. He draws attention to the generally accepted theory that there are two factors in the etiology of tuberculosis, the infectious agent and the soil on which it develops, the characteristics of which are either acquired or hereditary, and insists that for the purposes of treatment the one is as important as the other, and after a survey of various forms of treatment proceeds to give his own experience on the use of serum therapy founded on the supposition that the blood of certain animals confers on other animals immunity from tuberculosis and may even cure this disease. His view, however, is not only that the serum of goat's blood is antitoxic and bactericidal, but also that it is a "tonic"—that is to say, stimulating and regenerative. He quotes Landouzy who maintains that it is this idea of helping those who are in the incipient stage, at a time when the germs of secondary infection have not yet attacked them, that has led medical men to make use of "the immunising agents that are antitoxic or bactericidal owing to their strengthening action on phagocytosis." Dr. Baradat also refers to the theory of Metchnikoff who regards the sera not as antitoxic but as stimulating agents of phagocytosis, or, in other words, provokers of organic resistance. The use of the serum of the goat has been used in cases of tuberculosis by various observers with varying success, but has not been largely employed in this country. Dr. Baradat maintains that the use of the serum has given him "unexpected results" in serious cases of tuberculosis. We infer from the context that he means successful results. He administers one hypodermic injection of two cubic centimetres of the serum every other day. In some cases, however, in the case of nervous patients especially, he has observed after each injection an exaggeration of cellular activity, showing itself in the shape of fever, erythema, and dyspnœa; in such cases Dr. Baradat administers the serum internally, but in order to obtain the same tonic and stimulating effects the dose must be increased from two to 10 cubic centimetres. There is nothing more deceptive than to draw conclusions from the result of treating a few cases of pulmonary tuberculosis with a certain remedy, but Dr. Baradat's experiences would indicate that the administration of the serum of goat's blood should have further trials in the treatment of patients suffering from tuberculosis.

WE deeply regret to announce the death of Lady Simon, the wife of Sir John Simon, and tender our sincere and respectful sympathies to her husband. Lady Simon, who had attained the great age of 84 years, had been the dearly loved wife of her distinguished husband for 53 years.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 33 of the largest English towns 6727 births and 4673 deaths were registered during the week ending August 17th. The annual rate of mortality in these towns, which had been 21·2, 22·4, and 22·1 per 1000 in the three preceding weeks, decreased last week to 21·3. In London the death-rate was 19 6 per 1000, while it averaged 22·4 per 1000 in the 32 large provincial towns. The lowest death-rates in these towns were 10·4 in Halifax, 13·2 in Croydon, 13·9 in Cardiff, and 14·2 in Brighton; the highest rates were 27·2 in Hull and in Sheffield, 28·7 in Salford, 30·2 in Gateshead and in Sunderland, and 30·5 in Birkenhead. The 4673 deaths in these towns last week included 1620 which were referred to the principal zymotic diseases, against 1755 and 1752 in the two preceding weeks; of these 1310 resulted from diarrhœal diseases, 97 from measles, 65 from whooping-cough, 64 from diphtheria, 42 from scarlet fever, 40 from "fever" (principally enteric), and two from small-pox. The lowest death-rates from these diseases were recorded in Plymouth, Bristol, Swansea, and Halifax; and the highest rates in West Ham, Salford, Hull, Sunderland, and Gateshead. The greatest mortality from measles occurred in West Ham, Salford, and Sheffield; from scarlet fever in Preston; from whooping-cough in West Ham and Swansea; and from diarrhœal diseases in Manchester, Salford, Burnley, Hull, Sunderland, and Gateshead. The mortality from "fever" showed no marked excess in any of the large towns. The 64 deaths from diphtheria included 30 in London, six in Leeds, five in Leicester, three in West Ham, and three in Sheffield. Two fatal cases of small-pox were registered in London, but not one in any other of the 33 large towns; the number of small-pox patients under treatment in the Metropolitan Asylums hospitals, which had been 11, 13, and 11 at the end of the three preceding weeks, had risen again to 13 on Saturday, August 17th; eight new cases were admitted during the week, against two,

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[1] THE LANCET, Dec. 1st, 1900, p. 1695.

four, and three in the three preceding weeks The number of scarlet fever patients in these hospitals and in the London Fever Hospital at the end of the week was 3101, against numbers increasing from 2907 to 3148 on the four preceding Saturdays, 300 new cases were admitted during the week, against 374, 391, and 306 in the three preceding weeks The deaths referred to diseases of the respiratory organs in London, which had been 134, 126 and 126 i [illegible] ied last week to 103, and [illegible] The causes of 35, or 0 [illegible] 33 towns last week were not certified, either by a registered medical practitioner or by a coroner All the causes of death were duly certified in Bristol, Manchester, Salford, Bradford, and in 14 other smaller towns, the largest proportions of uncertified deaths were registered in Birmingham, Liverpool Preston, and Sunderland.

HEALTH OF SCOTCH TOWNS

The annual rate of mortality in the eight Scotch towns, which had been 19 8 and 19 2 per 1000 in the two preceding weeks, further declined to 19 0 per 1000 during the week ending August 17th, and was 2 3 per 1000 less than the mean rate during the same period in the 33 large English towns The rates in the eight Scotch towns ranged from 12·7 in Leith and 14·2 in Perth to 19·6 in Paisley and 20 8 in Glasgow The 606 deaths in these towns included 111 from diarrhœa, 18 from whooping cough, 11 from measles, five from "fever," three from scarlet fever, and two from diphtheria. In all 150 deaths were referred to these principal zymotic diseases last week, against 134, 174, and 168 in the three preceding weeks These 150 deaths were equal to an annual rate of 4 7 per 1000, which was 2·7 per 1000 below the zymotic death rate during the same period in the 33 large English towns The fatal cases *of diarrhœa, which had been 99 128, and 129 in the three* preceding weeks [illegible] 111, of which 68 occurred in [illegible] Edinburgh, 10 in Leith, [illegible] Aberdeen, three in Paisley, and three in Perth The deaths from whooping cough, which had been 28 and 12 in the two preceding weeks, rose again to 18 last week, and included 10 in Glasgow four in Edinburgh, two in Dundee and two in Paisley The fatal cases of measles, which had been 13 in each of the two preceding weeks, declined last week to 11 and were all registered in Glasgow The deaths referred to different forms of "fever," which had been two and six in the two preceding weeks, declined to five last week, and included two in Glasgow and two in Paisley The [illegible] two of which were recorded [illegible] the number in the preceding [illegible] to diseases of the respiratory organs in these towns, which had been 65 and 44 in the two preceding weeks increased again last week to 53, but were slightly below the number in the corresponding period of last year The causes of 14, or more than 2 per cent, of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN

The death rate in Dublin, which had been 20·6 20 6, and 22·4 per 1000 in the three preceding weeks, declined again to 19 9 per 1000 during the week ending August 17th During the past four weeks the death rate has averaged 20·9 per 1000, the rates during the same period being 19 2 in London and 17 6 in Edinburgh The 143 deaths of persons belonging to Dublin registered during the week under notice were 18 below the number in the preceding week, and included 34 which were referred to the principal zymotic diseases, against 26 32, and 34 in the three preceding weeks, of these 30 resulted from diarrhœa, three from whooping cough and one from scarlet fever These 34 deaths were equal to an annual rate of 4 7 per 1000, the zymotic rates during the same period being 6 0 in London and 2 8 in Edinburgh The fatal cases of measles, which had been 14 20, 23 and 33 in the four preceding weeks, declined again last week to 30 The 143 deaths in Dublin last week included 39 of children under one year of age and 33 of persons aged upwards of 60 years; the deaths of infants showed a very marked decline, but those of elderly persons were slightly in excess of the number recorded in the preceding week. Five inquest cases and three deaths from violence were registered, and 41, or nearly one-third, of the deaths occurred in public institutions. The causes of 10, or nearly 7 per cent, of the deaths in Dublin last week were not certified.

THE SERVICES

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified —Fleet Surgeons George S Smith to the *Cæsar* and Alexander M French to the *Empress of India* Staff Surgeons Frederick W Stericker to the *Fox* and J A Moon to the *Implacable* Surgeons J H Read to the *Implacable*, Henry F Raper to the *Vulcan*, Robert W G Stewart to the *Hazard*, Robert R. Fasson to the *Cæsar*, John E H Phillips to the *Empress of India*, and A B Shaw P T Nicholls A J Gailton and G S Davidge to the *Duke of Wellington* additional for Haslar Hospital

ROYAL ARMY MEDICAL CORPS

Major G Tuke joins at Woolwich, and Lieutenant Davies and Lieutenant A W Gibson are posted to the Cambridge Hospital, Aldershot, for duty Major Dodd assumes temporary charge of the Connaught Hospital at Aldershot

MENTIONED IN DESPATCHES

In despatches from Lord Kitchener published in the *London Gazette* of August 20th 1901 and dated Pretoria July 8th 1901, the following officers are mentioned Surgeon Captain I B *Reid West Australian Mounted Infantry, showed an* absolute disregard of danger in performing his duties at Brakpan on May 16th Captain J G Berne, R A M C, for special good service during the Boer attack on convoy near Mooifontein south of Bethel May 25th, 1901 (Private Dawes, R.A.M C, is also specially mentioned for good work under heavy fire on the same occasion) Surgeon Captain E J O Neil, New Zealand Mounted Rifles, who, on June 16th, under heavy fire, went three times to the wounded and succeeded in getting in Lieutenant Ryan and two men

SOUTH AFRICAN WAR NOTES.

The following have been discharged from hospital to duty —Captain H W Vaughan Williams R.A M C, Lieutenant P G Stock R A M C, and Civil Surgeons Runciman and James McMurray

Civil Surgeon H M. Apthorp is on passage home

INDIAN MEDICAL SERVICE.

The following is the list of successful candidates for the Indian Medical Service at the examination held in London on Feb 9th and following days —

Names	Marks	Names	Marks
A J J Lister	3245	R J Bradley	[illegible]
T F B Williams	3156	I A Loch	[illegible]
S H L Abbott	3077	R M Carter	[illegible]
A W Greig	3015	R I Hagger	[illegible]
R I Lloyd	3013	D O P S Baker	[illegible]
J Woods	2965	T W Harley	[illegible]
H B Steen	2940	J W McCoy	[illegible]
D Munro	2929	R A Willcocks	[illegible]
I Bisset	2910	T G I Paterson	[illegible]
J J Clements	[illegible]	D G Rai	[illegible]
A W Overbeck Wright	2675		

NAVAL AND MILITARY PRISONERS IN IRELAND

A recent blue book dealing with the prisoners of Ireland shows that there has been a considerable increase in the number of naval and military prisoners committed to civil prisons during the past year For the three years prior to 1899 the average number of committals was 290, but in 1899 the numbers rose to 359 and in 1900 to 838. This increase appears to be owing to the large number of troops under arms to the fact that they were to a great extent composed of militia and reservists of different descriptions, and to the great number of fraudulent enlistments, false answers on attestation and serious military crimes committed to obtain discharge The increase in naval prisoners has been principally in Cork and is attributed to the fact that naval manœuvres on a more extensive scale than in the preceding year were carried out off the southern coast of Ireland in 1900 All defaulters sentenced to imprisonment during that time were sent to Cork Prison The committals last year from Berehaven alone, which is becoming an important naval station were 78 as compared with none in 1890

Surgeon General W Taylor, A M S, C B Principal Medical Officer in India has been appointed an Honorary Physician to the King vice Deputy Inspector General R. Domenichetti, deceased.

DEATHS IN THE SERVICES

Brigade Surgeon Thomas Young Baker, A M S (retired), on August 21st He entered the service in 18[illegible]0 and retired with the rank of Hon. Brigade Surgeon in 1885.

THE
BRITISH MEDICAL ASSOCIATION.
MEETING AT CHELTENHAM.

THE SECTIONS.
MEDICINE.
FRIDAY, AUGUST 2ND.

THE closing meeting of the section commenced with the reading of a paper by Dr. **EDOUARD RIST** (Paris) on

The Bacteriology of Fœtid and Gangrenous Suppuration.

He said that in diseases where fœtor was present, such as appendicitis, mastoiditis accompanied by crackling œdema, and in some cases of empyema, if the pus was examined under the microscope very many bacillary forms could easily be made out. The polymorphism of this assemblage of micro-organisms was very marked, yet after preparing culture-tubes from the same pus, though a luxuriant growth would occur, yet on microscopical examination only a few common forms of bacteria would generally be found. It was not likely that these common forms were the active agents in producing fœtid inflammation, gaseous phlegmon, or discrete gangrene in the lungs. It had occurred to Dr. Rist that the reason why the rarer forms of bacillus would not grow was that the conditions of culture did not suit them. Dr. Veillon of Paris had devised a simple method of anaerobic culture free from the difficulties of the hydrogen and other methods. Diluted pus was mixed with liquid sugared agar and with this tubes were filled to a height of about four and a half inches. The agar was then solidified by placing the tubes in cold water. Under these circumstances all the microbes except those occupying the upper superficial layer of the culture medium were growing under anaerobic conditions. A profuse growth generally occurred and on examining specimens taken from the lower layers of the tube very many organisms were found to be growing, and Dr. Rist gave a long list of names of the bacilli which had been isolated and described by himself and his colleagues, some being new to science. He hoped that in other hands the method might lead to the further elucidation of the nature of the so-called anaerobic bacilli.

Dr. H. J. **CAMPBELL** (Bradford) asked if the pneumococcus of Fraenkel could cause suppuration, as he thought it had done so in one of his own cases.

Dr. **RIST**, in reply, said that it could do so, but that in his opinion, if fœtor were well marked, they ought to be able to find the anaerobic organisms he had been describing, which he considered were the true cause of such conditions and not the bacillus coli communis.

Dr. **MCPHEDRAN** (Toronto) and Dr. **WILLIAM GOLDER** communicated a paper on

A Case of Indigouria.

The condition was merely a clinical curiosity. A male patient, aged 24 years, consulted him for general malaise and tired feelings. No objective signs were discovered, but he mentioned that his urine was of a blue colour. On a specimen being passed it had the characteristic bluish-green colour of indigo. Its specific gravity was 1029. It contained no albumin or sugar. On microscopical examination the pigment could be seen in small blue granules. Dr. McPhedran made some remarks on previously published cases and said that the cause of the condition was quite unknown.

Dr. J. **RIVIÈRE** (Paris) read a paper on

The Abortive and Curative Treatment of Acute Alimentary Diseases, and particularly Enteric Fever and Appendicitis, by a Judicious Use of Calomel, Water, Heat, and Quinine.

The motto of the paper was, "As the microbe so is man killed by his own toxins and refuse." Starting from this thesis Dr. Rivière contended that the best way to treat diseases such as those mentioned, which interfered with the proper excretion of refuse matters, was to administer such a drug as calomel. His practice was to give five grains each of calomel and sodium bicarbonate placed directly on the tongue at midnight, followed next morning by castor oil beaten up with hot water or eight grammes of magnesia. Such treatment seldom failed to reduce fever and he thought that in many cases the reduction was permanent and the treatment harmless. In addition to its use as a cholagogue and intestinal antiseptic calomel was the most powerful and harmless of diuretics. As adjuvants to the calomel treatment he employed hot water and quinine when defervescence had taken place. After describing his treatment of cholera infantum and post-partum inflammation by the same means Dr. Rivière concluded: "All diseases can be referred to one cause—intoxication, and, above all, autointoxication, which in my opinion depends directly on the disturbance and deficiency of the hepatic function. The microbe only enters the lists when the machine is foul and choked because it has not been washed out in time."

The **PRESIDENT** (Dr. E. T. **WILSON**, Cheltenham) and others discussed the paper.

Mr. **CHISHOLM WILLIAMS** (London) read a paper on

The Treatment of Phthisis by Means of Electrical Currents of High Frequency and Potential.

Treatment by these means had given such striking results in his hands that he wished to summarise his results in 43 cases. These were all of over a year's duration. The difference between the currents obtained by an ordinary Ruhmkorff coil and that of Tesla was that in the latter the alternations were infinite and the electro-motor force was proportionally high. Thus in the former they might have alternations of 200 per second and electro-motor forces from 10,000 to 20,000 volts, while in the latter alternations of 1,000,000 per second and the electro-motor force from 100,000 to 1,000,000 volts. In using these he found general electrification better than local and a combination better still. Under this treatment the temperature first rose and then fell and progress could be gauged by noting if the reactionary rise could any longer be induced. If it could not be induced by even prolonged exposure to the currents the patient might be considered well. Cough was relieved, sputum was lessened, and bacilli were reduced in numbers and dwarfed in shape. He did not think they were killed by the current. Sweating subsided and the body-weight increased. Mr. Williams quoted Osler as saying that 95 per cent. of patients were unable to afford any treatment away from their own homes. By this method they could all be treated by their own medical man. Of his 43 cases 42 put on weight and lost all symptoms except in a few where a slight cough remained, and a few bacilli might be found occasionally.

Dr. J. **RIVIÈRE** said that he had been using high frequency currents for more than five years and had had good results with them. He used even more powerful ones than did Mr. Williams.

Dr. D. J. A. **CHOWRY-MUTHU** (Isle of Wight) read a paper on

The Diagnostic Value of Bacilli in Relation to Phthisis.

He related six cases as illustrating this subject. They all presented the clinical appearance of phthisis, but in none of them could the bacillus tuberculosis be demonstrated in the sputum. They all recovered and were found out to be really cases of chronic pneumonia, syphilitic disease of the lung, chronic bronchitis, &c., and one case appeared to be mycotic bronchitis, a large quantity of muco-purulent matter being expectorated which contained mycelial threads. He recognised the difficulty of demonstrating the bacilli in some cases, but thought that if after thorough search they were found to be absent they might provisionally pronounce the case to be non-tuberculous.

Dr. F. W. **FORBES ROSS** (London) thought that the severity of cases of phthisis could not be determined by the number of bacilli present in the sputum. In some cases which, from the point of view of symptoms, had been stationary for years bacilli were very abundant.

Mr. **GRIFFITH C. WILKIN** (Yeovil) read a paper on

Rheumatic Endocarditis.

He related a case of this affection in which the patient was extraordinarily susceptible to the influence of three drugs—morphia, quinine, and nux vomica—given at separate times. One and a half minims of injectio morphinæ hypodermica, B.P., were given for joint pain in the early stages of the disease. The patient became comatose and was only saved from death by large doses of atropine and electricity energetically administered. She shortly afterwards had pneumonia and then left hemiplegia from embolism. Quinine was given but caused intense headache. When she began to recover small doses of tinctura nucis vomicæ, B.P. (five minims), were given three times a day. These caused after a week rigidity and opisthotonos, which only stopped when the nux vomica was discontinued

Dr H J CAMPBELL (Bradford) read a paper on

The Treatment of Cardio-arterial Disease

Diffuse arterio sclerosis caused a disturbance of circulation and nutrition which was temporarily compensated for by cardiac hypertrophy After a time, however, when this had reached its maximum continued high arterial tension was likely to lead to post-hypertrophic degeneration of the cardiac muscle A correct appreciation of the degree of this tension was desirable, and Dr Campbell was accustomed to use Hill and Barnard s sphygmometer for that purpose and considered that it answered very well It did not indeed record very well the extreme degrees of high pressure, but that was of little moment so long as they recognised that the high pressure existed He deprecated routine treatment in these cases, but thought that each should be considered on its own merits Harm might be done in one by treatment which would be quite appropriate in others If kidney sclerosis were also present it additionally complicated matters In this case he was accustomed to rely on an exclusive diet of milk and large doses of sodium iodide

Dr FORBES ROSS read a paper on the Treatment of Tuberculosis by Meat Albumin, which will be found at p 523

Mr STUART LOW (London) read an unannounced paper on the Use of Mucin in Diseases of the Alimentary Tract, and Dr J HADDON (Hawick) one on a Change of Life in Men as well as in Women

Owing to the room allotted to this section having been changed on each day it was very poorly attended on the last day, members not being able to find it

SURGERY

FRIDAY, AUGUST 2ND

Mr HOWARD MARSH (surgeon to St Bartholomew s Hospital London) opened a discussion on

Injuries of Joints with Special Reference to their Immediate and Remote Treatment by Massage and Movement

This subject, he said, was very suitable for discussion at such a meeting as the present Both massage and movements have long been employed in English surgery, but lately they have come into much more general use Both are valuable remedies but if used as a matter of routine both may do great harm As methods of surgical treatment they must always be closely supervised, care being taken to watch their effect, and especially to be sure that no element is present in the case which renders their employment undesirable It is necessary to have a clear idea as to what has been termed the "physiology of massage'—as to the different ways i e, in which it acts 1 It enlarges the amount of blood circulating through the part concerned This is obviously apparent in the skin which instead of remaining cold and pale becomes warm and more or less red The same result was experimentally demonstrated in regard to the muscles by Brunton and Tunnicliffe who showed that the amount of blood passing through them both during massage and after its cessation was increased This increase of blood is in every way advantageous. It maintains or improves the nutrition of all the various tissues, it promotes the restoration of the functional activity of injured muscles and it plays an important part in the absorption of lymph and extravasated blood 2. Its action is mechanical By kneading and percussion extravasated blood and lymph which have coagulated in the tissues and led to brawny œdema are broken up and dislodged while by stroking from below upwards they are swept onwards and brought within the reach of healthy lymphatics and a normal venous circulation, so that they can more readily be absorbed 3. It is an efficient stimulant to damaged muscles through its influence on the nervous system In such minor injuries as sprains and contusions probably the small nerves ramifying in the injured part are seldom torn across, for they are tough rather than brittle, they are well protected in the subcutaneous tissue and the deeper structures and their course is often tortuous so that they are not easily put on the stretch Nevertheless they are not infrequently so far injured that their functions for the time being are more or less suspended, and massage is then a very useful agent in stimulating them to a resumption of activity It probably acts in a similar manner on the vaso-motor nerves which preside over the arterial system of the part 4 No one who has watched its sedative effect when applied in cases of recent injury can doubt the influence of massage in reducing muscular spasm and relieving pain Here it must be used very gently and be limited to stroking and light friction for short periods three or four times a day. 5 Probably massage promotes the absorption of recently formed adhesions provided they are not too extensive and firm This is a matter of considerable interest. Just as provisional callus, formed in the repair of fractures is absorbed, so is the new connective tissue which is developed after injury of the soft parts Perhaps the most obvious instance of this is met with in the case of adhesions following peritonitis Often even extensive adhesions gradually yet completely disappear, probably as the result of constant disturbance and traction during peristalsis Much the same result is produced by what may be termed the interstitial disturbance and traction which take place during the different movements employed in massage As to movements these are of three kinds those performed under an anæsthetic, passive movements and voluntary movements on the part of the patient often carried out against resistance As to movements under an anæsthetic they can be safely applied only when a careful diagnosis has been made In the first place it must be ascertained that the joint itself is not, nor has been actively diseased, so that it has undergone no considerable structural changes such as follow tubercle, or osteo arthritis septicæmia or locomotor ataxia The cases in which this form of movement is most successful are those in which the joint itself is practically healthy while it is hampered by changes in the parts around. Passive movements are chiefly useful in restoring movements that have been lost or in preventing stiffness in joints which are to be long disused—for instance, a healthy ankle—the patient having disease of the hip or the knee Voluntary movements on the part of the patient, especially when performed against resistance, are in many instances more valuable than massage Several forms of apparatus have been introduced for use in these movements and many of them are very satisfactory In all cases however, efficient supervision must be maintained Diagnosis is of course of essential importance It cannot always be exact, but it must be carried far enough to indicate that the case belongs to the general class in which these agents are useful and that no element is present which renders them unsuitable The conditions for which massage and movements are most useful are sprains and contusions of previously healthy joints unattended with any serious complication such as dislocation or fracture, any wide laceration of muscle, rupture or displacement of tendons, or such pre-existent conditions as tubercle, gout, or hæmophilia The treatment of recent fractures by massage was so fully discussed at the meeting last year at Ipswich that it is needless to consider it now The after treatment of dislocations has of late years undergone a great and very advantageous change In the case e g of the shoulder the arm is no longer bandaged to the side for a fortnight or three weeks, but passive movements and massage are regularly used after the second or third day He had seen a patient thus treated able to move his arm freely in every direction in the course of three weeks He had also seen a patient walk freely and without lameness three week after the reduction of a dislocation of the hip The chief symptoms which indicate the use of massage and movements are stiffness and pain but before they are employed the cause of the symptoms must be ascertained as to whether the mischief is inside or around the joints Take the shoulder The arm may be stiff and there may be severe pain and marked muscular wasting Is this a case of disease of the joint itself or of adhesions outside? There is, he believed only one test to be relied on to determine this question This is to ascertain whether the joint is as stiff as it at first sight appears to be, or whether, within certain limits movements are free and smooth. If these free and smooth movements limited though they be—are present the fact is a strong indication that the joint is sound and that the symptoms depend on surrounding adhesions. (Cases in illustration were related) As to pain it is very important to remember that it cannot be used to differentiate between real joint disease and surrounding adhesions Indeed in many cases pain due to adhesions is more severe than that produced by joint disease Muscular wasting—a principal symptom in disease of a joint—may be present though the case is one of mere adhesions in the capsule and surrounding parts. In some instances movement under an anæsthetic will produce a cure which there seemed at first sight no reason to anticipate, for though the patient complains of "weakness" and pain in the joint there is no appreciable stiffness or any condition for which movement and massage seem called for. These cases, which bonesetters not rarely cure by moving them as they move all others, are instances of slight adhesions which cannot be detected but which are yet sufficient to make the patient walk with lameness and "weakness" of the joints concerned. (Cases were related to illustrate this group.)

Mr. R. H. A. Whitelocke (Oxford) spoke of the treatment of injuries to the healthy joints of young adolescents—Oxford athletes. He agreed with the necessity of particularity in diagnosis. In simple sprain with stretching of ligaments which were seen at once he was accustomed to apply elastic pressure by cotton-wool and massage, with a result that the limb was fit for use and sport in three weeks' time. In slight lacerations around the joint he was accustomed to use movement under an anæsthetic to free the articular surfaces from any synovial remnants, then to apply pressure, and in 24 hours himself to move the joint passively and gently massage, but he would allow no active movements until the lapse of 14 days. He rejected the use of rigid apparatus. He remarked that he had to deal with intelligent people who would satisfactorily conform to the treatment. In remote injuries, such as had been treated with rigid apparatus, he thought that adhesions were formed by the organisation of blood-clot which always was present in serious strains, so that unless the movement was early adhesions and stiffness resulted. Often the pain and stiffness were referable to a rheumatic tendency which salicylates rapidly alleviated.

Mr. F. F. Burghard (London) agreed in the use of early passive movements in the shoulder-joint, &c., and the badness of prolonged fixation. Movement removed the liability to fixation. He believed in the frequency of movement under an anæsthetic and a gentle attempt to break down the adhesions each week rather than one vigorous attempt. He had formerly used elastic pressure in recent cases, but now he had discarded it and relied on massage alone.

Dr. J. Ward Cousins (Portsmouth) remarked on the necessity of treating the slight abrasions present in contusions around joints; these were very liable to septic infection in the poor. He believed in an immediate use of the antiseptic bath. He also noted the importance of slight injuries in diathetic subjects, tubercle in the young, and gout in the old; for the latter he found the hot-air bath useful. In general cases he preferred rest for a few days, then massage to the muscles and tendon sheaths, and to leave the joint itself alone. He strongly objected to the probing of wounds around joints; the application of antiseptic dressings was all that was required.

Mr. H. Gilbert Barling (Birmingham) agreed that there had been too much fixation in the past and believed in early movements with elastic pressure; the latter, he thought, might express accumulated fluid. He confessed he could not, like Mr. Whitelocke, get patients well in three weeks; if he could he would not let them then indulge in athletics, for he believed all such injuries to arise from a state of "out-of-condition" of the muscles. He believed it was better not to use splints in Colles's fracture with moderate deformity; he would ignore the deformity and seek for mobility. He narrated two cases of lady pianists where with no other fixation than that of a sling with passive movements in two days and active movement in a week he had had such good results that the piano could be played in three months.

Mr. J. Paul Bush (Bristol), referring to Mr. Whitelocke's remarks, said that he had seen no such speedy results amongst the soldiers in South Africa, even in carefully selected cases.

Mr. J. R. Morison (Newcastle-on-Tyne) said that he must strike a discordant note. In talking of treatment they were in danger of forgetting pathology. To prevent inflammation was to prevent adhesions. Many so-called injuries to joints were not connected with the joints at all but with their surroundings. He used to suture with gut the fractured patella, not irrigate, and to rest the joint for six weeks, getting a better result by such means than others with wiring and early passive movements. In miners displacement of the semilunar cartilages was frequent and to them such a joint was useless without excision of the loose body; he then gave rest for a month and got good results. When there was a definite organic injury to a joint rest was essential. He thought that elastic pressure was good. He noted a curious case of severe pain in the wrist following on strain without obvious defect; he thought neurosis might account for it and he had procured relief by heroic doses of the interrupted current.

Mr. Howard Marsh, in replying, said that he believed in elastic pressure; probably there was only support of relaxed vessels and so prevention of effusion. As regards quite early movements he was at issue with Mr. Morison. In some 80 to 90 cases of excision of the semilunar cartilage he had removed the splint in about a week when the wound was healed and commenced massage to the muscles. In the next week active movements were allowed, and in the succeeding two or three weeks the patient was up and about, so that in two months he was at work again. So with the patella, but in this case he did not allow the patient out without a knee-support for two or three months. Replying to Mr. Burghard, he thought that all adhesions should be broken down at one time. He agreed with Dr. Cousins regarding antisepsis and with Mr. Barling regarding the connexion of sprains with loss of muscle-tone. In cases of slipping of the semilunar cartilages of the knee massage should be adopted and never plaster supports. He believed in splintless Colles's fracture treatment; in cases where such fractures turned out badly it was not from deformity *per se* but from matting of structures.

Mr. F. F. Burghard read a paper on

The Treatment—Non-operative and Operative—of Congenital Dislocation of the Hip.

At the outset he deprecated sweeping statements regarding this deformity, different conditions requiring different measures. Discussing the anatomical features of the state he said that the dislocation on the dorsum ilii was not so invariable as was thought; it might succeed a much slighter displacement under the anterior superior iliac spine. The increase in the angle made by the long axis of the femoral neck with the transverse axis of the condyles was increased from a normal of from 25° to 30° to as great as from 100° to 150°; this twisting was such that the limb was rotated inwards when the head was properly in the acetabulum. The diminution of the angle of the neck with the shaft of the femur from a normal of from 110° to 140° to as little as 90° was proportional with the length of time during which the child had walked. A point which was noted by Hoffa, to which was due the ultimate failure of apparently successful operations, was the hour-glass shape assumed by the capsule, owing to the passage over it of the ilio-psoas tendon, and the exceedingly dense, unyielding character of the part over the acetabulum owing to the thickening of the capsular bands. The treatments by the apparatus of Hoffa, of Hoffa-Mikulicz, and of Schede were discussed and their insufficiency was shown. The bloodless or extension method of Lorenz was also shown to be in the majority of cases a failure, even in the hands of its author. Of the operative measures he gave his experience of Hoffa's, Lane's, and Paci's methods, their indifferent success, and stated his belief that the cause of this in many cases was that the head of the bone must lie over the acetabulum with a portion of the capsule or even ligamentum teres interposed between it and the bone. In several cases it was impossible to force the head of the femur through the narrow capsular constriction referred to without enlarging the orifice. He described a mode of operation which had been attended with much success. At a preliminary sitting the femur was freed sufficiently to get the trochanter down to Nélaton's line and for abduction to 90°. By a curved incision the fascia and tensor vaginæ femoris were freed from the ilium, the limb was rotated outwards, and the capsule was incised parallel and internal to the anterior spiral line. The tendon of the ilio-psoas was freed and the attachment of the capsule to the front of the acetabulum and the rectus tendon was also freed; now on manipulation by Lorenz's method the head at once entered the acetabulum. All that now remained was to excise an elliptical portion of the redundant anterior part of the capsule, which was tightly sutured by catgut, and the joint was stable. The deep structures were united by one or two catgut sutures. The limb was put up in a form of Croft's plaster splint and after a month a skiagram was taken, when it was seen that the head of the femur was in excellent position. In six months the child was allowed to walk with a thick sole on the sound side and now, 18 months after, the child was perfectly cured and the head of the bone was in place Four other cases had been operated on with equal success, all of the patients were under six years of age. He noted the necessity of selection of cases and their early recognition and treatment. He concluded with a classification of cases in groups arranged according to the applicability of the various methods of treatment described.

Mr HOWARD MARSH said that he had felt the unsatisfactoriness of such cases though the operative procedure that had been described that day helped matters on very satisfactorily He remarked that a case which had been *much vaunted as a cure by extension* had been submitted to him without his knowledge of the previous history, he had found the condition to be that of an absolutely untouched congenital dislocation He agreed to the frequency of dislocation under the anterior superior spine. If the head was fixed in a pseudo joint and was not sliding he thought that operation would do no good, it was urgently necessary where there were much displacement upward and backward and a sliding condition here patients were hopelessly lame He remarked that the ill-development of the limb and muscles of such cases was a great drawback and he noted one feature of the paper—the definite examination of the anatomical condition and the operative treatment accordingly

Mr R. H A. WHITELOCKE read a paper on

A Case of Hydatid of the Right Pleura successfully treated by Operation.

The case was that of a woman, aged 28 years a resident of Abingdon Symptoms of pleurisy appeared in March 1900 In June a swelling appeared in the eighth right intercostal space In July she was operated upon, parts of two ribs were resected and the cavity was opened *and drained*, the *fluid* was straw coloured and contained cysts. Cysts were discharged from the wound until December, when Mr P Martin secured the edge of the mother cyst and drew it out entire The points of the case were the patient had never been out of England, the rarity of cases under such circumstances and especially of infection of the pleura, also the complete absence of pulmonary symptoms

Dr J MICHIE (Adelaide) had frequently seen similar cases in Adelaide, it was not uncommon to get long continued discharge of the daughter cysts

Mr JAMES RANKIN (Kilmarnock) read a paper describing an operation for

Senile Gangrene

in a man, aged 72 years There was a rapidly spreading gangrene of the foot spreading from around an ingrowing toe nail. The leg was amputated by Stephen Smith's disarticulation at the knee by lateral flaps The result was perfect The old man devised his own pin leg and contemplated returning to work.

Mr R C CHICKEN (Nottingham) read a note and showed a specimen of

Loose Bodies from the Knee-joint

The case had been undiagnosed for a long time and was supposed to be old standing disease of the joint. He suspected loose bodies, opened the joint and removed 67 soft cartilaginous loose bodies weighing together one ounce He was inclined to think that loose bodies were more frequently multiple than single

Dr ELIZA L. WALKER DUNBAR (Bristol) read a paper on

Reducibility of Long standing Dislocations

The paper described a case of partial dislocation of the right hip-joint which after existing five years was reduced without difficulty under anæsthesia showing that the joint had in no way become blocked The patient was a woman aged 31 years A skiagram of the case was shown The symptoms were *greater length of the leg by half an inch*, absence of power by everting the foot, insecurity in standing and walking requiring assistance of a staff, and pain after exertion Reduction was followed by great relief and free use of the limb During three years since reduction dislocation had threatened three or four times and movement had been somewhat impeded until passive movements—the necessity for which had been impressed on the patient at the time of treatment—were carried out, this restored the normal condition Another case, one of rarer occurrence, was partial dislocation of the right sacro-iliac joint. The dislocation had existed for six years causing incessant discomfort and acute pain after rising from a sitting posture and in turning round when lying down. The patient was a woman, aged 32 years The dislocation, which was shown in a skiagram, had been produced by lifting hastily a heavy scuttleful of coal It was reduced under anæsthesia as shown by a skiagram and kept well in place with complete relief for 15 months Then one day after walking up stairs the patient thought that she felt the joint give way Pain did not come on for 14 days, when the old discomfort set in The dislocation was reduced again as soon as the patient applied for advice The relief was quite perfect Both cases were treated without splint or bandage The first was *massaged, whilst passive and active movements* were carried out from the first day for one month The second case was dismissed in 10 days

STATE MEDICINE

FRIDAY AUGUST 2ND

The final meeting of this section commenced with the reading of some notes by Mr J A. WANKLYN (London) upon

Recently examined Arsenical Beers

He held that the failure to recognise the presence of arsenic in beer to a great extent depended in the recent arsenical epidemic on the abandonment of the original Marsh's process and on the protean powers of combination possessed by arsenic It was known that two grains of arsenic in the shape of arsenious acid had proved a fatal dose, but 15 grains of arsenic in the shape of cacodylic acid or cacodylate of soda were not fatal and indeed, had been taken without manifest ill effect Mr Wanklyn exhibited specimens of cacodyl and cacodyl red pigment and mentioned that they were extremely rare

Dr T M LEGGE (Inspector of Factories) addressed the meeting on the subject of

The Diseases of Occupations

He said that the anomalies in trade diseases—viz, the difference of the symptoms produced among workers making or using poisonous materials from those produced by their medicinal exhibition—were very striking The manufacture of potassium cyanide for example, appeared to be almost if not quite innocuous In the manufacture of potassium bichromate the lesions were limited There was no evidence that chromic acid dust penetrated to the lungs Amongst workers with arsenic the symptoms of neuritis were absent In hatters' and furriers processes where rabbit skins were brushed with nitrate of mercury, salivation was rare, though tremor was a prominent symptom, and there was in addition marked erosion of the teeth due to the acid fumes There had been given no adequate explanation why the continued inhalation of the fumes of yellow phosphorus should be limited to the maxillary bones for satisfactory evidence was lacking that anything in the nature of phosphorism was produced In regard to anthrax workers in wool horsehair and hide industries seemed to bear an almost charmed life If the contention were right that the incidence of tetanus on jute workers was due to spores imported in incredible numbers it was surprising that cases following on lacerated wounds in jute mills were not more frequent, that must be attributed to the natural immunity of the human subject to tetanus In factories where lead was used it was right to be on guard against attributing every case of anæmia in youthful workers to their employment One of the most difficult points in industrial disease was to estimate rightly the effect of the inhalation of dust on the lungs and the relation of fibroid phthisis to true phthisis With the exception of mineral dust containing a high percentage of silica steel dust, flax and of a few others evidence had not been made very clear of injury to the lungs *from many* kinds of dust. Attention was called to the pneumonia induced by the inhalation of basic slag dust, there was nothing in the composition of the dust apart from its fine division to render it particularly injurious Referring to the notification required of every case of lead arsenic phosphorus, or mercurial poisoning, and of anthrax contracted in a factory, Dr Legge pointed out that medical practitioners who notified cases of lead poisoning from drinking water or in a house painter engaged entirely in outside work might think it pedantic to draw a distinction between notifiable and non notifiable lead poisoning but the whole point of the distinction was to obtain a clue only to those cases in premises under the Factory Act. In lead-poisoning it might fairly be assumed that each case on an average entailed an absence from work for one week, and the absence from work from the effects of lead alone during last year if compressed into the life of a single man would mean absence from work for 19 years. The proportion of severe cases of lead-poisoning among file-cutters and those engaged in coach painting, in ship-building, &c., exceeded that of those engaged in industries where the danger was primarily from the dust of salts of lead. The official reports brought out the fact that saturnine palsy was essentially an affection of the male sex, while headache, anæmia, and encephalopathy were more common in the female sex. Notification had been especially useful in obtaining knowledge of sources, hitherto unsuspected, in which mercurial and arsenical poisonings were likely to arise. Anthrax was, however, the most protean in its manifestations of all trade diseases and was the most difficult to control. Disinfection by steam of horsehair in hydraulicly pressed bales was impossible. In the cases of anthrax which had been notified one point was noteworthy. The accepted treatment was excision of the pustule as soon as it was diagnosed; in country districts there was reluctance to operate and treatment was limited to the application of caustics or hypodermic injections of pure carbolic acid, and it had to be admitted that that treatment had been successful. In one country village five successive cases had recovered without operation, but, on the other hand, in Bradford and Sheffield fatal cases had as a rule been those in which there had been delay in having the pustule excised. All accurate knowledge of the diseases of occupations must come from the medical profession and by the writings of medical men great assistance had been rendered in pointing out the dangers attaching to various occupations. Though he had never yet come across a certifying surgeon who was not interested in his work it had appeared to him that as a body they were lacking in *esprit de corps*.

Dr. W. MURRAY (Birmingham) contributed a paper on

Chronic Brass Poisoning.

He said that too little attention had been paid to the poisoning that affected many persons engaged in the manufacture of raw brass. Though "brass-founder's ague" had been known a long time the far commoner cases of disease from prolonged absorption of brass dust had attracted little notice. The state of unhealthiness produced in brass working presented a uniformity in its train of symptoms that suggested the action of a specific poison producing a specific disease. The illness was ushered in with anæmia and malaise and as the disease progressed the complexion assumed a sallow appearance and emaciation became a prominent feature. Muscular tremors occurred and the digestion was impaired. There was a metallic taste in the mouth and the breath emitted a disagreeable metallic odour. Nervousness, faintness, profuse sweating, and cold sensations were very troublesome features. The indication of copper absorption—viz., a green line at the bases of the teeth—was present in all these cases. The sweat might have a greenish tint and this colour was sometimes very marked in the hoary hair of old workmen. Skin symptoms were sometimes produced from the brass dust or the irritative action of the sweat impregnated with copper salts. To diagnose this disease from consumption the chest on examination showed no lesion that was discoverable except occasionally a bronchial catarrh. Some authorities said that the disease was caused by copper, others by zinc, and it had been attributed to lead and arsenic as impurities, but that was visionary. The symptoms of brass poisoning were not those of lead or arsenic poisoning. Pseudo tabes had been recorded as resulting from brass absorption, but the symptoms were easily differentiated from the typical symptoms of brass poisoning. There was sufficient similarity between poisoning by copper and by brass to justify the hypothesis that copper was the principal metal at fault in disease from brass poisoning. The poison gained ingress by the digestive and respiratory tracts, the fine dust setting up respiratory affections ending in fibrosis of the lung. In the stomach the dust was acted upon by the gastric juice yielding soluble salts leading to the general condition. The dust was ingested by taking food with unwashed hands or in the work-rooms. The treatment recommended by Dr. Murray was phosphorus one-thirtieth of a grain in pill or phosphoric acid coloured and flavoured. It was to be regretted that the special rules applied to the casting and mixing shops were not applied to the other departments of brass working. At least the free dust in the workroom should be reduced to a minimum, efficient ventilation should b provided, cleanliness on the part of the workers should b enforced, and eating in the workshops should be prohibited.

Mr. H. D'ARCY ELLIS (Stourbridge) communicated paper on

Glass Polishing.

Glass polishing, Mr. Ellis explained, was the final stage of glass cutting. The glass cutter polished the glass on which he had himself cut designs and used a mixture for polishing known as "putty powder." From the use of this powder cases of lead-poisoning arose. A good putty mixture contained—lead, 112 pounds; tin, 25 pounds; antimony, three pounds; and bismuth, from two to three ounces. The "putty powder" for large glass work was dabbed on a revolving polishing wheel, but for very fine work the powder wa applied by brushes. In some cases a boy stood in front of, an at the side of, the brush to apply, the putty powder and wa splashed with the mixture flying off the brush. This was the most dangerous period, in the opinion of the workman. After the polishing of the glass by the putty, girls were employed as "wipers-out," and some of these had been known to suffer from lead-poisoning. Mr. Ellis then proceeded to relate illustrative examples of cases, fatal and otherwise, of lead-poisoning which had occurred in his practice from the putty powder. It was a serious thing to advise a man to give up the only trade by which he could earn a living. His chance of earning a living at any other occupation was generally extremely small. The isolation of every susceptible worker was an extreme remedy which would be strongly resented. The obvious remedy was to find the minimum of risk and endeavour to enforce its application. In consequence of legislation already in operation the cases of lead-poisoning had diminished, practically leaving only th chronic cases. To the question, Could anything more b done? Mr. Ellis replied that greater attention to detail was all that was needed, personal cleanliness, ventilation, and tidiness in the workshop. A separate apron should be worn at the putty frames which were now used at the wheels and taken off when the polishing was finished.

Mr. W. F. DEARDEN (Manchester) delivered an address on

The Causation of Phosphorus Necrosis.

During the last 20 years it was known that 102 definite cases of phosphorus necrosis had occurred in this country. There were two varieties of matches with which they were particularly concerned—the English or paraffin dip match and the Belgian or sulphur dip match; the latter was on the continent popularly termed "stinkstecher." The fulminating composition for this latter contained 30 per cent. of yellow phosphorus, the English match contained about 5 per cent. The dangerous parts of the manufacture were the mixing o the phosphorus paste and the dipping, drying, and boxing of the matches. The paste was usually mixed in a steam-jacketed pan with a removable lid, the dipping was done by pressing the matches on to the mixture spread out on a heated slab, the drying was effected by placing the matches in a heated chamber, and the boxing was carried out by girls and women. The dangerous factor in the processes was the giving off of fumes of the lower oxide of phosphorus (P_4O_6) from the moist heated paste in the mixing, dipping, and drying departments and from the moist heads of the matches when in a proper condition for boxing. This lower oxide of phosphorus mixed with the saliva in the mouth and was also inhaled directly into the lungs. The soiling of the hands and clothes w the paste also constituted a certain amount of danger. M Dearden agreed with the opinion of Lorinser that the fum exerted their evil office by the blood becoming surcharge with phosphorus, which in turn had an affinity for bone, an as a consequence weakened the resisting power of this tissue to local injury, this local injury in the case of the jaw-bone being supplied through the medium of a carious tooth. Mr. Dearden reviewed the arguments that constitute presumptive evidence of the existence of some systematic predisposing influence as a necessary adjunct to the local excitation. In giving the positive evidence of a more general action exerted by phosphorus on the tissues Mr. Dearden mentioned that it was perfectly evident that in the course of years a comparatively large amount of the fumes must be inhaled into the lungs and that phosphorus or some combination of this drug must by that means get into the circulation. He had noticed the characteristic odour in the breath of girls several days after they had been suspended from work under the special rules. The condition brought about by the mild saturation of the system with some compound of phosphorus predisposing to necrosis of the jaw influenced bone-tissue generally and was chemical in its nature. It had been concluded that bone formed in young people working at phosphorus was much denser in character than it would otherwise be It was therefore to be held that changes did take place in bone-tissue from inhalation of phosphorus fumes, and it was reasonable to explain "phossy jaw" as arising from local irritation through a carious tooth acting on bone already damaged as the result of a general infection The principle upon which all general precautions must be based aimed at a minimum exposure of the worker to the fumes, [illegible] the general infection of the system, and [illegible] on by proc[illegible]

Dr. G. REID (Stafford) read a paper on the

Infant Mortality and the Employment of Married Women in Factories

Dr. Reid, after discussing the prominent place which must be given to ignorance on the part of mothers regarding the essentials of infants' diet as one of the factors for the continued high rate of infant mortality, passed on to the question of the marked difference in the infant mortality rate of the northern and southern towns of the county of Stafford. The northern towns in question contained large numbers of married women engaged in factories. He classified the purely artisan towns in the county into three groups: (1) many married women workers; (2) a good number of married women workers; and (3) practically no married women workers He found that the diversity in the infant mortality rate based merely upon the geographical division was intensified, and that there was a very marked gradation in the rate which accorded with the relative proportion of married women workers There had been a general increase in the infant death-rate in recent years and practically the same relative proportion had been maintained in the three groups of towns They had to devise means for wiping out an increase in the infant mortality of nearly 27 per cent. in those artisan towns in which married women were largely engaged in factory labour. Would it be unreasonable to have a condition made in such cases that the child should during the absence of the mother be placed under such care as should afford a reasonable prospect of its wants being provided for? The present law imposed certain restrictions, but those in effect benefited the mother rather than the child. It was illegal for the mother to return to work within one month of her confinement, but it was hardly likely that she would commence suckling her child if she intended to engage in work again after so short a period Dr. Reid suggested that this time limit should be extended to three months because the probability was that the mother in most cases would then suckle her child until she returned to work and thus the most precarious period in the life of the child would be tided over and the chances of subsequent survival would be considerably increased. Dr. Reid concluded by advocating the establishment of *crèches* by local authorities.

Dr. C A. GREAVES (Derby) communicated a memorandum, entitled,

Plumbism Cases in Carriage Works.

Dr. Greaves had reported 60 cases of plumbism in the last three years, of which number 42 cases were in carriage-building works 14 of these were workmen not employed in the paint-shops but working as coach body-makers They used a good deal of paint for coating the parts of the woodwork and some white lead to fill in crevices. A point which he considered of importance was the advisability of clearing the nasal passages by blowing the nose well before meals, as he had found reason to believe that the workmen who had to burn off old paint were liable to take in a good deal of volatilised lead in the fumes and dust which they inhaled Dr. Greaves protested against lemonade being considered a preventive of plumbism; the fallacy arose because a drink containing a dilute sulphuric acid forming an insoluble sulphate of lead had been foolishly called lemonade, whereas real lemonade contained citric acid which was useless, because citrate of lead was fairly soluble. He had seen a few cases of plumbism in brass finishers traceable to the filing of soft brass castings containing as much as 5 per cent. of lead.

Dr. C. R. DRYSDALE (London) contributed a paper on

Lower Birth-rates considered as the Real Cause of Lower Death-rates

Dr. Drysdale quoted statistics to show that the high death-rates of the poorest classes were due to their very high birth-rate, which forced them to crowd into purlieus and exposed them to semi-starvation. He considered himself entitled to say that the real cause of high death-rates in this country were high birth-rates, and that if they really wished to improve the health of the classes at the bottom of society they must in future endeavour to persuade them to have families of not more than four children as a maximum, or, better still, to content themselves with two children or thereabouts until the mortality of the worst-paid classes should fall to 12 per 1000, the present death-rate in well-to-do Hampstead

Dr. A. K CHALMERS (Glasgow) proposed and Dr. G. REID (Stafford) seconded the following motions which were carried —

That this section expresses its satisfaction [illegible] for the Home Department.

That inasmuch as notice has been given of amendment of the pro- [illegible] resolution and to communicate it [illegible] Home Department

The work of the section concluded with the reading of a paper by Mr. P TARGETT ADAMS, late assistant port health officer at Bombay, on

Port Sanitary Administration and the Control of Plague in the Port of Bombay.

Mr. Adams described the methods adopted at Bombay for the preventing of the spreading of plague to ports out of India. No small measure of praise was due to Colonel Macartie and Major J Crimmin, I M.S, V.C., for so far preventing the extension of plague from a city saturated with the infection of plague and in such constant intercommunication with ports all over the world and Europe in particular He believed he was correct in saying that from the port of Bombay plague had rarely been shown to have been imported at all and in no case by means of rats In those few cases in which importation in a sporadic form occurred it had been due to the conveyance of the infective material from Bombay by means of infected clothing or an infected patient Important as the transmission of plague by means of rats and their parasites was it was equally necessary to remember that filthy clothing charged with moisture and organic matter and stuffed into a filthy box in the very warm atmosphere of a forecastle was probably as dangerous and certain a means for the successful importation of plague as the rat and its fleas

The proceedings of the section terminated with a vote of thanks to the President, Mr. Shirley Murphy. In the passing of this vote of thanks Mr. W. C. C. PAKES (London) pointed out that the President had never delegated the chairmanship for one instant during the whole course of the meeting

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PSYCHOLOGICAL MEDICINE.

FRIDAY, AUGUST 2ND

Dr FRANCIS WARNER (London) opened a discussion on

The Diagnosis and Treatment of Feeble minded Children

The Elementary Education (Defective and Epileptic Children) Act of 1899 had directed attention in many quarters to the necessity of provision for the care and training of children of defective brain power The Act was permissive and the children to be provided for were defined as not imbecile and not merely dull or backward but defective—that was to say, children who, by reason of mental or physical defect, were incapable of receiving proper benefit from the instruction in the ordinary public elementary schools, but were not incapable by reason of such defect of receiving benefit from instruction in special classes or schools as were in the Act mentioned, &c. There was great need of a wider knowledge and study of defective children so that the mental physician might be able to afford help to parents and teachers Of the school children between the ages of three and 13 years in England it was estimated that about 1 per cent were feeble-minded In the diagnosis of brain defect they had to look for certain signs—e g, developmental and physiognomical features, nerve-signs or attitudes and movements, the condition of the organs of special sense, and the state of general bodily health In the process of examining and questioning the child some general estimation should also be made of its mental grade. The volume and shape of the head, irregularity and asymmetry of the skull, disproportion between cranial and facial development, defective development of the nares and palate with obstruction of nasal breathing, malformations of the ears, eyes, and mouth, were all significant. In the face expression might be wanting, twitchings of the muscles and "tics" might be conspicuously present, an incapacity for fixation of the eyes and of attention, and a lack of control and coördination in the movements of the hands might be observed. Spontaneity of movement, which was so essentially characteristic of normal children, might be wanting and might be replaced by monotonous grinning, grimaces, athetoid movements, shruggings and swayings of the body, and the like. Emotional re-action to a stimulus might be excessive, as in chorea. It was the coördinated movements seen, first under direction, but later as a self-contained power, that mostly indicated good brain power. As regarded treatment the aim was to remove abnormal nerve-signs and to promote the normal processes of spontaneity and controllability of movements—i.e., to implant modes of action and response which were essential to self-help and social life. Play, games, general activity, and the prevention of loafing encouraged spontaneity and variety in movements and tended also to remove the awkward habits or repetitive "automatic actions" which were frequent among defective children. Imitation of the teacher's movements was most useful in early training, far more so than clay modelling and drawing. Exercises in hand and finger movements cultivated facility for mental action and the appreciation of numbers. Writing should follow as a natural sequel. Eye movements needed training to bring them under such control as was necessary in acts of attention. The cultivation of the muscular sense in estimating the weights, sizes, and shapes of objects, and in comparing and contrasting objects was a point of the highest practical importance Speech and articulation should be taught by close imitation of the teacher's method of producing elementary sounds, and breathing exercises should be practised as an aid to voice-production. The recognition and naming of colours and the reading of time by the clock would often be learnt by practice. Myopia or deafness should be corrected. Obstructions in the nose and throat might be a cause of stupidity.

In the discussion which followed the above paper,

Dr. G. E. SHUTTLEWORTH (Richmond) said that in drawing conclusions too much stress should not be laid on any *single* sign. Regard should be had to physiognomy, developmental features, nerve signs, defects of bodily nutrition, and the manner of response to questions or orders. Idiocy, imbecility, and weak-mindedness were three grades of mental defect which shaded into each other. If marked mental incapacity and faulty habits existed so that the child was regarded as more properly requiring medical care and nursing supervision it was better to certify such a case as imbecile, which would exempt the child from school and help to gain his admission to an asylum for imbeciles, where, in addition to medical care, training suitable to the case would be applied. Defective children of the "Mongol" type were found by experience to be imbecile and incapable of benefiting by instruction, especially as in many such cases marked incapacity for instruction was present though they had imitative tendencies in some degree. Children with inherited syphilis proved unsatisfactory pupils as a rule, and most unsatisfactory of all were children of the morally defective type. Imitation of the teacher was useful, but the teacher should not be fatigued and worn out or he would be a bad model.

Dr. F. M. POPE (Leicester) believed that conversation with the child for a few minutes would afford a more correct estimate of its capacities than the examination of its physical "stigmata" or defects.

Dr. FLETCHER BEACH (London) was of opinion that the arrangements made in London, Leicester, and other towns for the education of feeble-minded children should be extended throughout the country. As regarded moral imbeciles, they were very difficult to deal with. They were unsuitable for schools and should be placed in special institutions, as recommended by Morel of Belgium. If permitted to be at large they propagated illegitimately and produced a vicious criminal and neurotic offspring.

Dr. HENRY ASHBY (Manchester) thought that only the better class of defective children should be sent to special schools, as children on the borderland of imbecility were unsuited.

Dr. LLOYD ANDRIEZEN (London) emphasised the importance of developing the kinæsthetic activities (manual and industrial training), and the excellent results obtained at Elmira and other places in the treatment of young adult criminals and defectives between the ages of 16 years and 30 years by perseverance in this. He cited instances of "tics" and faulty habits being acquired by children imitating their mothers, &c., and was of opinion that special institutions for moral imbeciles and lower grade degenerates were necessary if they were to treat satisfactorily such cases, which were unsuitable in school and dangerous to the community at large if allowed to go about to breed offspring of an insane or mentally or depraved kind.

Dr. EDWIN B. ANGELL (Rochester, New York) referred to the significance of the anatomical stigmata of degeneracy and to their importance when several were present in any child. At Bicêtre, Paris, he had seen remarkable results for good in the long-continued and persevering teaching and training of imbeciles which Dr. Bourneville adopted.

Dr. T. CLAYE SHAW (London) read a paper on

Colitis or Asylum Dysentery.

He contended that only a certain small proportion of cases of colitis were primarily of bacterial origin and that ulceration of the mucous membrane of the intestine was commonly met with in the insane and was a trophic degeneration dependent upon the low nervous vitality of the patient, and that such ulcerations might be comparable to bed sores. The disease known as asylum dysentery seldom affected the medical or nursing staff of asylums. The continued occurrence of colitis in asylums did not imply that sanitation was bad in the wards and buildings where it occurred and cast no discredit on the medical or administrative staff.

In the discussion which followed,

The PRESIDENT (Dr. J. B. SPENCE, Lichfield) asked how the prevalence of colitis in asylums that had only been recently constructed could be explained.

Dr. LLOYD ANDRIEZEN agreed that two factors were possible in the production of ulcerations of the bowels generally in insane patients—namely, infection and trophic degeneration. Colitis, however, was a special form characterised by the presence of blood, mucus, more or less extensive sloughings of the mucous coats of the large bowel, and intense tenesmus.

Dr. EDWIN GOODALL (Carmarthen) believed that while some cases of asylum diarrhœa were not due to dysentery, others were of a specific dysenteric character. He believed that overcrowding was by no means proved to be the cause.

Dr. HARRY CAMPBELL (London) asked whether the eliminations of toxins from the blood into the alimentary canal might not be a cause of ulceration of the mucous membrane of the bowel and whether right-sided colotomy would be advisable.

Dr. J. G. HAVELOCK (Montrose) had seen outbreaks of diarrhœa, but not of colitis, at Montrose Asylum. He thought that the ulcerations and bowel lesions of dysentery were the result of nerve degeneration.

Dr. R. H. STEEN (Chichester) contributed a paper on Modern Plans in Asylums, referring more particularly to such matters as the provision for bathing, dining rooms, and as to the dispositions of the wards, whether they should be aggregated or built in detached blocks on the villa system.

Dr. LLOYD ANDRIEZEN contributed a paper on the Psychology of the Degenerate with remarks on Treatment.

The meeting of the section then closed with a vote of thanks to the President.

PATHOLOGY AND BACTERIOLOGY.

FRIDAY, AUGUST 2ND.

Mr. ALEXANDER G. R. FOULERTON (London) and Mr. W. T. HILLIER (St. Albans) communicated a paper on

The Condition of the Urine in Tuberculous Infection.[1]

Specimens of urine from 25 cases of chronic pulmonary phthisis in the third stage had been examined, the presence of bacillus tuberculosis in the sputum being verified in each case. Six chemical examinations were made of the daily secretion in each case. Albumin was absent in 16, present in small indefinite quantities in eight, and present as more than a trace in one The albuminuria in the eight cases in which traces only were found was irregular in its occurrence, not being constantly present in any of them Accurate estimations of the urea excretion were made in eight cases, and the daily amount was found to vary within wide limits in different cases, the authors had not been able as yet to correlate excess or deficiency in the daily urea excretion with any clinical conditions in these cases The urine had been tested for the diazo reaction in every case and the reaction was obtained in four out of 12 cases in which the patients had died whilst still under observation, and in three out of 13 cases in which the patients were discharged from hospital alive As in the case of the albuminuria, the obtaining of the diazo reaction was not constant in any of the seven cases, being in evidence on one day and not on another Generally this reaction appeared to be more frequently obtained in chronic pulmonary phthisis the nearer the case was to a fatal termination, their results in this respect confirming what had been stated by Penzold, Petri and others as to the occurrence of this reaction, indicating an actively progressing stage of the disease A bacteriological examination was made of six samples of the daily secretion from each case, 200 cubic centimetres of each sample being centrifugated for 20 minutes, and cover glass specimens, six from the sediment of each 200 cubic centimetres, being stained and examined for bacillus tuberculosis In only one case was the specific bacillus found by this microscopical examination and that case was the only one in which tuberculosis of the kidney itself was found after death In 18 of the 25 cases the urine was tested by the inoculation of guinea pigs, two animals being inoculated from the sediment of one or more samples from each case The results of the inoculations were as follows Of eight fatal cases which were examined post mortem inoculation of the urine was followed by tuberculous infection in the guinea pig in six whilst of 10 cases in which the patients were still alive when last heard of the urine infected the guinea pig in three In the one case in which tubercle bacilli were found microscopically in the urine tuberculous nodules were found in the kidney after death But in this case the animal inoculations failed from early death of the guinea pigs. Thus, of 18 cases of pulmonary phthisis in which there was no reason to believe that there was any local tuberculous infection of the kidney and in eight of which post mortem examination showed that in fact there was not any, the presence of bacillus tuberculosis in the urine was proved by the inoculation of guinea pigs in nine, or just 50 per cent. At the same time the results of the animal inoculations showed that in most of the cases the bacilli were present in very small quantities indeed in some instances one out of a pair of guinea pigs inoculated from the same specimen of sediment escaping infection Also the probability of finding the bacilli by inoculation increased as the case came towards the end Other experiments bearing on the possible toxicity of the urine in these cases were carried out.

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[1] Towards the expenses of this research a grant was made by the British Medical Association on the recommendation of the Scientific Grants Committee of the Association.

Dr C J N Longridge (London) read a paper on

Focal Necroses of the Liver

The occurrence of small areas of altered or degenerated cells in the liver in cases of typhoid fever were quoted as examples of local necrosis, the causation of the lesions by the action of toxins rather than by the direct action of the bacilli themselves was considered, and the possible relation of this focal necrosis to cirrhosis of the liver was discussed. The changes found in the liver in cases of puerperal eclampsia were then dealt with and the supposed antitoxic functions of the gland were referred to Duodenal ulceration at a point on the walls [illegible] of the bile-duct was Dr Longridge [illegible] irritation of toxins which were [illegible] These cases of focal necrosis [illegible] the action of toxins on a gland which was in the process of eliminating them. As examples of similar destruction of a tissue which was in the act of eliminating toxins Dr Longridge quoted ulceration of the intestine in albuminuria and duodenal ulceration in cases of extensive burns

In the discussion which followed the reading of Dr Longridge's paper the President (Dr J W Washbourn) said that the multiplication of bacilli in the tissues after death had perhaps led to an exaggerated idea of their influence in producing focal necrosis. He himself agreed with Dr Longridge that such lesions were more frequently the result of a general toxæmia affecting special tissues Ulceration of the large intestine in those who had taken quantities of mercury was perhaps the result of the elimination of the poison by the glands of the intestines He thought that cirrhosis of the liver might in some cases result from a fibrosis following infective neuroses

Dr W S Lazarus-Barlow (London) doubted the frequency at the present day of duodenal ulceration in cases of burns He had not himself met with such cases, but still there were undoubted specimens in museums illustrating the condition He then referred to the bacterial causation of cirrhosis and to the pathology of albuminuric ulceration of the intestine

Mr A G R Foulerton thought that the direct action of bacteria in producing these focal necroses could not be ignored in every case Such foci might be found crowded with bacteria in specimens prepared from the livers of experimental animals when the tissues had been put in alcohol immediately after death and there had been no opportunity for post-mortem multiplication of the organisms, then, too he thought that Hektoen's work on bacterial cirrhosis of the liver clearly showed that a bacterial necrosis did actually occur sometimes

Dr A S Grunbaum (London) thought that duodenal ulceration in cases of burn was due to toxins which were being eliminated; the fact that such ulceration was rarely observed at the present time was probably due to improved antiseptic treatment of such cases

Dr Longridge then replied.

Dr Lazarus Barlow read a paper on

Typhoid Fever without Intestinal Lesions

The number of cases in which typhoid fever without intestinal lesions had been recorded was exceedingly small probably not more than 20 in all and of these 20 cases the absolute scientific proof by isolation of the specific bacillus had probably not been afforded in more than six. During recent years the specific agglutination test had given them an additional method of diagnosis in these cases The case which Dr Lazarus Barlow now referred to more particularly was that of a child, aged 13 months, who died in the Westminster Hospital The patient was one of a family of seven individuals living in one house of whom six were attacked by typhoid fever All six patients including the child gave a definite Widal's reaction and the clinical symptoms of typhoid fever were generally well marked in all The patient now referred to died on the twenty fifth day of his illness His serum on the seventeenth day had given an agglutinative reaction with the typhoid bacillus with a dilution of 1 in 50 immediately and of 1 in 100 within 25 minutes. There were 'rose spots' diarrhœa, bronchitis and abdominal distension, the spleen could not be felt The post mortem examination was made within 12 hours, there were found bronchitis, broncho pneumonia, and pulmonary collapse, the spleen was firm and somewhat enlarged There was no other macroscopical evidence of disease the intestinal mucous membrane was normal in every respect From the spleen cultures of bacilli of the bacillus coli communis type and also bacillus typhosus were isolated The specific bacillus isolated was submitted to the usual culture tests and its identity was proved With the serum of a horse artificially immunised against typhoid infection the organism gave a good agglutinative reaction a dilution of 1 in 200 being used

The President referred to a case in a child under his care which had run a very similar course and in which no lesions had been found in the intestines after death, with the use of Widal's reaction such cases would now probably be more frequently diagnosed than formerly

Dr J H Bryant (London) also referred to the President's case and gave particulars as to the bacteriological diagnosis

Professor Michell Clarke (Bristol) referred to two cases of typhoid fever in which ulceration of the large intestine only was present

Dr Lazarus Barlow in his reply suggested the possibility of some of the cases of summer diarrhœa in children being really slight cases of typhoid fever

A paper by Mr A W Nuthall (Southsea) and Dr W. Hunter (London) on

The Bacteriology of Cerebro-spinal Meningitis

was read in the absence of the authors A series including 10 cases, nine in children and one in an adult, in which lumbar puncture had been performed, were examined bacteriologically. From each of these cases a diplococcus had been isolated which presented certain morphological and biological characteristics. The diplococci isolated from the 10 cases fell into two types, A and B. In the former type the staining by Gram's method was indefinite and usually negative; in type B the stain gave a positive result. There were also differences in the growth of the two types on various media used. In no case did experimental inoculation of mice, guinea-pigs, or rabbits give a positive result. The diplococcus was isolated in pure culture in four only of the 10 cases. The conclusions to which the authors had come were: (1) in 10 cases of meningitis a diplococcus was isolated from the cerebro-spinal fluid obtained by lumbar puncture during life; (2) this diplococcus agreed in its morphological and biological characteristics with the diplococcus intracellularis meningitidis of Weichselbaum; (3) the diplococcus occurred in two slightly different forms, types A and B; (4) in some cases the diplococcus was present in pure culture and in others associated with other organisms—e.g., bacillus influenzæ and bacillus tuberculosis; (5) the clinical picture and pathological changes found in these cases were those met with in posterior basal meningitis; (6) in all probability posterior basal meningitis was a sporadic form of cerebro-spinal meningitis and was caused by the same micro-organism, the diplococcus intracellularis of Weichselbaum; and (7) in the majority of the cases it was impossible from the clinical aspect alone to make a correct diagnosis of the variety of meningitis present.

The President spoke as to the confusion which existed with regard to the different types of cerebro-spinal meningitis. As regarded the pathogenicity of the organism described by Mr. Nuthall and Dr. Hunter he had himself tested the coccus which Still had isolated from cases of posterior basic meningitis and had found that it killed guinea-pigs on intraperitoneal injection.

Mr. Foulerton thought that Mr. Nuthall and Dr. Hunter had been working with two distinct species of coccus and not with merely different types of the same species. It was quite certain that diplococcus intracellularis meningitidis as described by Weichselbaum, and by Councilmann, Mallory, and Wright in their recent monograph, did not stain by Gram's method. He had found that this latter organism was uncertain in its growth on ordinary media. If it grew at all it usually grew fairly freely, but sometimes no growth would occur on one or two tubes out of a series inoculated at the same time; also the results of animal inoculation were very uncertain, some animals dying out of a series whilst others survived. He agreed that the organism described by Still in cases of posterior basic meningitis was diplococcus intracellularis meningitidis of Weichselbaum, but Dr. Hunter and Mr. Nuthall had clearly come across some other species, perhaps the pneumococcus, in their series of cases.

Dr. F. J. Poynton (London) had found great difficulty sometimes in differentiating various species of cocci. He thought that Gram's method of staining did not give constant results.

Mr. W. C. C. Pakes (London) also thought that Gram's method of staining was not always reliable. He thought that Mr. Nuthall and Dr. Hunter had been dealing with two different species, possibly the pneumococcus and the diplococcus intracellularis meningitidis.

Dr. A. Paine (London) said that his experience of Gram's method of staining as a means of differentiating organisms was not altogether favourable. He thought that the results were not always constant.

Mr. Foulerton said that he could not agree that Gram's method of staining gave inconstant results if the method was used in the proper way. The method was founded on a chemical reaction, and chemical reactions did not vary. Of course, in old cultures some of the organisms sometimes lost in a greater or less degree capacity for holding the stain which they had once possessed. But if the method was carried out as a chemical reaction should be, that was to say, with careful regard to the constant composition of the stain, and if the staining was always carried out with fresh cultures under exactly the same time and other conditions, it was absolutely reliable. Diplococcus intracellularis meningitidis was an organism which was very readily decolourised when treated by Gram's method, and he could not allow that the coccus described as type B by Mr. Nuthall and Dr. Hunter which stained by Gram's method was the organism known by that name.

Dr. Rist (Paris) spoke in favour of Gram's method of staining, which was, he thought, one of the most useful methods of bacteriological diagnosis. The positive or negative Gram reaction was absolutely constant for some species, and characteristic of them, provided that the technical details were carefully observed. There were some species which behaved inconstantly with this method of staining, but this very inconstancy was a characteristic feature of these species. Dr. Rist had been working more especially with anaerobic species, and with them had found the method most useful; he would go further and would say that in some species Gram's staining reaction was an absolutely vital reaction. For instance, in the case of the bacillus of phlegmonous emphysema described by Fraenkel if the specimen was prepared from a culture in active growth the organisms stained deeply by the method, but if a culture in which the organism had died out was used the bacilli remained absolutely unstained.

Dr. Lazarus-Barlow placed absolute reliance on Gram's method, but it must be carefully carried out and a fixed limit of time allotted to each stage of the method. In order to test the method with bacillus diphtheriæ he had recently, after staining a cover-glass specimen, irrigated it with absolute alcohol for two hours, and at the end of that time the bacilli still retained the stain. With regard to Mr. Nuthall's and Dr. Hunter's paper, his own cases showed that a meningitis precisely similar, both clinically and in the morbid changes produced, to the posterior basic meningitis described by Still could be produced by the pneumococcus; diplococcus intracellularis meningitidis of Weichselbaum was not, therefore, the only cause of this condition.

Dr. F. J. Poynton and Dr. A. Paine communicated a paper on

The Present Position of the Bacteriology of Rheumatic Fever.

The authors gave a full account of what had been done by others in connexion with the bacteriology of rheumatic fever and described the coccus which they had themselves isolated. Its pathogenic effects on rabbits were referred to and especially the production of arthritis and endocarditis with vegetations on the valves. The coccus in cases of rheumatic fever was found in the capsule of the joints affected, in the heart wall, and on the affected valves. In the history of rheumatic fever heredity took such a prominent place and the rheumatic constitution was so clearly recognised that it was hard to escape from the conviction that the disease was not to be explained by the presence and nature of the micro-organisms alone. In addition there was, they thought, to be taken into account some particular condition of the human tissues predisposing to the disease. The authors hoped that in time an antitoxin for rheumatic fever might be discovered, but their own researches at present pointed to the fact that the diplococcus was widely distributed throughout the body, and not confined to one spot, as was usually the case in, for instance, diphtheria. At the end of the paper lantern slides illustrating the pathology of rheumatic fever were shown, and Dr. Paine demonstrated the joint and valve lesions which they had been able to produce in rabbits.

The President commented on the value of Dr. Poynton's and Dr. Paine's work. He assumed that an absolute diagnosis of rheumatic fever had been arrived at clinically in all the human cases. He raised this question because of the large number of cases which Dr. Poynton and Dr. Paine had been able to examine post mortem; his own experience was that rheumatic fever was now very much less fatal than in former times.

Mr. Foulerton asked in what proportion of the cases vegetations had been found on the valves in the rabbits inoculated. Shortly after the first appearance of Dr. Poynton's and Dr. Paine's work the hearts of all rabbits killed or dying in his own laboratory had been examined, and they had been much struck by the fact that two out of the first nine animals examined showed well-marked vegetations on the left heart valve. It was evident that such lesions occurred in rabbits quite independently of inoculation with this coccus. Mr. Foulerton did not think that Achalme's conclusions were of any value; the bacillus which Achalme had isolated from cases of rheumatic fever was probably bacillus enteritidis sporogenes of Klein, and it was most improbable that it had any causative influence in the disease. He also asked whether Dr. Poynton and Dr. Paine had been able to immunise rabbits against infection by their coccus. Rheumatic fever was a disease in which a previous attack seemed to predispose to another rather than to confer any immunity. That being so the effect of the attempted immunisation of rabbits might be interesting.

Dr RIST said that since the appearance of Achalme's paper it had been shown that the bacillus which he had described was very frequently to be found in a number of cases, pathological or not in which rheumatic fever was out of the question The spores of this bacillus were to be found in milk which, not having been thoroughly sterilised, had been incubated anaerobically, and it might be that from this source Achalme's bacillus had come In describing for the first time an organism for a disease which like rheumatic fever, was so common, and the bacteriology of which had been investigated by so many competent pathologists, it was most necessary to explain why previous workers had failed to find the organism. In the case of tuberculosis the failure of others before Koch to find the bacillus was quite easily explained by what they now knew of the difficulty in staining the bacillus and in growing it on artificial media. These difficulties did not exist in the case of the diplococcus which Dr Poynton and Dr Paine had described for rheumatic fever, and he would like to ask if any explanation of the failure of other bacteriologists to find it could be given

Dr HARRY CAMPBELL (London) asked whether the diplococcus had any special affinity for the red corpuscles of the blood and whether one could account for the anæmia which was so characteristic of rheumatic fever by assuming that the chromocytes were actually destroyed by the organisms He also asked whether the experimental endocarditis produced in rabbits attacked the left side of the heart more frequently than the right, as in man

Mr T J BOKENHAM (London) could confirm what Mr Foulerton had said as to the occurrence of vegetations on the heart valves in rabbits When investigating the action of streptococcic toxins on rabbits Mr Bokenham had carefully examined the heart in a large number of cases and had found vegetations on the valves in about one animal in 10

Dr POYNTON in replying, said that they had met with Achalme's bacillus in the course of their work, but they thought that it had no connexion with the disease After some early experiences they had always incubated their milk tubes anaerobically over night before inoculating them in order to ensure the use of only sterile ones One reason perhaps, why previous workers had not found the diplococcus was that the organism was found chiefly in the capsule in joint affections and not in the effusion which was what the majority had worked with No special affinity of the diplococcus for the red blood cells had been noticed No definite success in the immunisation of rabbits had yet been obtained All the human cases in which the coccus had been found were cases which had been diagnosed as rheumatic by the various physicians in charge of them

Dr G H GOLDSMITH (Bedford) read a paper on

The Hæmoglobin Value of the Red Blood Corpuscle

The amount of hæmoglobin in the blood might be estimated quantitatively by several methods (1) chemically, (2) by spectrometry, and (3) by colorimetric analysis, and the various objections against any one of the methods by itself were considered The method which Dr Goldsmith had employed included (1) the estimation of the hæmoglobin value of the blood by Gowers's hæmoglobinometer (2) the corpuscular count with the Thoma Zeiss apparatus, (3) the estimation of the percentage of corpuscles to plasma, (4) the count of the precipitated corpuscles, and (5) the estimation of the hæmoglobin value of the corpuscles Having described his methods in detail Dr Goldsmith gave the result of his examination of the blood in 18 males and 15 females, all healthy subjects The hæmoglobin value of the blood was 117 in men and 105 in women, taking 117 as 100 the respective values for the two sexes were 100 and 89 7 figures which closely corresponded with Dr Haldane's 100 and 89 for the male and female. With regard to the red cell count the figures which he had obtained were an average of 4 860 000 per cubic millimetre for the healthy male and 4 350 000 for the healthy female The average relation of corpuscles to plasma by bulk was 37 per cent for the healthy male and 30·25 per cent for the healthy female The count of the precipitated corpuscles, even in healthy people varied, however, enormously from time to time His investigations had shown that the male had a larger number of red cells than the female, whilst the hæmoglobin value of the corpuscles was less in the female than in the male and the size of the individual corpuscles rather smaller

The PRESIDENT paid a compliment to the thorough way in which Dr Goldsmith's work had been carried out, and Dr LAZARUS-BARLOW pointed out the great difficulties which had to be overcome before accurate quantitative blood work could be done He also spoke of the value and clinical importance of similar work in connexion with cases of anæmia in which Dr Goldsmith was now engaged

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OPHTHALMOLOGY

FRIDAY, AUGUST 2ND

The Varieties and Treatment of After cataract

This discussion was opened by Mr RICHARDSON CROSS (Bristol) who said that there were no known means by which after cataract could be absolutely prevented. He did not advise any early secondary operation as it was uncertain how much absorption would take place and the eye should be allowed to quiet down completely For ordinary cases a modified Bowman's needle with a cutting edge should be employed and if this failed a second cutting needle should be entered at the same aperture in the capsule In complicated cases capsule scissors should be used A form of iridectomy scissors had been made on De Wecker's plan, but with blades having double cutting edges These could be used closed as a keratome and as scissors when opened within the eye A still thicker capsule should be extracted, but only as a last resort

The PRESIDENT (Mr W H H JESSOP, London) considered a very sharp and ground down Graefe's knife far better than a needle and he thought that a simple extraction without iridectomy was less liable to be followed by secondary cataract

Dr DARIER (Paris) thought that the one thing to be avoided was penetrating deeply into the vitreous

Mr HENRY POWER (London) described various methods of proceeding and thought that the danger of operating in these cases was very great and should only be incurred when the vision was very defective

Mr DEVEREUX MARSHALL (London) was fully convinced of the danger of needling and he avoided it whenever he could, but he thought that when it was inevitable it should be done early

Dr LATHAM THOMPSON (Cardiff) Mr DYKES BOWER [illegible] PSON (London) Mr G W [illegible] CHILL (London) and Mr G [illegible]

Mr RICHARDSON CROSS in reply said that in simple extraction he thought it far more important thoroughly to replace the iris than completely to remove all lens matter He thought that if no iridectomy were done the liability to glaucoma was far less—in fact he had never had a case He thought that the needle described by Dr Darier was a very good one Sepsis was not accountable for all the cases that did badly He always inserted the needle peripherally All cases should be treated on their own merits and there was no fixed rule as to what state of vision justified needling

Dr F W EDRIDGE GREEN (London) read a paper on

The Essentials of a Test for Colour blindness

He strongly advocated the use of names when trying and mentioned the fact that many normal sighted persons were rejected by Holmgren's test and also that varieties of colour blind people could pass that test

Mr DEVEREUX MARSHALL agreed with Dr Edridge Green's conclusions, having arrived at similar results from his own experience

Mr G HARTRIDGE read a paper on

The Various Preparations of Silver used in Ophthalmic Work

Nitrate of silver should only be applied by skilled hands on account of its liability to injure the cornea; the caustic effect might cause sloughing and cicatrices and also a deposit of silver in the tissue Among the new preparations he mentioned actol the lactate which he found to be of no use and itrol the citrate Argentarium containing a very small percentage of silver was of no particular value Nargol with 10 per cent of silver possessed many of the properties of protargol It was less sticky and produced no pain and was of service in conjunctivitis and lacrymal cases Largin contained 11 8 per cent of silver the highest percentage in use It was uncertain in its effect on purulent ophthalmia and useless in chronic cases but useful in trachoma and lacrymal cases in 10 per cent solution Protargol was one of the best known preparations containing 8 3 per cent of silver A 1 per cent. solution was equivalent to 2 per cent. of nitrate of silver and possessed greater penetrating power; there was no caustic effect and it induced no pain. He used 10, 20, and 30 per cent. solutions—the last twice in 24 hours for purulent ophthalmia. It possessed great germicidal power. For trachoma he used a 50 per cent. solution.

Dr. **Darier** thought that in many cases silver nitrate had a very bad effect. In feeble children a 2 per cent. solution might do much harm and possibly might cause ulceration of the cornea. He preferred the constant application of a drop of 5 per cent. protargol in ophthalmia neonatorum. After a few days the conjunctiva became tolerant and then silver nitrate solution could be used. In blepharitis he approved of 30 per cent. solution of protargal.

Dr. J. A. **Bower** (Cheltenham) read a paper on

The Use of Suprarenal Gland in Ophthalmology,

which proved very satisfactory when prepared by macerating the fresh gland and combining it with chloretone for preserving purposes. It was of great value in hay-fever with conjunctival irritation, both as a nasal spray and as a local application. From 12 grains to one drachm was the strength used. In corneal ulceration it was harmful.

Dr. **Darier** read a paper on

The Latest Therapeutical Discoveries in Ophthalmology—Acoine, Dionine, Epinephrine, &c.

Of the silver salts protargol was the most reliable, though ten times weaker than silver nitrate. For subconjunctival injections acoine was painless and without local action, but a prompt anæsthetic. Dionine was effectual in iritis when atropine failed to dilate the pupil alone. It was also an antiseptic and analgesic, and acted powerfully in the deep-seated pain which cocaine failed to relieve and in that of acute glaucoma and iritis.

Mr. F. M. **Granger** (Chester) thought that no one could deny the great power of suprarenal capsule. Jacques's solution was the best and contained both a contracting and dilating substance. Dionine was a very useful drug for diagnostic purposes.

Dr. E. E. **Maddox** (Bournemouth) agreed. He was struck with the value of suprarenal extract in preventing hæmorrhage in excision of the eye.

Mr. **Sydney Stephenson** (London) and Dr. **George Carpenter** (London) read a

Note upon Tuberculosis of the Choroid,

illustrated by ophthalmic pictures and microscopical specimens. White spots were seen in acute miliary tubercle, in multiple lesions two or three, less frequently there was one larger mass at the macula. In chronic tuberculosis the lesions might be single or multiple, and sometimes so diffuse as to resemble a neoplasm. Occasionally the deposit disappereed.

The **President** spoke of one such case as that last mentioned.

Mr. H. E. **Jones** (Liverpool) read his motion concerning the compensation of workmen after eye injuries, which was seconded by Mr. **Henry Power**.

On the motion of Mr. **Cargill**, seconded by Mr. **Stephenson**, this was referred to a committee.

DISEASES OF CHILDREN.

Friday, August 2nd.

This section began work (all its officials being present) with an admirably clear and succinct paper by Mr. H. J. **Stiles** (Edinburgh) on

The Radical Cure of Hernia in Infants and Young Children.

This was based on his own experience of 100 cases. He referred to the discussion in the section on the same subject at the Portsmouth meeting when it appeared to be the general opinion that there were practically no risks in these operations, no recurrence (as a general rule), and no apparatus needed afterwards. He did not agree with the opinion that a young child had not the necessary development of the parts about the internal and external ring for operation. and he considered that infants bore operation very well. The operation consisted in isolating and removing the funicular process and in introducing one or two sutures to reduce the size of the ring and to lessen the liability to hernia in after-life. These herniæ were chiefly right-sided. Nineteen were present at birth, and 83 per cent. appeared in the first year of life. Out of 78 patients 72 did not have the sac communicatin with the processus vaginalis. The steps of the operatio were three—to expose the cord and its coverings, to excis and to ligature the process, and to suture the ring and to clos the wound. After referring to the isolation of the sac h said that where this was thin and transparent he though it unnecessary to open the sac, as the contents could be see and felt through the covering. Where, however, a truss ha been worn the sac might be considerably thickened, and i would be wise to open the sac so as to be sure tha the bowel had been all returned. He exhibited the needl which he used for suturing the ring, which he did wit sterilised catgut. In 86 cases the hernia was easil reducible. In seven cases it was irreducible, but o these four were spontaneously reduced. In one cas evidently the bowel had got much bruised by taxis applie before the child was admitted. It was therefore wise t wait (unless, of course, any urgent symptoms were present and to see if any irritation was likely to come from taxi where that had been tried. Strangulation had taken plac chiefly in infants, but it was quite a different thing from tha in adults as it was a very gradual process. In four cases th appendix was removed; in three cases the sac was found t be tuberculous, and under the anæsthetic the mesenter glands were felt to to be enlarged. Two cases only ha recurred; one where the bowel was strangulated and on a case of hypospadias. There were three deaths—one as mentioned above, where the bowel was much bruised b the taxis; a second 36 hours after the operation (no caus could be found post mortem, but there was an epidemic o influenza at the time); and a third with acute jaundice an suppression of urine on the third day, probably due t chloroform poisoning.

Mr. W. **McAdam Eccles** (London) dealt with the cause of hernia. Besides the anatomical cause he considered ba feeding (as was insisted upon in Wednesday's discussion o Intussusception) and pulmonary disease, whooping-cough and bronchitis especially as great causes of hernia in children. The relation of phimosis to hernia had been discussed at th Portsmouth meeting, where it was pronounced to be better no to operate in the first year of life (if no urgent reason wa present for so doing). What were they to do with the chil in the meanwhile? A properly made and fitted truss shoul be worn during the first year; it would frequently cure the hernia (more than half the cases were so cured), or at all events would prevent the enlargement of the rupture, which was sure to happen if no truss was worn. The truss should be covered with black rubber (red rubber was very apt to excoriate the skin) and if properly put on would keep in its place. He had two objections to the use of sutures for the mouth of the sac—that they seemed to interfere with the valve-like action of the lower fibres of the ring and that when sutures were introduced there appeared to be a little more tendency to suppuration. When suppuration had occurred sometimes adhesion of scar and intestine took place. He would always open the sac; occasionally a bit of omentum might be left in it, and once he had found a projecting portion of the bladder therein. He preferred silk for tying the sac In cases of cæcal hernia he always removed the appendix. He suggested that cases of tuberculous sac might be due to tubercle of the peritoneum. He sutured the wound very closely and covered it with collodion dressing. He kept the children in bed for about 10 days. He agreed with Dr Stiles that infants and children were operated on with great success.

Mr. C. F. **Cuthbert** (Gloucester) discussed several points of the paper and made the useful suggestion (which he himself always adopted) of keeping the child bandaged up (exactly as would be done afterwards) for a few days *before* the operation.

Dr. E. **Mansel Sympson** (Lincoln) always had the phimosis which so frequently accompanied hernia in infants operated on at once. This often (with, no doubt, the rest in bed and proper dieting) caused the hernia to disappear or, at all events, lessened it.

Dr. **Ferguson** (Chicago) did not operate in these cases (unless the hernia was very large or strangulated) until the child began to walk, till which time a truss was worn. He attributed part of the causation of hernia, more especially in males, to a deficiency of the region of the internal oblique muscle from Poupart's ligament. In females this came more from the middle and inner portion of the ligament; in males chiefly from the outer half. The internal oblique should be the the natural guardian of the internal ring.

So, after having operated, he brought the attachment of the muscle down to the middle of Poupart's ligament and united it with the ligament." This part of the operation he explained on the blackboard. He was questioned as to any recurrence, and he mentioned that he offered 10 dollars for any case of recurrence; years had gone by, but he hadn't had to pay. One patient came back, but the rupture was on the opposite side.

The PRESIDENT (Mr FREDERIC EVE) considered that Mr. Stiles's practical paper would have a great influence on surgeons in this country who, like most of them, were impressed with British statistics. He agreed with all the important points in the paper. He would never hesitate to operate on a child under one year of age if the hernia was large. He usually slit up the aponeurosis of the external oblique so as to tie up the sac as high up as possible. He did use kangaroo tendon, but now he preferred silk. He agreed that recurrence took place only in cases wherein strangulation had occurred previously to operation originally.

Mr. STILES considered that pulmonary trouble was among the chief causes of hernia, as mentioned by Mr. Eccles. He thought that worsted trusses were absolutely unsatisfactory. His objection to silk was that if the wound did become septic it made the condition of the wound so much worse. There was not nearly so much risk of this if catgut was used. He found that the temperature in his cases was lowered since he had abandoned the use of antiseptics and only used sterilised dressings. He had generally found that there was rather a redundancy of the internal oblique than any deficiency.

Dr. WILLIAM EWART (London) then read a paper by himself and Dr. W. LEE DICKINSON (London) on

Two Cases of Chronic Hydrocephalus in Infants treated by Tapping and the Introduction of Aseptic Air in the Place of the Fluid.

He described the method of operating, two Southey's tubes with rubber continuations being introduced into the ventricle a little distance apart, the end of one being passed into an antiseptic solution and the end of the second fitting on the nozzle of a glass syringe devoid of its piston which after sterilisation had its mouth plugged with sterilised wool. The tubes were allowed to stay in for various lengths of time, from seven hours to two days, and varying quantities of fluid escaped, from 18 to 50 ounces, its specific gravity, low at first (1004) increasing after the first two or three tappings to about 1011. The first case treated improved in several points, the hydrocephalic cry altered in character, and the pressure symptoms were relieved. In the second case the tubes were left in for nine hours, and six and a half ounces were removed. The screaming stopped and the fluid did not re-accumulate. These cases showed that the fluid might be [illegible] air properly filtered might take [illegible] might suffice, and that in cases [illegible] ssure on the brain was much relieved.

The paper was discussed by Dr. G. ERIC PRITCHARD (London), Mr. ECCLES, and Mr. STILES, and Dr. EWART briefly replied.

Dr. F. E. BATTEN (London) then contributed a paper on

Suppurative Pericarditis in Children.

He commented on six cases in patients of various ages, from 10 months to three years. In two cases it commenced after measles and in the rest after bronchitis or pneumonia. There was no very definite feature in the temperature. The pulse was rapid, from 150 to 160 per minute, with surprisingly little distress. There were in some cases œdema of the legs and feet and attacks of cyanosis. The impulse-beat was in the ordinary position, or epigastric. There was no heart murmur or pericardial friction. There were marked physical signs in the lungs of consolidation or pleural effusion. Both pleuræ were adherent in all the cases, with some fluid, and in one dried-up pus. In one case there was evidence of tubercle. Inside the pericardium there were from a few drachms to six ounces of pus. There was no endocarditis. One patient had tuberculous peritonitis and another had tuberculous meningitis. The condition of these cases was very like that of children suffering from empyema. As to treatment it would be better not to use an exploring needle, but to open an intercostal space or to resect a rib to get at the pericardium.

Dr. MANSEL SYMPSON then exhibited the stone (weighing 200 grains) and read the notes of a case of

Suprapubic Lithotomy

in a boy 11 years of age. The symptoms had lasted about five years, there being pain before and during micturition which was of great frequency, especially at night. On Oct. 30th, 1900, the bladder having been sounded five days before and a stone having been found, suprapubic lithotomy was performed. The stone, which was two inches long by half an inch thick, was extracted and the bladder opening was sutured (the mucous coat being avoided). This was done as the bladder was so small, the skin wound being left *open at the lower end with a gauze drain. The after-history* was quite uneventful, and the patient was discharged cured on Dec. 3rd.

Dr. PRITCHARD then read an exhaustive and valuable paper on the Over-feeding of Infants, which was afterwards discussed by Dr. H. CAMPBELL (London).

Papers by Dr. G. F. STILL (London) on Suppurative Pericarditis in Children and by Dr. A. H. BAMPTON (Ilkley) on Mumps associated with Endocarditis were taken as read.

Dr. A. G. FOLJAMBE FORSTER (Cheltenham) then showed a temperature chart of Acute Pneumonia with Hyperpyrexia treated with oxygen from the first, to which he considered the child owed its life; a well-marked case of Pseudo-hypotrophic Paralysis; a very interesting case of Transposition of the Heart to the Right (the apex beat being at the right nipple) from Right-sided Empyema; and a case of Diplegia following an attack of convulsive fits, measles, pneumonia, and meningitis.

LARYNGOLOGY AND OTOLOGY.

FRIDAY, AUGUST 2ND.

Dr. WATSON WILLIAMS (Bristol) gave a lantern demonstration with stereoscopic slides of Anatomical Preparations of the Naso-pharynx and Larynx. He illustrated the remarkably realistic effects that could be obtained by this method and its value for purposes of teaching and demonstrations.

Dr. HEMINGTON PEGLER (London) read a paper on

Morcellement of the Tonsils.

Instruments used in the operation were shown. The operation was suitable for cases which could not be dealt with in the ordinary way by the tonsillotome and could be performed under a local anæsthetic.

In the discussion which followed

Dr. BROWN KELLY (Glasgow) spoke in favour of cocaine or eucaine in a solution of rectified spirit and aniline oil, as recommended by Dr. A. Gray, as an efficient local anæsthetic for the operation.

Dr. JOBSON HORNE (London) inquired whether Dr. Kelly in his experience *had met with the untoward symptoms* described by some who had used cocaine and eucaine mixed with aniline oil

Dr. BROWN KELLY said that he had observed cyanosis following the use of this anæsthetic, but he had not met with the alarming symptoms that others had described.

Dr. HERBERT TILLEY (London) considered the operation that had been *described under the term "morcellement"* was suitable only for the removal of long, flat tonsils and was not intended for cases suitable for the guillotine.

Mr. G. P. FIELD (London) read the notes of the following cases of

Aural Disease from South Africa.

Case 1.—*Lieutenant* —— was wounded in the Boer war by a splinter of shell which had passed through the antrum and palate; he had sustained injury to the right membrana tympani from the same cause The cure of the otorrhœa and the healing of the membrane resulted in the restoration of hearing. Case 2.—A trooper, a New Zealander, sought advice on account of double perforation due to combined starvation and exposure at nights during the Boer war. *He was cured by* application of a 10 per cent solution of trichloracetic acid. Case 3.—The patient, another sufferer from the war, was kicked on the right side of the head by a stampeding horse. The result was incurable deafness of the left ear, probably from damage to the labyrinth Case 4.—A major became deaf from concussion of heavy guns The treatment was as follows: rest to the ear, counter-irritation over the mastoids, and iodide of potassium internally. Nearly complete recovery was the result. Cases 5 and 6 were instance of chronic non-suppurative catarrh and polypus respectively from a prolonged exposure to cold rainy weather in Zululand Successful treatment was carried out after the lapse of three years. Case 7.—The patient suffered from absolute deafness with tinnitus and giddiness developed about nine months after contraction of syphilis. Treatment consisted of hypodermic injection of one-eighth grain doses of pilocarpin. The result was negative at first, but eventually complete restoration of hearing of the left ear and general improvement in health followed. Cases 8 to 12 —Aural exostoses. These, in the speaker's experience, were best treated by making a small opening with the dentist's drill. A sequence of cases afforded confirmation of Mr. Field's original opinion as to the frequent causation of exostoses by persistent sea-bathing. In one instance, at least, double exostoses appeared to have originated in irritation due to the use of the binaural stethoscope. Case 10 afforded an example of the risk of formation of abscess attendant on delay in operation. Case 12 was an instance of the comparatively soft exostoses met with chiefly in women. A main feature in all these cases was the good results accruing from the drilling of an opening of small calibre through the apices of the ivory exostoses.

Dr. Herbert Tilley reported a case of

Chronic Mastoid Antrum Suppuration Complicated by Aural Exostosis.

The patient was a female, aged 65 years, and the suppuration had lasted for 40 years. The supervention of pain in and around the right ear with paralysis of the face on the same side necessitated the complete mastoid operation. The meatus was so narrowed that it would not admit the finest probe. The interest of the case lay in the fact that in spite of a large portion of the concha and posterior meatal wall having been removed at the operation the meatus had contracted since the operation so that only an ordinary surgical probe could be passed through it. Ballance had suggested that such post-operative atresia might be prevented by skin-grafting, but the patient being a great sufferer from angina pectoris it was thought unwise to suggest such a course in her case, as she remained very comfortable and the power over the facial muscles was returning nearly five months after the operation.

Dr. Dundas Grant (London) communicated a paper on

Some Details in Eustachian Catheterisation.

A difficulty which had baffled an operator was the steering of the catheter past some deformity of the septum, whether a deflection or thickening. Generally the obstruction had been a ridge running obliquely upwards and backwards, sometimes a so-called scoliosis bulging low down in front. Discomfort and disappointment had resulted from a preliminary rhinoscopic examination not having been made. The application of a weak solution of cocaine facilitated catheterisation by diminishing the patient's sensitiveness and reducing vascular turgescence of the mucous membrane. The passage of the catheter was also facilitated by the use of the speculum at the same time. In the case of an oblique ascending ridge on the side of the septum it might be taken, as a general rule, that the catheter should be introduced with its beak pointing towards the septum and underneath the ridge, that when it was in this way pushed back as far as it would go the point should be turned downwards and outwards underneath the inferior turbinated body and upwards into the hollow, and then upwards and outwards into the vault of the inferior meatus. It was sometimes necessary to withdraw the catheter slightly before engaging its point under the inferior turbinal. The instrument was then pushed steadily backwards until it was felt to be free in the naso-pharynx, when it could be turned downwards and hooked over the back of the soft palate; in some cases where the septal ridge diminished rapidly and considerably towards the posterior part the beak of the catheter need not be turned under the turbinal at all but kept pointing upwards under the septal crest until the naso-pharynx was reached. This proceeding was greatly facilitated if the point of the nose was pressed forcibly upwards. When the inferior turbinal projected considerably and the septal spur was not very great it was sometimes advantageous to pass the catheter above the turbinal till its tip pointing downwards reached the naso-pharynx, when by a little steady downward pressure the stem of the catheter might be forced down between the turbinal and the crest on to the floor of the meatus. In another class of case there was a projection from the septum at the junction of its posterior and middle third presenting a somewhat arched slope on inspection. When this was present the passage of a sufficiently curved catheter was quite impossible as long as the usual rule was followed of turning the beak downwards and pushing it along the floor of the nose. The catheter must, on the other hand, be placed with the back of its beak on the floor of the nose after the manner of the head of a golf club, and to allow this position to be maintained whil the catheter was pushed sufficiently far back for its tip to ge in the arch-like projection it was necessary for the tip o the nose to be tilted upwards and to the opposite side.

TROPICAL DISEASES.

Friday, August 2nd.

The Honorary Secretary (Dr. Max F. Simon, C.M.G was in the chair.

Lieutenant-Colonel A. Crombie, I.M.S. (retired), read paper on

The Maladies of European Children in Hot Climates.

He stated that, speaking generally, it might be said that th sick-rate of European children was lower in India than it wa in the United Kingdom, but that, on the other hand, whe they came to speak of the death-rate the matter took a altogether different complexion, and the illnesses o European children were more frequently fatal in India tha were those of children at home. From a table, showing th sick- and death-rates as well as the case mortality of th principal diseases affecting children in India and the Unite Kingdom respectively in 1899, it appeared that when on deducted, from the 2899 admissions among the 550 European children in India, the 535 cases of malarial feve which were not common to both countries, the admission-rat in India was reduced to 429·8 per 1000, or just about 100 pe 1000 less than it was in the United Kingdom; so tha if these children could be defended from the bite of th anopheles mosquito their chances of illness would be 10 pe cent. better in India than in the United Kingdom. Th diseases referred to by Lieutenant-Colonel Crombie wer eruptive fevers, malarial and other fevers, tuberculo diseases, debility, and other general diseases—of th nervous system, of the respiratory system, and of th digestive system. It was surprising to note that, as matter of fact, at least among soldiers and their children, diseases of the digestive system were rather more prevalent at home than in India, but it was noticeable that, as Lieutenant-Colonel Crombie remarked: "It is not their frequency but their mortality that constitutes their gravity." The mortality from these diseases was just four times greater in India than it was at home among children, and nearly six times greater among adults. Liver abscess was entirely absent after dysentery in children; this was no doubt explainable by the kind of dysentery from which children suffered. Dysentery was frequently confounded with rectal catarrh or proctitis of a transient character, and it was in these cases that ipecacuanha and the saline treatment had acquired a reputation which it was doubtful if they deserved, as in cases of the kind the patient tended to recover without specific remedies. Concerning the diagnostic value of the Widal reaction Lieutenant-Colonel Crombie remarked: "I think it will be found that a very large percentage of natives of India who are not suffering from any febrile condition and who have never, or certainly not for many years, suffered from any fever which could be by any possibility diagnosed as enteric fever, give the reactions in a perfectly characteristic way." As regarded tuberculous diseases Lieutenant-Colonel Crombie stated that while the admission rate for all tuberculous diseases appeared to be higher among European children in India, the death-rate and case mortality were both lower. These numbers might, however, be affected by the habit of invaliding to England.

Dr. Edward Henderson (Shanghai) insisted upon the advantages of obtaining a wet nurse instead of bringing up children by the bottle when the mother could not nurse her child in warm climates. European children should not be kept in the tropics after from four to seven years of age. If they were kept longer they were apt to become anæmic, to have attacks of digestive disorders, diarrhœa, and dysentery, and they were apt to grow too rapidly for their physical strength.

Dr. Patrick Manson, F.R.S. (London), believed that many diseases were included under the term "dysentery" and that a definition of the term was a pressing necessity. He noted that Lieutenant-Colonel Crombie took no notice of such diseases as diphtheria, trismus neonatorum, or hypertrophic cirrhosis of the liver in children.

Major W. H. Burke, I.M.S., considered the rainy season most insalubrious in Bombay. He endorsed Lieutenant-Colonel Crombie's opinion concerning the prevalence of enteric fever and said that tuberculous ailments amongst European children were frequent.

Mr. J. CANTLIE stated that in Hong-Kong from 1887 to 1896 trismus was responsible for 50 per cent. of the total mortality in the island. He had known trismus to be conveyed to a European infant by a European nurse who came from a convent where trismus was very prevalent. Half caste persons in Hong-Kong suffered more from phthisis than either the Europeans or the Chinese.

Mr. JOHN D. GIMLETTE (Pahang) read a paper on

An Epidemic of Zinc Poisoning through Drinking Contaminated Water in the Tropics.

He stated that the epidemic occurred during 1900, among a half company of men of the Malay States Guides (Sikhs and Pathans) stationed at Kuala Lipis, Pahang. The men lived in barracks, which were built in 1898, and were roofed with galvanised iron. In January, 1900, galvanised iron tanks were supplied in order that water might be collected from the roofs of the buildings, the water-supply having been obtained previously from a large river in the neighbourhood. In 1900 an unusually large number of men were attacked with gastro-intestinal troubles and at the close of the year it was found that 43 individuals out of the 66 men of the half company had suffered. Mr. Gimlette began to suspect some form of metallic poisoning and sent samples of water to the Government analyst in Singapore, who reported acid carbonate of zinc in solution in large quantities, from 5·82 to 11·45 parts per 1,000,000. Discontinuance of the water was ordered and the number of gastro-intestinal patients steadily decreased, only 22 cases (many of these being old patients) having been treated from January until April, 1901. The symptoms presented were those of colic, diarrhœa with consequent anæmia and emaciations, and a spurious kind of dysentery. A clinical account of six typical cases, [illegible] continued diarrhœa [illegible]

Mr. Gimlette asked [illegible] not advisable that inquiry should be made as to possible contamination of water in places in Australia and South Africa where water was collected from galvanised iron roofs, especially in regard to the prevalence of gastro-intestinal disease in the latter country.

Dr. MANSON, Dr. M. F. SIMON, Dr. E. HENDERSON, and Mr. J. CANTLIE joined in the discussion upon the relation of beri-beri to metallic poisoning and all concurred in negativing the assumption.

Dr. J. PRESTON MAXWELL read a paper upon

Filarial Abscess.

He stated that in his practice in Southern China he was struck with the frequent occurrence of abscess in connexion with the scrotum as compared with its occurrence in England. In searching for the cause he commenced to examine the blood systematically. He found filaria sanguinis hominis nocturna in all cases. Such abscesses occurred most frequently in the scrotum, but they might occur also in any situation where there was loose connective tissue rich in lymphatics. In one case only were portions of the body of a parent worm found in the abscess. The death of the parent worm might sometimes be the cause of the abscess, but Dr. Maxwell was inclined to think that in many cases the cause might be connected in some way with the blocking of lymphatic vessels, especially as in some cases the abscess appeared to be the first manifestation of elephantoid disease of the scrotum or of a limb. Filarial abscess might be thus classified: (1) abscess of the scrotum—(*a*) suppurating hydrocele, (*b*) abscess of the cord, and (*c*) abscess below the testicle; (2) abscess of the limbs; and (3) intra-abdominal or intra-thoracic abscess. Filarial abscess, if treated, ended in recovery so far [illegible] concerned, but it was liable to be [illegible] ouble, of which, as had been said [illegible] the first manifestation.

Dr. MANSON said that filarial abscesses developed either in connexion with dead parent filariæ or in obstructed lymphatics. Grave conditions arose from the death of a parent filaria in the lymphatic channels of the thorax. He remarked on the disappearance of filarial embryos in the blood subsequently to the development of such abscesses in the abdomen. He considered that removal of the groin glands in filarial disease undertaken for the purposes of cure by removing parent filariæ was scarcely a rational method of treatment, as parent worms existed in numbers in the lymphatics elsewhere in the body. He advised short-circuiting the obstructed lymphatic circulation in such cases by stitching a lymphatic in the thigh to a venous trunk, so that the blocked channel might get relief by discharging its contents into the venous circulation.

Professor J. A. MACWILLIAM (Aberdeen) saw no physiological reason against the lymphatic current being directed into a vein in such a region as the groin.

Dr. W. GILMORE ELLIS (Singapore) read a paper entitled,

Some Remarks on Asylum Practice in Singapore.

He remarked that as in India, so in the Straits, the majority of patients belonged to the lowest classes. There was a marked absence of the more acute forms of insanity, the most prevalent form being an exaggeration of a low standard of intelligence passing rapidly into dementia. Primary dementia was not uncommon. Delusions and hallucinations were, as a rule, of a very simple character. A belief in witchcraft was universal. Melancholia was rare and never very acute. General paralysis of the insane was rarely, if ever, seen among Asiatics. The general causes of this disease—anxiety, worries, excesses—were uncommon among Asiatics. The female recovery-rate was about 35 per cent., while that for males was about 41 per cent. There was no puerperal insanity; Dr. Ellis had seen only one case in 12 years, and this possibly partly accounted for the low female recovery-rate. Insanity consequent upon syphilis or following malarial fever was common; the latter ended in recovery. Neither opium-smoking nor the subcutaneous use of morphine was a cause of insanity. The food question in an Eastern asylum was important, and refusal of food must not be looked upon as a sign of insanity without careful investigation, as, so long as a mere glimmering of sense was left to the patient, such refusal might be a question of "caste" or religious prejudice. There was great difficulty in finding amusements for Asiatic patients. Dr. Ellis stated that beri-beri was a large cause of mortality in the lunatic asylum of Singapore. He concluded his paper with a few [illegible] e conditions under which [illegible] this mental condition to [illegible]

Some Points connected with Human Filariasis.

Dr. J. EVERETT DUTTON (Liverpool School of Tropical Medicine) described a "weak spot" in the labium of the mosquito as the aperture of exit of the filarial parasite whilst the mosquito was feeding. Grassi believed that whilst the mosquito was feeding the bent condition of the labium was such that it gave way and allowed the embryo to escape. Dr. Dutton, however, found that the chitinous condition of the labium near the top was replaced by a delicate membrane and that it was at this point that the parasite in all probability escaped. As regards the food of anopheles, although Dr. Manson had stated that the labium had been found still occupied by filaria after many meals of bananas, yet Grassi and Noe had found the labium empty, and in all probability the filaria did occasionally pass into fruits and vegetables.

Dr. MANSON remarked that Dr. Dutton's observation was a very [illegible] of filarial infection, and th[illegible] nd intricate subject of how [illegible] the mosquito to the human body.

NAVY, ARMY, AND AMBULANCE.

FRIDAY, AUGUST 2ND.

Mr. J. CANTLIE, opened the proceedings of this section with a paper on

Medical Cadet Corps.

He advocated the including of the medical student in a military medical cadet corps as early as possible in his career when his mind was not yet made up as to his future career and thus to catch him before he became imbued with the prevalent abuse of the services by newspapers. He thought that the medical profession ought to make some return to the State for the benefits which they derived from its protection. He would have a medical cadet corps at every medical centre for teaching and thus overcome the objection of centralising and taking men away from their work. They could be trained in ambulance work and could take their name from their school, as "Cambridge Medical Cadet Corps," "Edinburgh Medical Cadet Corps." They should have a special uniform and adequate grants for efficiency should be given. Nominations should be made to the army and navy only from those who had gone through the medical cadet corps at their school. Promotions in the corps should be by State examination. Preference should always be given to old cadet corps students. Medical students should not be allowed to serve as privates along with laymen. This would increase the prestige of the medical men in the service, to which they were as much entitled as were cadets of engineers or artillery.

The PRESIDENT (Deputy Surgeon-General W. G. DON) made commendatory remarks on the paper and invited discussion.

Surgeon-General T. F. O'DWYER, A.M.S., thought that more detail of expense of forming medical cadet corps was wanted before the matter could be gone into. He preferred that commissions in the Royal Army Medical Corps should be granted after competition and not on nominations. One difficulty about cadet corps was that there were no volunteers in Ireland. How could that be got over? The response of volunteer medical officers to his inquiries as to their willingness to go to South Africa was not very satisfactory. If the Government could not support a medical cadet corps the schools might refuse the expense themselves.

Surgeon-General C. M. CUFFE, C.B., did not approve of volunteer cadet corps as units except in order to accustom medical students to the work. A large number of volunteer medical officers offered their services in his district. He did not approve of nominations to the service.

Surgeon-Lieutenant-Colonel W. COATES, V.M.S.C., thought that in future campaigns volunteer medical units should as far as possible be kept together in the same batch. The officers should not be separated from their own men. He was in favour of nomination by heads of colleges for commissions in the Royal Army Medical Corps and a modified form of competitive examination afterwards.

Mr. CANTLIE replied that volunteers in Ireland ought to be trained as stretcher-bearers. Students could be caught in the interval between leaving their medical school and settling down in practice if they had been made familiar with the military medical idea through having belonged to medical cadet corps. He would not send a single consulting surgeon or physician to the front in war time who had not done something for his country in peace time by assisting with a cadet corps.

Mr. CANTLIE proposed the following motion which was carried unanimously after being seconded by Surgeon-Lieutenant-Colonel W. COATES:—

> *That it be a recommendation to the Council of the British Medical Association to consider whether the establishment of medical cadet corps in connexion with the medical schools is feasible or desirable, and if so whether the matter should not be brought to the attention of the War Office.*

Mr. R. J. COLLIER read a paper entitled

The Ambulance and Home Nursing Classes of the London School Board.

He dealt with the benefits of ambulance teaching in school boards and its universal importance and utility from a public point of view. He stated that the London School Board had instructed over 16,000 pupils and others, before he joined the school board as a teacher, by the aid of the St. John Ambulance Association, and that in 1900 after the first course nearly 800 teachers passed out of 900. The alacrity with which the teachers and pupils availed themselves of the opportunity afforded was important and indicated the need for such an arrangement.

The PRESIDENT said that the paper was of great public interest.

Mr. J. HALL-EDWARDS (Birmingham) read a paper entitled

Roentgen Ray Work in South Africa.

He reviewed the advent and course of the x ray in surgical work, civil and military. He gave an interesting and detailed account of his work and experiences in South Africa with the x-ray apparatus in the Imperial Yeomanry Hospital.

The PRESIDENT commented on the paper in terms of praise and invited discussion.

Surgeon-General O'DWYER said that military surgeons fully appreciated, and were quite alive to the great value of, the x ray. The x ray had hardly been long enough in existence for elaborate instruction to have been given to the Royal Army Medical Corps in its use, but no doubt that would be fully done at the earliest possible date. A further benefit of the x ray was that a soldier discharged from the army with an obscure injury could be accompanied to some medical man perhaps remote from an x-ray apparatus by a good photograph of his injuries.

Mr. HALL-EDWARDS, in reply, said that in considering the question they must remember that they had at their disposal a method of localising bullets with absolute accuracy and that advances in surgical procedure had considerably lessened the risk attendant upon an operation. They knew that bullets had been retained in the tissues for half a lifetime without producing any serious results. On the other hand, retained bullets had proved a source of irritation after having lain in a quiescent state for years. Whether or not the modern projectile with its cupro-nickel or steel casing would be as inert as the old leaden bullet yet remained to be seen. Their experience in these matters was so far exceedingly limited; nevertheless, there must exist opinions as to the advisability or otherwise of removing bullets the exact position of which was known, it being taken for granted that the operation itself did not involve any serious risk. Not being a surgeon, it would be a piece of presumption on his part to offer any positive opinion, but having been engaged in South Africa in localising bullets, and having seen numerous operations for their removal, he was more than interested in knowing the general opinion of the profession upon this most important subject. He would here quote three cases out of many which had recently come under his observation, and he must admit that when a bullet was located in a position from which it could be removed with ease and certainty it was much safer in the patient's pocket than in his tissues. A private in the 1st Dragoon Guards was shot on Feb. 14th, 1901, at Hout Kraal. He was advancing up a kopje when the bullet struck him. The entrance wound was of about the size of a shilling and presented rough and jagged edges, and was situated just below the iliac crest on the left side. There was no exit wound. The bullet was localised close to the spinal column, between the second and third lumbar vertebræ. The localisation showed that the bullet lay at a depth of one and a half inches from the skin. The only symptom was very slight pain in the back in walking; nevertheless, it was decided to remove it. The bullet was found lying in a sac containing about half an ounce of semi-purulent fluid and several pieces of dead bone from the transverse process of the third lumbar vertebra. The patient made a rapid recovery and was discharged as cured. Although it was impossible to predict what might have occurred had this bullet been allowed to remain, there could be little doubt that all anxiety had passed away with its removal. The next case was one which presented itself at the Central Hospital, Birmingham. A man was admitted suffering from cancer in the throat; after admission it was whispered that 11 years previously he had attempted suicide by shooting himself in the mouth, so he was sent to me The radiograph showed the presence of two bullets deeply situated in the structures of the neck. The case was too far advanced for operative treatment, so he was allowed to go home and there was no record of what had subsequently happened. The third and last case which he quoted was that of a private in the Cameron Highlanders who was shot at Spitz Kop on July 20th, 1900. He was advancing at the double when a bullet struck him in the groin just above the middle of Poupart's ligament. There was no exit wound. On admission to the Imperial Yeomanry Hospital he complained of pain on walking, and the movements of the left hip were not so good as were those of the right. The bullet was localised at a depth of two and a half inches from the surface of the buttock, upon which he was lying during the taking of the radiograph, so that the total depth was little short of three and a half inches. The bullet was found to be imbedded in the neck of the femur and was removed; it was uninjured. The patient made a complete recovery and returned to England with perfect movement in the joint. Mention might be made of several other cases in which retained bullets had been the cause of trouble, but these were sufficient to point to the fact that in many instances they were far better removed.

The meeting then adjourned to the lantern-room where Mr. CUTHBERT WALLACE (London) gave a lantern demonstration of the various types of wounds and injuries to bone and soft parts occurring in the South African campaign The demonstration was well attended and of great interest

A cordial vote of thanks was proposed by Mr. ANDREW CLARK (London) to Deputy Surgeon-General W. G. Don for his genial and able conduct of the business of the section and was carried by acclamation. A like vote was proposed and accorded to the Secretaries for their able and tactful management of the affairs of the section.

DERMATOLOGY.

FRIDAY, AUGUST 2ND.

The following cases were exhibited: A case of Leucodermia and Telangiectatic Atrophodermia following Measles, by Dr. ALFRED EDDOWES (London); and a case of Ichthyosis Hystrix, by Dr. D. G. MACLEOD MUNRO (Cheltenham).

Dr. NORMAN WALKER (Edinburgh) brought forward the following motion:—

> That it is, in the opinion of this meeting, desirable that the Dermatological Section of the Association should meet not less frequently than twice in four years; and that this resolution be forwarded to the Council of the Association.

It was seconded by Dr. T. COLCOTT FOX (London) and carried *nem. con.*

Seborrhœa.

Dr. T. COLCOTT FOX opened a discussion on Seborrhœa, or, as he preferred to term it, "Steatorrhœa." He commenced with a brief consideration of some of the functions and the distributi[illegible] especial reference [illegible] in the production [illegible]. put the questions whether the coil glands could secrete oil in sufficient quantity to form droplets at the pores or a notable oily coating of the surface; and again whether the structure of the sebaceous glands warranted the conclusion that the output of sebum could be greatly increased without their hypertrophy. The views of various authors were discussed at some length. He then gave a recital of views held as to the nature of seborrhœa in regard to the quantitative and qualitative alterations of sebum and pointed out the clinical distinction between seborrhœa oléosa (oily seborrhœa) and seborrhœa sicca (greasy squamous seborrhœa). Pityriasis capitis was held to be a distinct affection, but was grouped by Hebra with seborrhœa sicca as interdependent processes. Seborrhœa was considered by Dr. Fox to be a functional and non-inflammatory disorder, though Cazenave described acné sebacée as an inflammatory disorder. Dr. Fox then dealt with the clinical characters assumed by seborrhœas in different regions and the doubtful character of some affections included under the term, and concluded this part of his paper with a notice of the older conceptions of the etiology. A new chapter was opened by the development of Unna's views as to the non-sebaceous character of both oily and squamous seborrhœa. The former, which should be called [illegible] function of the sudo-[illegible] ch was a superficial [illegible] y pityriasis capitis), [illegible]" Unna's proofs of the inflammatory nature of squamous seborrhœa and the derivation of the grease from the sudoriferous glands were given. The inflammation was, according to Unna, a specific one caused by a definite organism or organisms. Dr. Fox then referred to Sabouraud's views. According to that author pure oily seborrhœa was a microbial infection of the pilo-sebaceous follicles, taking place with the evolution of puberty. A micro-bacillus entered the follicle and the encysting of the colony took place with a formation of a cocoon in the upper third of the follicle. Then followed four reactionary phenomena—viz., sebaceous hyper-secretion, a progressive glandular hypertrophy, inflammation, and poisoning and death of the papilla. The results were the calvities or "alopecia areata" of Bateman. The engrafting of secondary organisms on this substratum of oily seborrhœa produced, according to Sabouraud, polymorphic acne and acne varioliformis, &c. These views were compared with Unna's views on acne, and Dr. Fox expressed his preference for the views of Sabouraud. Pityriasis capitis was a microbial infection independent of oily seborrhœa, according to Sabouraud, and greasy squamous seborrhœa was a desquamative dermatitis engrafted on oily seborrhœa.

Dr. RAYMOND SABOURAUD (Paris) made a communication on the same subject. It was most necessary, he remarked, in the first place, to limit the subject and to define the term "seborrhœa." This word was first used by Fuchs of Göttingen in 1840 to designate sebaceous excretion when it became visible on the skin and made it greasy. The word had been altered from its primitive sense by Hebra, who, under the name of "seborrhœa," designated not only true seborrhœa (oleosa) but also pityriasis (seborrhœa sicca). This was an absolutely deplorable confusion. Pincus, Piffard, van Harlingen, and then Unna, showed that the scale of pityriasis did not come from the depth of the sebaceous glands as Hebra had thought, but that these scales were produced by the exfoliation of the superficial horny epidermis. It was therefore necessary to separate pityriasis essentially from seborrhœa. It was their confusion which darkened all the subject. The forms of pityriasis—that was, of exfoliation of the horny layer—had a microbic flora, a peculiar and specific cause, namely, the grey-cultured coccus and the "bottle bacillus." They had a special elementary lesion—the scale. They might exist without any fatty state of the skin, and when they were found in connexion with true seborrhœa it was by superimposition of two diseases. They were grafted on to seborrhœic skin and not properly seborrhœic by themselves. Seborrhœa (in its etymological sense—flow of sebum) was the hypersecretion of the sebaceous glands. It was never scaly; it was always and exclusively fatty. It was this condition to which the term "seborrhœa" should be limited and which formed the topic of discussion that day. Having thus defined the malady Dr. Sabouraud proceeded to remark that seborrhœa existed in two forms: a moist type ("acne sebacea" of Biett, Cazenave, "flux sebaceus" of Rayer, "seborrhagia" of Fuchs, "seborrhœa oleosa" of H. Hebra, "steatorrhœa" of E. Wilson), and a cystic type (acne comedo or acne punctata of all authors). The elementary lesion of seborrhœa was a fatty plug which oozed from the sebaceous ducts when sebaceous skin was squeezed between the fingers. This plug was microbic; it was made up of pure fat containing an enormous quantity of very small bacilli, which existed under the form either of separate elements or of composite mycelial clumps. This microbic colony was absolutely constant and it was positively pure in each seborrhœic follicle. It existed in each follicle as soon as the sebaceous flow made the skin shiny and greasy. The second clinical form of seborrhœa was the comedo. The comedo was only the cystic transformation of a primitive seborrhœic plug. This special transformation occurred only in one seborrhœic plug among thousands of others which would persist as seborrhœic plugs and never became comedones. After a time the comedo was almost always infected by the common cocci of the human skin. The most common infection was by the grey-cultured coccus.[1] It made the red acneic papule, the pustule of superficial or of deep acne (acne indurata), thus bringing about all the varieties of polymorphous acne. The comedo might be infected by more virulent microbes—for example, by the staphylococcus aureus. Thus was caused acne necrotica, varioliformis, acneic furunculosis, chronic furunculosis of the neck, sycosis, and acne cheloid. This acne was only the result of infections secondary to the original micro-bacillar seborrhœa. Micro-bacillar seborrhœa and acne synchronised with the sexual development. Its localisations all centred round the vertical axial line, the centre of the face, the inter-scapular space, the back of the neck, the presternal region, a peri-umbilical ring, another perigenital, another perianal, and on the region of the sacrum. The localisation on the centre of the scalp gave rise to common baldness of man. Baldness was a micro-bacillar seborrhœa of the vertex. Each follicle which lost its hair was first invaded by a colony of the micro-bacillus. The phenomena of alopecia were similar on all the parts of the body, only on some of them they were less visible. The same micro-bacillus was certainly present in all seborrhœic manifestations, for cultures (which were in all cases difficult to obtain) were possible and were the same in all cases. These cultures grew on acid media; they were conical in form and of a red colour. In the cultures the bacillus had the same form, the same dimensions, and the same selective methods of staining (Gram). Dr. Sabouraud tl[illegible] obtain cultures of [illegible] of the cultures, d[illegible] sions to be drawn from his researches into seborrhœa were as follows:—1. The words "acne sebacea," "sebaceous flux," "seborrhœa," "seborrhagia," and "steatorrhœa" signified the same morbid phenomenon, which was hypersecretion of the sebaceous glands. This disease had a constant microbic expression—namely, the seborrhœic micro-bacillus. 2. From seborrhœa thus defined all acnes arose which were either the result of spontaneous transformations in the microbic seborrhœic plug or of secondary infections of the elementary seborrhœic lesion. Of course, seborrhœa constituted a cutaneous soil propitious for the development of a multitude of skin diseases differing in their cause and nature. There were, for instance, the seborrhœic wart of old persons, the molluscum contagiosum of Bateman, &c. There were also the various forms of pityriasis. 3. The different forms of pityriasis constituted a special and independent skin disease. They were not seborrhœic. They had a special lesion—the scale, which consisted of epidermic horny exfoliation. They resulted from a special microbic growth which was *not* a micro-bacillus. They were morbid processes entirely different from seborrhœa, but which were, nevertheless, frequently superimposed on seborrhœa. The seborrhœa was for them an elective ground and substratum. On seborrhœic skin they produced circinate pityriasis—the circinaria of Payne. On the scalp they caused dry and fatty pityriasis. The term "seborrhœic eczema" of Unna signified a hybrid mixture of pityriasis and seborrhœa, which was as frequent as pure seborrhœa, but the original clinical types of which must be all the more carefully distinguished, inasmuch as they generally co-existed on the same patient

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[1] See Discussion on the Rôle of Cocci in the Pathology of Diseases of the Skin (Wednesday), THE LANCET, August 3rd, 1901, p. 403.

Dr. ALLAN JAMIESON (Edinburgh) doubted whether the fatty accumulation in seborrhœic dermatitis was due to microbic action, though the comedo was undoubtedly of microbic origin. In normal conditions if the skin was covered up a branny accumulation took place. Might not this be due to micro-organisms of a kind hitherto thought to be innocuous?

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Dr. H. G. BROOKE (Manchester) remarked that he did not believe that there was any excessive exudation from the sebaceous glands. Seborrhœic dermatitis was no doubt an infective disease and the infectivity varied with the virulence of the organism. Fat was, he felt sure, formed in the epidermis cells and it was the destruction of the fat in these which led to pityriasis. The mutual dependence between psoriasis and seborrhœic dermatitis was clinically very evident.

Dr. J. M. MACLEOD (London) wished to refer to the question of alopecia of the patchy type which occurred so commonly in children. In six patients who averaged nine years of age he had excised small pieces of skin which were covered with sebaceous-looking plugs, but he had found no great alteration of the sebaceous glands. In all of them there were œdema and proliferation of rete Malpighii. Near the orifices of the follicles there was a deficiency of the granular layer. These changes amounted to an acanthosis and œdema and to a certain extent a parakeratosis. The conditions, therefore, were those of seborrhœic dermatitis. Micro-organisms were very difficult to find in the skin.

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Dr. DUBREUILH (Bordeaux) regarded the hypothesis suggested by Dr. Sabouraud as a most plausible and most satisfactory one. He wished to allude to the clinical aspect and the greatest difficulty to his mind was that baldness was not by any means constantly associated with seborrhœa. Many greasy-skinned people did not lose their hair and others who became bald had not greasy skins.

Dr. LESLIE ROBERTS (Manchester) thought that the clinical picture of the disease was too well established for them to be able to throw over the term "seborrhœic eczema." It was quite likely that there was still some connexion between seborrhœa and eczema. The former might prepare the skin for the latter, and although there were objections to the name he doubted the expediency of removing it from the nomenclature of dermatology.

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Dr. SABOURAUD, in reply, remarked that the more a woman had a tendency to hair on the face the more she had a tendency to seborrhœa. All the seborrhœic localities were at or near the median line of the body; they were axial in distribution. On the other hand, as regards men, there was no baldness without seborrhœa. In reply to Dr. Savill's question he remarked that the same microbic process was capable of producing both an acne and seborrhœic papule because of the mechanical conditions—the blocking of the follicle and the superimposition of other cocci upon the seborrhœic process.

Dr. LESLIE ROBERTS read a paper on

The Action of Arsenic on the Healthy Tissues of the Skin.

He commenced by remarking that they could learn more of the action of arsenic on the tissues of the body from the study of its chemical properties and elementary action than they could from mere clinical experience. He dealt first with the wide distribution of arsenic in nature and then passed on to consider its dynamic action within the body. He was of opinion that the histological changes produced in the tissues by arsenic were not directly due to the arsenic itself but to the agency of nascent oxygen produced by the action of cell-protoplasm on arsenious acid and arsenic acid. Having discussed the question of the normal distribution of arsenic in the human body Dr. Leslie Roberts then passed on to consider in their order the effects of arsenic oxidation on the tissues of the skin—namely, (1) pigmentation, (2) hyperkeratinisation, (3) desquamation, (4) atrophy, and (5) fatty degeneration. He concluded that arsenic was not merely a drug possessing curative powers; that it was not necessarily an irritant poison; that arsenic was not a poison in itself but that its action was initiated and determined by the tissues themselves; that its effects were essentially of a nutritive order brought about by the agency of nascent oxygen; that these effects were beneficent to the organism when the oxidation was slow but injurious when too rapid; and that the more highly organised the cell, the more unstable its protoplasm and the more rapid its metabolic processes, so much the more readily did it feel and manifest the dynamic action of arsenic.

Dr. H. RADCLIFFE CROCKER (London) and Mr. GEORGE PERNET (London) contributed a paper on

Epithelioma Supervening on Arsenical Keratosis.

Cancer as a result of arsenical keratosis was sufficiently rare for any fresh case to be placed on record. The subject had been dealt with recently in Nielsen's paper on Melanosis and Keratosis Arsenicalis [2] The patient forming the subject of the paper was a man, aged 60 years, who consulted Dr Radcliffe Crocker in March, 1900, for a small painful sore situated on the ulnar border of the right hand close to the metacarpo phalangeal joint of the little finger, and of six months' duration It had begun as a "mattery speck" two years previously and it had gradually increased in size There was an enlarged gland in the corresponding axilla There had also been a sore of the left index finger which had healed Scattered about the hands were several small warty specks and the epidermis was slightly pitted, but there was not general arsenical keratosis The patient had suffered from psoriasis from the age of 20 years, for which he had had arsenic, but he had not had any treatment for 38 years, and as far as he knew he had not taken arsenic since then On the whole the psoriasis had got better the last two or three years The growth was excised in April, 1900 by Mr James Cantlie, but it returned in October Histological examination of the growth removed at the first operation showed proliferation of the prickle cells of the epidermis and in parts commencing invasion of the corium This was much more marked in the tissues removed at the second operation. Keratosis and acanthosis with epitheliomatous growth, together with leucocytic cell infiltration of the papillary and deeper layers of the corium, were noted. Numerous mast cells were present, especially about the sweat coils Interesting features of the case were that the warty growths persisted so long after the arsenic was left off and that from these the cancer developed after so long an interval

Dr ELDON PRATT (Cardiff) read the notes of

A Case of Purpura Hæmorrhagica Associated with General Tuberculosis

The patient was a man, aged 27 years, who was admitted with pyrexia (the chart of which was exhibited) Three weeks later there were epistaxis and hæmaturia and melæna A few crepitations were heard in the lungs Suppuration of the parotids occurred Repeated hæmorrhages occurred and purpuric eruption appeared At the necropsy generalised tuberculosis was evident

THE ANNUAL MUSEUM.

(Concluded from page 485)

V —MINERAL WATERS, BEVERAGES, &c

Cheltenham has mineral waters of its own and this fact possibly accounts for the comparatively small number and variety of exhibits displayed in this section The Cheltenham Corporation have acquired the chief springs and undertake the supply of the waters At the Montpellier Spa there are two disti unt of magnesiu while the other The sulphated water may be regarded as a mild Carlsbad water, having a similar therapeutic effect It, however, may be taken in a concentrated form, the water being evaporated down to a convenient strength for the purpose Messrs Schweppes, of 53, Berners street, London, W exhibited specimens of the Malvern waters, both plain and aerated The purity of Malvern water is well known In addition, this firm exhibited some porcelain-lined syphons, the construction of which we have previously described It need only be added that the precautions taken by Messrs Schweppes to ensure the purity of mineral waters in bottle or syphon are admirable. A very interesting model of the Roman Thermæ at Bath was exhibited by the Bath Corporation In the report of THE LANCET Commission on "Bath as a Health Resort," published in THE LANCET of Oct 14th, 1899 p 1055, a reproduced picture of these interesting remains was printed. The analyses of the waters made in THE LANCET Laboratory were also given in this report at some length Specimens of the well known mineral waters of Harrogate were shown by the Harrogate Corporation. Amongst these were the well known sulphuretted hydrogen waters and chalybeate waters Models were shown of the various bath appliances used in Harrogate as well as photographic views The natural waters of Vichy in bottle were shown by Messrs Ingram and Royle of East Paul's Wharf, 26 Upper Thames-street, London, E.C The exhibit included Vichy salts and pastilles and also the Carlsbad natural mineral waters and the genuine Sprudel salt. They are also agents for the supply of the natural aperient water, Hunyadi Janos, specimens of which formed a feature of the stall The Apollinaris Company of 4 Stratford-place, Oxford-street, London, W, had a large well-decorated stall on which were specimens of Apenta water and Friedrichshall water as representing natural bitter waters, and Apollinaris and Johannis as sparkling table waters The latter is now supplied containing added lithia or potash The exhibition of these drugs in a natural water probably presents some advantages The saline and chalybeate waters of Leamington were shown by the Corporation of Leamington The waters may be obtained plain, aerated, or concentrated The managers are keenly alive to the requirements of visitors and some important improvements have recently been made in regard to the equipments of this "Royal spa." An interesting series of the natural wines of Australia was shown by the South Australian Government Bonded Depôt (Walbrook, London, E C) They are known as the "Orion" brand and include wines of the claret, burgundy, and hock types In addition was shown the 'Orion' liqueur brandy, a pure wine spirit, as we have already indicated in our analytical columns Stower's lime juice cordial and clarified lemon squash were exhibited on the stall of Messrs Alexander Riddle and Co of 36 and 38, Commercial street, London, E The point about these preparations is that the aroma and flavour of the fresh lime and lemon respectively are retained in the expressed juice Close by, Messrs Stephen Smith and Co of Malmesbury road, Bow, London E, submitted specimens of various wines to those who cared to taste them These included coca wine, beef wine and a special burgundy The exhibition of Messrs Feltoe and Smith of 25, Augustus street, Regent's-park, London N W comprised their "specialité" lime juice cordial and lemon squash Some excellent "lemon squash crystals" were also shown which are useful for the extemporaneous preparation of a refreshing lemonade.

VI —PUBLICATIONS

There were several stalls devoted to the display of medical works, temperature charts, clinical tables, &c This section is a comparatively new feature of the exhibition, and is of increasing interest judging from the number of medical visitors found turning over the pages of the publications submitted The following publishers were represented —Messrs Rebman, Limited, of 129 Shaftesbury-avenue, London W C (this firm also exhibited various therapeutic serum preparations contained in hermetically sealed flasks), Mr B Allsop, of the *Times* Office, Shipley, Yorkshire who demonstrated his handy A B C system of medical bookkeeping, Messrs John Wright and Co, of Bristol, Mr Henry Kimpton of 13, Furnival street, Holborn, London, E C, Messrs W B Saunders and Co, of 161, Strand, London, W C, and Philadelphia, and Messrs Macmillan, of St Martin's-court, London, W C

VII —MISCELLANEOUS

What we have chosen to classify as the miscellaneous section of the exhibits presented a novel feature this year in the shape of an exhibit of motor cars and broughams for medical men Mr D H Morgan for example, of Clarence-street, Cheltenham, exhibited a three and a half horse power motor car with two speeds and fitted with a hood Mr Alfred Miles, of Cheltenham, showed a collection of carriages comprising light broughams phaetons, and carts Similarly Mr W B Moore of Stourbridge, has designed a hooded gig specially adapted for medical men, whilst in addition he showed a neat one horse ambulance Messrs Boyd and Co, of 296, Regent-street, London, W, exhibited an ulster for the use of medical men and a woollen material called "naquatum," which is said to be porous though absolutely waterproof The "Aertex" cellular clothing of the Cellular Clothing Company, Limited, of 72 and 73 Fore street, London, E C, was inspected with interest This clothing is designed to protect the body as well as to allow the escape of excretory products It is, therefore, adapted for garments worn next to the skin. Office time saving appliances were represented in the "Cen s" automatic letter and card files, the invention of Mr T Bowater Vernon of 10 John street, Adelphi, London, W C We have already pointed out the excellence of this system of keeping letters and papers in their place and when they can be found The system is of acknowledged usefulness to medical men and we understand that it is in use in many hospitals either the result of spontaneous transformations in the microbic seborrhœic plug or of secondary infections of the elementary seborrhœic lesion. Of course, seborrhœa constituted a cutaneous soil propitious for the development of a multitude of skin diseases differing in their cause and nature. There were, for instance, the seborrhœic wart of old persons, the molluscum contagiosum of Bateman, &c. There were also the various forms of pityriasis. 3. The different forms of pityriasis constituted a special and independent skin disease. They were not seborrhœic. They had a special lesion—the scale, which consisted of epidermic horny exfoliation. They resulted from a special microbic growth which was not a micro-bacillus. They were morbid processes entirely different from seborrhœa, but which were, nevertheless, frequently superimposed on seborrhœa. The seborrhœa was for them an elective ground and substratum. On seborrhœic skin they produced circinate pityriasis—the circinaria of Payne. On the scalp they caused dry and fatty pityriasis. The term "seborrhœic eczema" of Unna signified a hybrid mixture of pityriasis and seborrhœa, which was as frequent as pure seborrhœa, but the original clinical types of which must be all the more carefully distinguished, inasmuch as they generally co-existed on the same patient.

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[2] Selected Essays and Monographs New Sydenham Society, vol clxx, 1900, p 249

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Dr. Leslie Roberts read a paper on

The Action of Arsenic on the Healthy Tissues of the Skin.

He commenced by remarking that they could learn more of the action of arsenic on the tissues of the body from the study of its chemical properties and elementary action than they could from mere clinical experience. He dealt first with the wide distribution of arsenic in nature and then passed on to consider its dynamic action within the body. He was of opinion that the histological changes produced in the tissues by arsenic were not directly due to the arsenic itself but to the agency of nascent oxygen produced by the action of cell-protoplasm on arsenious acid and arsenic acid. Having discussed the question of the normal distribution of arsenic in the human body Dr. Leslie Roberts then passed on to consider in their order the effects of arsenic oxidation on the tissues of the skin—namely, (1) pigmentation, (2) hyperkeratinisation, (3) desquamation, (4) atrophy, and (5) fatty degeneration. He concluded that arsenic was not merely a drug possessing curative powers; that it was not necessarily an irritant poison; that arsenic was not a poison in itself but that its action was initiated and determined by the tissues themselves; that its effects were essentially of a nutritive order brought about by the agency of nascent oxygen; that these effects were beneficent to the organism when the oxidation was slow but injurious when too rapid; and that the more highly organised the cell, the more unstable its protoplasm and the more rapid its metabolic processes, so much the more readily did it feel and manifest the dynamic action of arsenic.

Dr. H. Radcliffe Crocker (London) and Mr. George Pernet (London) contributed a paper on

Epithelioma Supervening on Arsenical Keratosis.

Cancer as a result of arsenical keratosis was sufficiently rare for any fresh case to be placed on record. The subject had been dealt with recently in Nielsen's paper on Melanosis and Keratosis Arsenicalis [2] The patient forming the subject of the paper was a man, aged 60 years, who consulted Dr Radcliffe Crocker in March, 1900, for a small painful sore situated on the ulnar border of the right hand, close to the metacarpo phalangeal joint of the little finger, and of six months' duration It had begun as a "mattery speck' two years previously and it had gradually increased in size There was an enlarged gland in the corresponding axilla There had also been a sore of the left index finger which had healed Scattered about the hands were several small warty specks and the epidermis was slightly pitted, but there was not general arsenical keratosis The patient had suffered from psoriasis from the age of 20 years, for which he had had arsenic, but he had not had any treatment for 38 years, and as far as he knew he had not taken arsenic since then On the whole the psoriasis had got better the last two or three years The growth was excised in April, 1900, by Mr James Cantlie, but it returned in October Histological examination of the growth removed at the first operation showed proliferation of the prickle cells of the epidermis and in parts commencing invasion of the corium This was much more marked in the tissues removed at the second operation. Keratosis and acanthosis with epitheliomatous growth, together with leucocytic cell infiltration of the papillary and deeper layers of the corium, were noted. Numerous mast cells were present, especially about the sweat coils Interesting features of the case were that the warty growths persisted so long after the arsenic was left off and that from these the cancer developed after so long an interval

Dr **Eldon Pratt** (Cardiff) read the notes of

A Case of Purpura Hæmorrhagica Associated with General Tuberculosis

The patient was a man, aged 27 years who was admitted with pyrexia (the chart of which was exhibited) Three weeks later there were epistaxis and hæmaturia and melæna A few crepitations were heard in the lungs Suppuration of the parotids occurred Repeated hæmorrhages occurred and purpuric eruption appeared At the necropsy generalised tuberculosis was evident

THE ANNUAL MUSEUM.

(*Concluded from page 483*)

V —MINERAL WATERS, BEVERAGES, &c

Cheltenham has mineral waters of its own and this fact possibly accounts for the comparatively small number and variety of exhibits displayed in this section The Cheltenham Corporation have acquired the chief springs and undertake the supply of the waters At the Montpellier Spa there are two distinct waters, one containing a notable amount of magnesium sulphate in association with sodium salts, while the other is an alkaline saline water without magnesia. The sulphated water may be regarded as a mild Carlsbad water, having a similar therapeutic effect It, however, may be taken in a concentrated form, the water being evaporated down to a convenient strength for the purpose Messrs Schweppes, of 53 Berners-street, London, W exhibited specimens of the Malvern waters both plain and aerated The purity of Malvern water is well known In addition, this firm exhibited some porcelain lined syphons, the construction of which we have previously described It need only be added that the precautions taken by Messrs Schweppes to ensure the purity of mineral waters in bottle or syphon are admirable '
Roman Thermæ at Bath
tion In the report of Th
Health Resort,' published in THE LANCET of Oct 14th, 1899, p 1055, a reproduced picture of these interesting remains was printed The analyses of the waters made in THE LANCET Laboratory were also given in this report at some length Specimens of the well-known mineral waters of Harrogate were shown by the Harrogate Corporation. Amongst these were the well known sulphuretted hydrogen waters and chalybeate waters Models were shown of the various bath appliances used in Harrogate as well as photographic views The natural waters of Vichy in bottle were shown by Messrs Ingram and Royle of East Paul's Wharf, 26, Upper Thames-street, London, E.C The exhibit included Vichy salts and pastilles and also the Carlsbad natural mineral waters and the genuine Sprudel salt. They are also agents for the supply of the natural aperient water, Hunyadi Janos, specimens of which formed a feature of the stall The Apollinaris Company of 4, Stratford place, Oxford-street, London, W, had a large well-decorated stall on which were specimens of Apenta water and Friedrichshall water as representing natural bitter waters, and Apollinaris and Johannis as sparkling table waters The latter is now supplied containing added lithia or potash The exhibition of these drugs in a natural water probably presents some advantages The saline and chalybeate waters of Leamington were shown by the Corporation of Leamington The waters may be obtained plain, aerated, or concentrated The managers are keenly alive to the requirements of visitors and some important improvements have recently been made in regard to the equipments of this "Royal spa" An interesting series of the natural wines of Australia was shown by the South Australian Government Bonded Depôt (Walbrook, London, E C) They are known as the "Orion" brand and include wines of the claret, burgundy, and hock types. In addition was shown the 'Orion" liqueur brandy, a pure wine spirit, as we have already indicated in our analytical columns Stower's lime-juice cordial and clarified lemon squash were exhibited on the stall of Messrs Alexander Riddle and Co of 36 and 38, Commercial street, London, E. The point about these preparations is that the aroma and flavour of the fresh lime and lemon respectively are retained in the expressed juice Close by, Messrs Stephen Smith and Co of Malmesbury-road, Bow, London E, submitted specimens of various wines to those who cared to taste them These included coca wine beef wine and a special burgundy The exhibition of Messrs Feltoe and Smith of 25, Augustus street, Regent's-park, London, N W comprised their "spécialité" lime-juice cordial and lemon squash Some excellent "lemon squash crystals" were also shown which are useful for the extemporaneous preparation of a refreshing lemonade

VI —PUBLICATIONS

There were several stalls devoted to the display of medical works, temperature charts, clinical tables, &c This section is a comparatively new feature of the exhibition, and is of increasing interest judging from the number of medical visitors found turning over the pages of the publications submitted The following publishers were represented —Messrs Rebman, Limited, of 129, Shaftesbury avenue, London, W C (this firm also exhibited various therapeutic serum preparations contained in hermetically sealed flasks); Mr B Allsop of the *Times* Office, Shipley, Yorkshire, who demonstrated his handy A B C system of medical bookkeeping, Messrs John Wright and Co, of Bristol, Mr Henry Kimpton, of 13, Furnival street, Holborn, London, E C, Messrs W B Saunders and Co, of 161, Strand, London, W C, and Philadelphia, and Messrs Macmillan, of St Martin's court, London, W C

VII —MISCELLANEOUS

What we have chosen to classify as the miscellaneous section of the exhibits presented a novel feature this year in the shape of an exhibit of motor cars and broughams for medical men Mr D H Morgan, for example, of Clarence-street, Cheltenham, exhibited a three and a half horse power motor car with two speeds and fitted with a hood Mr Alfred Miles of Cheltenham, showed a collection of carriages comprising light broughams, phaetons, and carts. Similarly Mr W B Moore of Stourbridge, has designed a hooded gig specially adapted for medical men, whilst in addition he showed a neat one horse ambulance Messrs. Boyd and Co, of 296, Regent-street, London, W, exhibited an ulster for the use of medical men and a woollen material called "aquatum" which is said to be porous though absolutely waterproof The "Aertex" cellular clothing of the Cellular Clothing Company, Limited, of 72 and 73 Fore-street, London, E C, was inspected with interest This clothing is designed to protect the body as well as to allow the escape of excretory products It is, therefore, adapted for garments worn next to the skin Office time saving appliances were represented in the "Ceres" automatic letter and card files, the invention of Mr T Bowater Vernon of 10, John street, Adelphi, London, W C We have already pointed out the excellence of this system of keeping letters and papers in their place and where they can be found The system is of acknowledged usefulness to medical men and we understand that it is in use in many hospitals.

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[2] Selected Essays and Monographs New Sydenham Society, vol clxx., 1900, p 249

Correspondence.

"Audi alteram partem."

"THE ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION AND THE REPORT OF THE CONSTITUTIONAL COMMITTEE."

To the Editors of THE LANCET.

SIRS,—The letter of Dr. John Ince in THE LANCET of August 17th, p. 489, must have been perused with much interest by many of your readers. Dr. Ince is quite right in supposing that the "coercion" proposed by the British Medical Association would be resented, and that the formation of the profession into a trades union would be considered derogatory. The General Medical Council alone has legal authority to coerce, and men with the courage of their convictions will snap their fingers at laws which there is no power to enforce. There is no trades union, so far as I know, which does not aim at promoting the sordid interests of its own particular class and at ignoring absolutely the welfare of the community at large. It is not difficult to foresee what the opinion of the general public will be with regard to the first learned profession which ventures to become a trades union by imbibing the philosophy of the joiner, the bricklayer, the dock striker, and the like. It seems to me that the medico-political agitator has arisen within our own ranks, and that he will, if he can (but he cannot), compel all and every one of us to obey all such rules, financial or ethical, as he can persuade a majority to formulate. And in the voting for such rules the rawest recruits, the least experienced and the lowest qualified, will exercise an equal vote with the oldest, the most experienced, and the best qualified members of our profession. By all means let us urge upon the General Medical Council all such reform as is needed, but to set up a rival authority whose weapon, in the absence of legal power, could only consist of boycottings, of ostracisms, of slanders, and of refusals to call into consultation those who might not belong to the medical trades union, would only be to court degradation of the profession and unending strife.

I am, Sirs, yours faithfully,
JAMES RYLEY, M.D. Lond.
Great Yarmouth, August 20th, 1901.

HARVEST BUGS.

To the Editors of THE LANCET.

SIRS,—The effects produced by the bites of the "harvest bug" are so remarkable, so unpleasant, and in certain districts and seasons so common that it is strange that almost no attention is paid to the subject in medical literature. I can find no reference to it in any text-book on medicine or dermatology, and it is not found in Neale's Digest. The animal is a minute, bright scarlet, almost spherical, six-legged larva of the *Trombidium holosericum*—Linn. : of the family Trombidium, order Acarina. This red larva is known as *rouget* in France, and its life-history has been fully investigated by M. P. Mégnin. The eggs producing the larvæ are laid in June and July and the larvæ are active and numerous during July and August; at the end of the latter month they disappear and hibernate, eventually becoming eight-legged nymphæ which are vegetable feeders and of two sexes. The larva has sharp mandibles with which it burrows under the skin of its host and imbibes blood or juices, swelling up to about five times its original size, the head and thorax remaining the same bulk as before. It inhabits dry, grassy places on chalky soil and near the sea. It exists all over Europe, even in Scotland and Norway, and a form probably identical is found in Mexico. It attaches itself to domestic and furry animals (rodents, &c.), and even to other insects. It finds its way on to human beings by their feet, commencing to bite round the ankles. The bites are generally limited to the ankles, the waist (in women), and round the neck and upper chest. The bites are peculiarly virulent to many ladies and children, forming in a few hours small circular ulcers which itch and burn more than any other insect bite, though the inflammatory swelling is very slight. They are said by van Beneden to attach themselves to the roots of hairs, but this has never been the case in the severe instances in which my advice has been sought. They travel with great activity about the body and it is quite impossible to catch them. They comparatively seldom attack men, as very moderately thick stockings and drawers prevent them from biting. The openwork stockings worn by ladies give them an excellent opening for attack. In many women they produce an acute urticaria which is not limited to the seat of the bite, but may affect the whole body. This severe constitutional effect is said to be rare in England, but I have seen it occasionally and it has evidently been frequent this summer from the enormous numbers of the acari produced. I noted them trooping by dozens out of a garden in the Isle of Wight over the window-sills into the rooms. During the heat of day they seem to remain quiescent and mostly begin to bite in the late afternoon. Many persons are peculiarly susceptible to insect bites and apparently peculiarly attractive to insects, and in such subjects the constitutional disturbance produced by the harvest bug is very great and renders life a burden for many weeks in hot summers.

The only remedies are to keep the grass near the house well mown and watered, to wear thick stockings and close-fitting drawers, and to keep the ankles and legs covered with some essential oil (eucalyptus with a small quantity of clove oil), and not to sit out of doors. To find the larva under the skin and dig it out with a needle is commonly recommended, but it is an almost hopeless task.

The best account of the life-history of this pest is in "Annales des Sciences Naturelles," sixth series, vol. iv., 1876. I am, Sirs, yours faithfully,
Westerham, August 21st, 1901. A. MAUDE.

*** The intense irritation set up in many people by these annoying little creatures is well known to us. As a matter of secondary interest we may remark that there seems to be some doubt as to what a "harvest bug" really is. The opinion of Mégnin as given above is that the bug is the hexapod stage of *Trombidium holosericum.* But according to Gould's "Dictionary of Medicine," the harvest bug, or *rouget* of the French, is the *Tetranychus autumnalis* of Shaw, otherwise *Leptus autumnalis* or *Trombidium autumnale.* However, as all of these animals produce similar effects it perhaps is not of much practical moment to which species the harvest bug exactly belongs. Possibly the application of a solution of calcium chloride might relieve the intolerable itching, or the internal exhibition of the drug might obviate the effects of the bite, but for prevention the measures cited by Mr. Maude appear to be the only feasible methods of escape.—ED. L.

"THE DEGRADATION OF FOOD."

To the Editors of THE LANCET.

SIRS,—All readers of THE LANCET will recognise the services you render to the community by your unceasing attention to questions of public hygiene. But the sleepless watchman is apt at times to be deceived by his own vigilance, and an annotation in your issue of August 10th, p. 382, on "The Degradation of Food" seems to show that you have not altogether escaped this danger, as there probably never was a time at which the bulk of the people's food was so wholesome as it is at present. Your illustration on the subject of jam does not seem to me to be particularly happy. Home-made jam is certainly made without glucose, and every housekeeper knows how terribly apt home-made jam is to crystallize; lumps of sugar of the size of a bullet are frequently met with in the domestic jam-pot. The warning against roller-milled flour certainly comes rather late now that all the millers of this country have transformed their plant, but the main thing to note is that it really matters very little even if bread is slightly less nutritious than it used to be. There are very few people who eat much bread at the present day and this being so a slight falling-off in nutrition really amounts to nothing at all. Your complaint about the flavourless bread has certainly this much truth—that bakers are disposed to give too much attention to colour and not enough to flavour. But the diminished consumption of bread arises simply from the increased wealth of the people. Formerly a large proportion of the population lived chiefly upon bread because they could not afford to buy anything else. Times have changed since then and bread has lost a good deal of its importance. It has gone out as a necessity and it has yet to come in as a luxury. At the same time any resident in London or any large town can have the most palatable and perfect bread possible if he would only take the trouble to look for it. He may be certain of one thing, that housewives, now they have once been emancipated, will never again return to the bondage of home-baking.

I am, Sirs, yours faithfully,
EDITOR OF THE BAKER AND CONFECTIONER.
Chancery lane, London, August 14th, 1901.

⁂ The defence that modern conditions of life make substitution a necessity was to be expected. But the defence is unsatisfactory. Cane sugar crystallises, and therefore jam or marmalade cannot be made with it any longer. Would glucose be used in substitution if it cost three times as much as cane sugar? Of course it would not.—ED. L.

"FATAL INTESTINAL HÆMORRHAGE IN PNEUMONIA."

To the Editors of THE LANCET.

SIRS,—The very interesting paragraph on fatal intestinal hæmorrhage in pneumonia on page 460 of THE LANCET of August 17th might give the impression that pneumococcic colitis was not described in this country. Therefore it seems only fair to English medicine to point out that pneumococcic colitis will be found described on page 942 of the article "Diseases of the Colon" in vol. iii. of Allbutt's System of Medicine, published four years ago.

I am, Sirs, yours faithfully,
Harley-street, W., August 19th, 1901. W. HALE WHITE.

THE MEDICAL GUILD.

To the Editors of THE LANCET.

SIRS,—I have the honour to forward you the following resolutions which were unanimously passed at the last meeting of the Medical Guild, Manchester, on July 26th, as follows:—

(1) That in the opinion of the Medical Guild, seeing that vaccination is made compulsory in the interest of public health, the parent or guardian of a child should have the right to select any registered medical practitioner, who is willing to do so to perform the vaccination, and that the cost of the same should be defrayed by the State at a fixed rate.

(2) That, in the event of the foregoing resolution being passed, the Council be requested to consider what steps can be taken to influence future legislation on the subject.

I am, Sirs, yours faithfully,
Manchester, August 17th, 1901. DAVID OWEN.

THE STATISTICS OF DIPHTHERIA.

To the Editors of THE LANCET.

SIRS,—From time to time a communication is published drawing attention to the marked decrease in the death-rate which has followed the introduction of antitoxin. In looking over the 1899 report of the medical officer of health of the County of London a diagram showing the annual rate of deaths from diphtheria calculated per 1000 of the population, struck me forcibly in this connexion. It showed that for the last two years given, 1898 and 1899, this rate was almost identical with the actual mean rate of the last 40 years, while a table pointed out that the death rate calculated on the number of [illegible] to 14 in the last 10 years. [illegible] results raise questions which [illegible] of solution.

If we assume, as in the face of all the clinical evidence we are bound to assume, the inestimable value of the antitoxin treatment, we are met by the obvious difficulty that increased isolation (the Asylums Board hospitals now take 60 per cent. of all notified cases as against 30 per cent. previously), improved sanitary arrangements among the poorer classes, and increased efficiency of treatment have not prevented an outbreak of diphtheria which for purposes of comparison with previous years should be represented by a population death rate of 0·73 instead of 0·43. That is to say that if [illegible] of antitoxin and leave [illegible] former 23 per cent. no[illegible]fications of the years under examination would give 0·73 deaths per 1000 living, thus showing how formidable is the epidemic in question. If, on the other hand, we assume that the antitoxin treatment has only stimulated the powers of notification of the profession and has had no effect on the actual number of deaths we make a serious charge against the treatment. That charge receives very considerable support from the diagrams shown of Metropolitan Asylums Board hospitals. In the first is shown the ratio of deaths from diphtheria in hospitals to deaths from diphtheria in London, and in the second the ratio of admissions to notifications. Year by year for 10 years these ratios are almost identical. That is to say, that the introduction of antitoxin has not improved the treatment of cases in hospital as compared with the total cases in London. For example, in 1883 30 per cent. of the total cases notified were treated in hospital and 30 per cent. of the total deaths occurred there; in 1893 60 per cent. of the total cases notified were treated in hospital and 60 per cent. of the total deaths occurred there. Such a stimulation of notification as I have suggested would result in an increase of cases with no change in the number of deaths, the result statistically being a fall in the case mortality.

The three most potent factors in the spread or retardation of such a disease as diphtheria are isolation, sanitation, and aggregation. I propose to take as an example of each of these factors scarlet fever, enteric fever, and measles, and to compare the increase or decrease of the population death-rate of each. In none of these diseases has there been a radical alteration of treatment and the spread of each is regulated in the main by only one of these factors.

Table showing the Death-rate per 1000 of Living in various Diseases.

—	1899	Mean of period from 1888 to 1898	Mean of period of longer duration
Diphtheria	0·43	0·49	0·43
Scarlet fever ...	0·09	0·21	0·54
Enteric fever ..	0·17	0·13	0·19
Measles	0·47	0·62	0·58
Whooping-cough	0·38	0·54	1·49

On the face of it such a table would suggest that if any specific has been found it would not be for diphtheria, but for scarlet fever or whooping cough. First, as to scarlet fever, the population death-rate has gradually fallen from 0·21 to 0·09 per 1000; the case death-rate in the Metropolitan Asylums Board hospitals has fallen from 12·2 to 5·9 in the course of 23 years. If isolation has any effect on diphtheria it should, as in scarlet fever, reduce not only the case-rate but the population-rate *pari passu;* isolation has increased, as I pointed out previously, from 30 to 60 per cent. of the total number of cases. Secondly, as to enteric fever, the march of sanitation has reduced the population death rate from 260 per 1,000,000 to 130 per 1,000,000 in the course of 20 years; 1899 was a bad year and considerably above the average. Thirdly, as to measles, it has been asserted that this outbreak of diphtheria of such magnitude is due, in part at any rate, to the aggregation of children in board schools, and the fact that the proportion of notified cases within the school age (from three to 13 years) has increased in 10 years from 50·9 to 62·9 per cent. of the total notifications is adduced as evidence. We should expect therefore to find a similar rise in the population death-rate of measles. Measles is, of course, very variable in its incidence, but the table shows definitely that on the whole the aggregation of children has not increased the population death-rate from measles. We must also bear in mind that the number of children attending school increased during this period very considerably, and that at this period of life follicular tonsillitis is most common.

Hence we find in conclusion that a disease subject to fluctuations dependent on causes which have steadily produced a fall in the population death rate of other similar diseases, and further aided by a treatment which has almost halved the case mortality, has yet achieved the distinction of remaining steady at the mean population death rate of the last 40 years. There are two possible solutions of the difficulty: (1) antitoxin is a failure and the attention drawn to the disease has resulted in greater accuracy in notification; and (2) for some unknown reason a cause not acting on the like diseases had induced a widespread epidemic, modified by the antitoxin treatment. Which of these is the right interpretation time alone can tell us. Meanwhile we shall doubtless continue to notify and to inject as before, recognising that as far as statistics go antitoxin is still on its trial. I am, Sirs, yours faithfully,

DONALD F. SHEARER, M.B. Oxon., F.R.C.S. Eng.

Upper Richmond-road, S.W.

OBSERVATIONS ON THE ALTERNATE ERECTILITY OF NASAL MUCOUS MEMBRANE.

To the Editors of THE LANCET.

SIRS,—Every observer who is in the habit of examining the naso-pharynx with the rhinoscopic mirror has noticed that the mucous membrane covering the turbinated bones undergoes erectile changes at times. Strong cocaine solution is used to determine whether this is really erectility or inflammatory change. Actual inflammation or polypoid growths do not disappear after cocaine application. From personal experience, gained by passing my tongue into the naso-pharynx, I may assert that the mucous membrane of the nasal air-passages becomes alternately turgid and relaxed. Every man can satisfy himself by observing in his own body that air does not go in with equal freedom through both the nasal air-passages simultaneously; it blows through each nasal passage for an hour or so with clockwork-like regularity. The cause of obstruction in the free passage of air through one of the nasal passages is the turgidity of the mucous membrane covering the turbinated bones of that side. I know many individuals who can feel this turgidity like myself with their tongues. The mucous membrane of the obstructed side is felt to be hotter than that of the side through which the air blows freely. This erectility of the nasal mucous membrane has been well described by Dr. McBride in his valuable work on "Diseases of the Nose, Throat, and Ear." Sir T. Lauder Brunton also speaks of this erectility in his lectures on the action of drugs. He thinks that this erectility is necessary for warming the cold air going into the lungs. These writers, however, do not recognise or explain the phenomenon of this rhythmically alternate erectility of the nasal mucous membrane. Of course, we can trace the phenomenon to the vaso-motor influence presiding over the blood-vessels of the mucous membrane of the erectile side But the clockwork-like regularity with which the mucous membrane becomes turgid alternately on each side is a very remarkable feature which we cannot explain at the present state of our knowledge. I bring this fact to the notice of the scientific world because though unknown to the Europeans, as far as I have been able to ascertain from their published books, it was known to the ancient Hindus as early as in the Vedic period.

It will not be out of place here to say a few words on the art of passing the tongue into the naso-pharynx. When I showed to some of the professors of the Medical College, Calcutta, how my tongue goes into the naso-pharynx they thought that this power was something peculiar to my family. This is, however, not so; as I have already noted, it is an art which can be acquired by every man. There are different processes, the best and the safest of which is the one I am going to describe. The front part of the dorsum of the tongue is fixed to the hard palate and the lower jaw is lowered as far downward as practicable and raised alternately. This exercise lengthens the fibres of the tongue-muscles and at last, when by practice the tongue is sufficiently long, it can be easily passed into the naso-pharynx. The anatomical details as felt by passing the tongue into the naso-pharynx are as follows. The tip of the tongue can be made to rest on the under surface of the body of the sphenoid bone. The posterior border of the vomer can be distinctly felt in front and if the tip is made to enter through one of the posterior nares, the turgid mucous membrane of the obstructed side appears to be hot and swollen like an onion. The turgidity of the mucous membrane yields to the slightest pressure of the tip of the tongue but reappears, owing to its elastic nature, as soon as the pressure is removed. On the side through which air is passing the mucous membrane is not at all swollen or as warm as on the other side and the inferior and middle meatuses can be distinctly made out. The openings of the Eustachian tubes and other anatomical details are also clearly felt.

That the Hindus observed the phenomenon of alternate erectility as early as the Vedic period is corroborated by the names they used to describe the cycle of rhythmic erectility of the mucous membrane of each side of the nasal cavity. Thus it is said that when air blows through the left nasal air-passage with ease and the right air-passage is partially or completely blocked, it is an index of the prevalence of what in Vedic language is called *irha-narhi*. So, when air blows through the right nasal passage and the left one is blocked, the condition is designated to be the index of the prevalence of *pingala-narhi*. When air goes in with perfect freedom through both the nasal air-passages (this momentary condition obtains in the interval between the appearance of erectility on one side and the disappearance of it from the other), the condition is taken to indicate the prevalence of *susumna-narhi*. The ancient Hindus went so far as to observe that from the first three days after full moon air would be blowing through the right nasal air-passage during the first hour after sunrise; and the first three days after new moon air would be blowing in the left nasal air-passage during the first hour after sunrise. Then the reverse takes place in each case for three days and so on. Anybody may satisfy himself as I have done by trying to verify this observation. As all the observations I have noted were made in healthy subjects it is unnecessary to say that the law does not hold good in disease.

In conclusion, I venture to expect that scientific men of greater abilities than myself will take up and work out this important subject.

I am, Sirs, yours faithfully,

HEMCHANDRA SEN, M.D.,

Teacher of Materia Medica, Campbell Medical School, Calcutta,
Examiner in Anatomy, Calcutta University.

June 13th, 1901.

"LEGISLATION AGAINST NATIONAL INTEMPERANCE."

To the Editors of THE LANCET.

SIRS,—Dr. Walter Kidd calls my attention to a letter published by him in *Nature* of August 8th. In it I find that he alludes to the correspondence which has been carried on under the above heading in THE LANCET and that he is good enough to inform the readers of *Nature* that "the greatest vigour of assertion and multitude of words, if not greater logic, rests with the advocates of the view that alcoholism is a selective influence of value in the evolution of man and ought not to be interfered with by legislation. The reasons for this startling contention are numerous, but the justification rests ultimately on the doctrine of Weismann carried to the bitter end—viz., that acquired characters are not inherited. I submit that if it can be shown that on no other than a Lamarckian interpretation of certain small phenomena is possible, something may be done towards making a breach in a somewhat dangerous citadel." Dr. Kidd's controversial methods lack directness. It would have been more effective had he demonstrated his opponents' lack of logic to the readers of THE LANCET instead of hinting at them to the readers of *Nature*.

Here is the proposition I am challenged to refute: "In man hair is entirely wanting on the ungual phalanges of his hand and foot, very rare on the middle phalanges of either foot or hand, and always present more or less on the first row of phalanges in both foot and hand." Man is "the child of the monkey." "The monkey possesses hair on all the phalanges. The young orang possesses hair like that of the lower monkeys—i.e., on all the phalanges of foot and hand, though on the two terminal phalanges of the hand the hair is worn down and quite bristly, even though the animal is quite young." Dr. Kidd supposes that because the monkey has hair on the terminal phalanges and man has not, the absence of hair on the latter is due to the wearing down of hair in the former. He thinks no other explanation possible and he asks me to refute this proposition. I had expected a task less easy. His hypothesis involves the assumption that the wearing down of hair on the ungual phalanges so affects the germs situated in the far-distant testicle or ovum that the organisms which spring from them tend to reproduce the peculiarity the parent acquired. Clearly we ought not to accept a hypothesis so wildly improbable unless it can be shown that none other is feasible. Doubtless man is the child of the monkey, but not of the present-day monkey. Presumably both man and modern monkey sprang from a common stock. Its descendants, *pace* Dr. Kidd, wore the hair down the ungual phalanges, but the monkey more than the man, since the monkey uses its foot as a hand. Will Dr Kidd explain how it happens that the modern monkey retains the hair whereas the man has lost his? The disappearance of hair on the ungual phalanges is only part of a general phenomenon. Hair has disappeared more or less completely from the whole of man's body except from his head, face, armpits, and pubes. What has caused the disappearance? The wearing down of the hair. Well, but how? By what? How on any theory of "wearing-down," or, indeed, on any theory of the transmission of acquirements, was the sharp line of demarcation produced between the hairy and the practically non-hairy regions of the head? What wore down the hair on the face of the woman but did not wear it down on the face of the man? What caused its disappearance on the trunk and limbs? Clearly some agent or agents other than transmission of acquirements were productive of the change.

Dr Kidd has challenged me to refute him and to the best of my ability I have done so. It is no part of my task to offer an alternative explanation. However, if he wishes I am quite prepared to do so. But in that case we shall have to enter into the mysteries of retrogression and sexual selection. Will Dr Kidd tell us who stated that "alcoholism was a selective agent of value in the evolution of man which ought not to be interfered with by legislation"? I stated that it *could* not be interfered with since under the ordinary conditions of civilised life every attempt to do so had resulted in vastly increased drunkenness. Most certainly I have never advocated the atrocious doctrine that drunkards should be permitted or encouraged to drink themselves to death. Readers of THE LANCET who have been interested in the present controversy will find this and kindred topics made clear in a volume[1] which will be published in a few weeks.

I am, Sirs, yours faithfully,

Southsea, August 20th, 1901. G. ARCHDALL REID.

"HAY FEVER: ITS REMEDY."

To the Editors of THE LANCET.

SIRS,—While in no way desirous to detract from the merit of the treatment of hay fever advocated by Dr Clement Dukes, one might reasonably suggest, in these days of accuracy, the advisability of a preliminary examination of the interior of the nostrils, if not before spraying, certainly before applying the galvano-cautery. But my object in writing is to say, as the result of personal experience, that extract of the suprarenal gland is very apt to decompose. It is possible that the preparation of adrenalin chloride in solution with normal sodium chloride may not be liable to this drawback, and on this point I am lacking in special knowledge; but, if only for convenience, I suggest the employment of the drug in fresh made solution from tabloids as is nowadays so general with hypodermics and antiseptics. I am, Sirs, yours faithfully,

London, August 19th, 1901. LENNOX BROWNE.

"WAS LUIGI CORNARO RIGHT?"

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SIRS,—Dr Campbell's statement in his letter under the above heading in THE LANCET of August 17th, p. 487, that pappy food is a harmful diet for children can hardly pass without comment. Astounded by the dietary prescribed by an eminent authority on children's diseases (whose identity is immediately recognisable) he yet fails to suggest any other that might take its place. True, he bids us discontinue the use of pap, and give "any plain food provided it is of a kind which necessitates thorough mastication." The majority of foods which come in such a category strike me as being most indigestible. Should we substitute beef steak for the pounded meat to which Dr Campbell objects? Must bread be given dry, and the child's gums torn—for at the age of 10 months only the incisor teeth have appeared—by the rusk which we are warned against softening into pap? I have frequently seen babies of the poorer classes suffer from a severe fit of choking on attempting to masticate a crust given by a well meaning but ignorant mother.

It must be apparent to those who have had much to do with babies that it is wrong to attribute the presence of adenoids to an imperfect use of the jaws. During the first year of life the jaws and tongue are in almost perpetual movement; when not taking the breast or bottle the child sucks its fingers or "comforter," or champs so vigorously that its bib is quickly saturated with saliva. I would furthermore suggest that, as pap-feeding is adopted more systematically and to a later age by the better classes, one would expect to find among them a larger proportion of adenoids, whereas it is recognised that the disease more generally affects the children of the poor. We must surely have more evidence that pap feeding is wrong and more explicit directions as to new diet before we can abolish the system so carefully arranged by the well-known authority with whom Dr Campbell disagrees.

I am, Sirs, yours faithfully,

Balham, August 20th, 1901. T. B. SELLORS.

"AN IMPROVED METHOD OF PHOTOGRAPHING PATHOLOGICAL SPECIMENS."

To the Editors of THE LANCET.

SIRS,—Having for many years been interested in the uses of photography as an aid to the efficient pictorial representations of medical subjects I am glad to see Dr Ellie Prowse's note in THE LANCET of August 17th, 1901, p. 450, and though she describes therein the method for securing the best result with a fresh specimen, or with one which can be removed from its jar, yet it is only applicable to these conditions and would not be of service where it is desired to photograph a permanently mounted specimen in the ordinary round or oval museum jar.

For this condition after several experiments I found that the only satisfactory way was to immerse completely the jar in water contained in a large vessel or tank having dark-coloured, dull surfaced back, bottom, and sides and a plate glass front. With this tank the only source of reflection is the camera; this is prevented by covering it with the velvet focussing cloth, leaving the lens only showing. A description of a tank made to the above specification will be found in "The International Annual of Photography" for 1889, and this tank has proved so useful that it has been employed in the successful photography of many hundred pathological specimens, both fresh and preserved, and not, as originally intended, for mounted specimens only.

I am, Sirs, yours faithfully,

A. R. F. EVERSHED.

Great Winchester-street, E.C., August 20th, 1901.

"THE ELECTROLYTIC TRANSMISSION OF SULPHUR."

To the Editors of THE LANCET.

SIRS,—Having read Dr F. W. Smith's article on the Electrolytic Transmission of Sulphur through the Skin in THE LANCET of August 10th, p. 371, and having gathered the impression that he considers such transmission as a new discovery, I feel it incumbent upon me to state that the electrolytic transmission of sulphur and other medicinal agents through the skin has been known and practised by my friend E. Savary de Rovigo for more than 10 years in London. I am, Sirs, yours faithfully,

CHARLES J. NEPEAN LONGRIDGE.

St George's Hospital, S.W., August 15th, 1901.

GREY'S HOSPITAL, PIETERMARITZBURG.—In reference to the reorganisation of this hospital a petition to the Governor from the Pietermaritzburg Branch of the South African Medical Association has been received at the Colonial Secretary's Office, Pietermaritzburg, and we are informed that action is being taken with a view, if possible, to meet the wishes of the reformers.

CORNWALL CONVALESCENT HOME FOR MEN, PERRANPORTH.—The ninth annual report of this home, which was founded and endowed by Mr J. Passmore Edwards in memory of his mother, has been recently issued. It shows that during 1900 there were 101 patients admitted, the average stay in the home being 21 days, and the cost per patient being £2 12*s.* 2*d.* The financial statement showed a favourable balance of £116.

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by the antitoxin treatment. Which of these is the right interpretation time alone can tell us. Meanwhile we shall doubtless continue to notify and to inject as before, recognising that as far as statistics go antitoxin is still on its trial. I am, Sirs, yours faithfully,

DONALD F. SHEARER, M.B. Oxon., F.R.C.S. Eng.

Upper Richmond-road, S.W.

OBSERVATIONS ON THE ALTERNATE ERECTILITY OF NASAL MUCOUS MEMBRANE.

To the Editors of THE LANCET.

SIRS,—Every observer who is in the habit of examining the naso-pharynx with the rhinoscopic mirror has noticed that the mucous membrane covering the turbinated bones undergoes erectile changes at times. Strong cocaine solution is used to determine whether this is really erectility or inflammatory change. Actual inflammation or polypoid growths do not disappear after cocaine application. From personal experience, gained by passing my tongue into the naso-pharynx, I may assert that the mucous membrane of the nasal air-passages becomes alternately turgid and relaxed. Every man can satisfy himself by observing in his own body that air does not go in with equal freedom through both the nasal air-passages simultaneously; it blows through each nasal passage for an hour or so with clockwork-like regularity. The cause of obstruction in the free passage of air through one of the nasal passages is the turgidity of the mucous membrane covering the turbinated bones of that side. I know many individuals who can feel this turgidity like myself with their tongues. The mucous membrane of the obstructed side is felt to be hotter than that of the side through which the air blows freely. This erectility of the nasal mucous membrane has been well described by Dr. McBride in his valuable work on "Diseases of the Nose, Throat, and Ear." Sir T. Lauder Brunton also speaks of this erectility in his lectures on the action of drugs. He thinks that this erectility is necessary for warming the cold air going into the lungs. These writers, however, do not recognise or explain the phenomenon of this rhythmically alternate erectility of the nasal mucous membrane. Of course, we can trace the phenomenon to the vaso-motor influence presiding over the blood-vessels of the mucous membrane of the erectile side. But the clockwork-like regularity with which the mucous membrane becomes turgid alternately on each side is a very remarkable feature which we cannot explain at the present state of our knowledge. I bring this fact to the notice of the scientific world because though unknown to the Europeans, as far as I have been able to ascertain from their published books, it was known to the ancient Hindus as early as in the Vedic period.

It will not be out of place here to say a few words on the art of passing the tongue into the naso-pharynx. When I showed to some of the professors of the Medical College, Calcutta, how my tongue goes into the naso-pharynx they thought that this power was something peculiar to my family. This is, however, not so; as I have already noted, it is an art which can be acquired by every man. There are different processes, the best and the safest of which is the one I am going to describe. The front part of the dorsum of the tongue is fixed to the hard palate and the lower jaw is lowered as far downward as practicable and raised alternately. This exercise lengthens the fibres of the tongue-muscles and at last, when by practice the tongue is sufficiently long, it can be easily passed into the naso-pharynx. The anatomical details as felt by passing the tongue into the naso-pharynx are as follows. The tip of the tongue can be made to rest on the under surface of the body of the sphenoid bone. The posterior border of the vomer can be distinctly felt in front and if the tip is made to enter through one of the posterior nares, the turgid mucous membrane of the obstructed side appears to be hot and swollen like an onion. The turgidity of the mucous membrane yields to the slightest pressure of the tip of the tongue but reappears, owing to its elastic nature, as soon as the pressure is removed. On the side through which air is passing the mucous membrane is not at all swollen or as warm as on the other side and the inferior and middle meatuses can be distinctly made out. The openings of the Eustachian tubes and other anatomical details are also clearly felt.

That the Hindus observed the phenomenon of alternate erectility as early as the Vedic period is corroborated by the names they used to describe the cycle of rhythmic erectility of the mucous membrane of each side of the nasal cavity. Thus it is said that when air blows through the left nasal air-passage with ease and the right air-passage is partially or completely blocked, it is an index of the prevalence of what in Vedic language is called *irha-narhi*. So, when air blows through the right nasal passage and the left one is blocked, the condition is designated to be the index of the prevalence of *pingala-narhi*. When air goes in with perfect freedom through both the nasal air-passages (this momentary condition obtains in the interval between the appearance of erectility on one side and the disappearance of it from the other), the condition is taken to indicate the prevalence of *susumna-narhi*. The ancient Hindus went so far as to observe that from the first three days after full moon air would be blowing through the right nasal air-passage during the first hour after sunrise; and the first three days after new moon air would be blowing in the left nasal air-passage during the first hour after sunrise. Then the reverse takes place in each case for three days and so on. Anybody may satisfy himself as I have done by trying to verify this observation. As all the observations I have noted were made in healthy subjects it is unnecessary to say that the law does not hold good in disease.

In conclusion, I venture to expect that scientific men of greater abilities than myself will take up and work out this important subject.

I am, Sirs, yours faithfully,

HEMCHANDRA SEN, M.D.,

Teacher of Materia Medica, Campbell Medical School, Calcutta,
Examiner in Anatomy, Calcutta University.

June 13th, 1901.

"LEGISLATION AGAINST NATIONAL INTEMPERANCE."

To the Editors of THE LANCET.

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SANITATION AND SMALL-POX AT GLOUCESTER.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

THE anti-vaccinationists very generally allege that bad sanitation is the principal cause of small-pox. Consequently as Gloucester is a town where the anti-vaccinationists are exceptionally numerous it was natural to expect that particular attention would be given to sanitary matters, and that if, in spite of such action, small-pox did break out, then it would occur in those quarters where sanitary improvements had been least effective. It so happens, however, that the very reverse is the case. Though it would not be correct to denounce Gloucester as a particularly insanitary town it nevertheless cannot be said that any very special energy or exceptional concern has been displayed as regards dealing with the sanitary defects that do exist. Further and even more remarkable is the fact that perhaps the most effective sanitary measures that have been taken were followed, and not preceded, by the great small-pox epidemic. The drainage of the town is far from corresponding to the modern ideal of self-cleansing sewers. The existing system of sewerage for the city of Gloucester was commenced in 1852 and then the sewers were not only built in view of the future extension of the boundaries of the city but were exceptionally well constructed. Indeed, their construction was quite in advance of the times, though doubtless it may now be found that they do not correspond with the modern ideal. Then when, in 1875, the boundaries were extended the older system was connected with more modern but very inferior sewers that had been built by small local outlying authorities. Since then many of these sewers have been relaid and otherwise improved. That the system did not work well is proved by the fact that very bad odours escaped from the man-holes and occasioned many complaints. It was not till ten years later that this nuisance was finally removed. By that time 600 ventilating shafts had been put up. How far this may be considered a radical remedy is open to question. If the 600 shafts increased the amount of ventilation in the sewer then the evil would be lessened, and doubtless this was the case. But if not, then they only removed the nuisance to an altitude where it would not be perceived by people walking in the streets, but where it would be more likely to penetrate the bedrooms of the houses. As, however, I failed to find any record of complaints from the inhabitants of such bedrooms it is most likely that the shafts so stimulated the ventilation of the sewers that the air inside the sewers had not time to become impregnated with foul odours. Though this is an undoubted improvement, still it does not show that the sewers are in themselves all that can be desired.

There are in Gloucester three main collectors. The northern outfall sewer is 3433 yards in length. It commences with a 9-inch pipe and ends in a sewer measuring 4 feet 6 inches by 3 feet. The fall is 1 in 178. The central outfall sewer is 3000 yards in length and of the same size, but the fall is only 1 in 209. These drain the older parts of the town. They travel along the two sides of a circle and meet at the outfall, where they discharge their crude sewage into a narrow branch of the river Severn. This outfall is as the crow flies within some 500 yards of the Cathedral and the centre of the old town and above a weir which is situated at a short distance lower down the river. It is most important to note that this is a tidal river and, therefore, at flood times the sewage is forced back up the sewer, propelling also the sewer gases back into the town. This is so obvious a defect that in granting leave to extend the boundaries of the city the Local Government Board especially stipulated that these two sewer outlets should be abolished and the sewage discharged lower down the river beyond the weir. So far nothing whatsoever has been done to carry out this instruction. There are many material difficulties in the way. In the meanwhile and in spite of the more energetic ventilation of the sewers I am told that bad odours are still noticed when the sewer is tide-locked. The system of ventilation is that of utilising the man-holes which theoretically serve as air inlets, the ventilation shafts being in connexion with these man-holes. Sometimes, however, the current is reversed and the sewer air then comes out of the man-holes and on the street level. In that case I should imagine that the air descending the ventilating shaft scarcely penetrates the sewer but that the greater part comes out with the sewer air into the street, which it serves to dilute at the critical point of discharge into the street.

The third and southern outfall is much further from the town and below the weir, but this delivers only about a quarter of the total sewage of the town, and it is also thrown into the river in its crude condition. That three-quarters of the crude sewage should be discharged into a narrow branch of the river Severn as it passes by the north-western portion of the town, and at a point where its flow onwards must to some extent be impeded by a weir that is further down the river, undoubtedly constitutes a grave sanitary defect. Then the portion of the city nearest to this outfall is the oldest and the most overcrowded part of Gloucester. Here dwell some of the poorest inhabitants and we find the nearest approach to what might be qualified as slums. Under these circumstances it would be natural to suppose that if the great small-pox epidemic was due to bad sanitation the greatest number of victims would be living near to the water-logged portion of the sewers or where poverty and density of population were most accentuated. It is highly significant that the reverse was the case. To begin with, Gloucester has been remarkably free from drain water-borne diseases such as typhoid fever and diarrhœa. Instead of the north-western it was the south-western districts that suffered most. The density of population in the parts affected amounted to only 31·41 persons per acre. In the districts that were not affected there was a much larger population, amounting in one part to 64·3 persons per acre. Old houses, some of them thickly populated, with bad or at least inferior drains, existed in those parts of the city which completely escaped from the epidemic. But in the district affected the houses were all new and for the most part consisted of semi-detached villas. Therefore there were many gardens, plenty of fresh air, a higher state of well-being, and much less poverty and dirt than in the parts of the city where the epidemic did not spread. Thus the experience acquired at Gloucester does not at all confirm the theory that bad sanitation is the principal cause of small-pox. Indeed, if we are to judge men's beliefs by their actions, it does not seem as if the inhabitants of Gloucester had very much faith in this theory of the anti-vaccinationists, for they displayed no very great desire to secure the best sanitary conditions. Thus, for instance, they would not listen to the supplications of their medical officer of health when he urged upon them the necessity of having a disinfecting stove. That there should be some hesitation to burden the town with the expense of a vast scheme of drainage or other sanitary improvements can well be understood and excused. But the expense of a proper disinfecting stove and station involves only a trivial outlay. Nevertheless, a disinfecting stove was not purchased until after there had been many cases of small-pox and the authorities had realised that it would cost less to disinfect than to burn the infected clothing, bedding, &c.

The history of the small-pox epidemic has often been told. It is not necessary to repeat this well-worn story. Full details were given, notably in a paper read by the medical officer of health of Gloucester, Dr. John Campbell, to the Incorporated Society of Medical Officers of Health on March 19th, 1897. It will suffice to recall that Dr. Campbell then stated that there had been in all 1981 cases of small-pox. In analysing these figures he showed that the attacks of small-pox in properly vaccinated children were extremely rare up to the age of 10 years; that such cases as did occur under these conditions were not severe, and that deaths were almost unknown; but very few of the unvaccinated escaped when exposed to infection and then the mortality was very great; also none of the nurses contracted the disease, but they had all been properly vaccinated and revaccinated. It certainly seems as if the most effective measure taken to check the spread of the disease was vaccination; and it was interesting to note how rabid antivaccinationists promptly resorted to vaccination when they found that the danger was at their door. Dr. Campbell relates that the proprietor of the local daily paper (which waged ceaseless war against vaccination), who he believes was chairman of the local branch of the Anti-vaccination League, took good care to have himself vaccinated. It was this inconsistency, widely shared by the public at large, that finally saved the town. Had the epidemic been due to bad sanitation it would not have ceased so promptly, nor would it have spread so rapidly. Indeed, no important alterations were made in the town that could account for the cessation of the epidemic. The patients could not even be isolated, for the isolation hospital only contained 16 beds, and though huts were hastily constructed they could not be built in time, nor were they sufficiently numerous to accommodate the majority of cases; thus only 742 cases were received in the hospitals out of the 1981 cases.

In conclusion, it may be said that in sanitary matters Gloucester cannot be qualified as a model city, but it cannot be denounced as being in an especially unsanitary condition. Like most towns it has its good and bad points, but the bad points had nothing to do with the epidemic, for it was precisely the districts they affected that escaped from small-pox.

Gloucester, August 20th.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

Precautions during Epidemics.

THE prevalence of continued hot weather brings in its train certain consequences. These might be largely preventable if only precautions were taken at the right time and an element of prudence and common sense was kept in reserve. In the weekly return of the medical officer of health of the city the total number of 92 deaths from zymotic diseases are recorded, of which 78 were from diarrhœa. This is a large number in a short interval and calls for comment as to the cause. The medical officer issues bills pointing out the precautions to be taken during the existence of the prevailing epidemic, but it is to be feared that these are seldom read, and still less often acted upon. Yet the mortality might be greatly reduced if these simple rules were followed. The injudicious feeding of infants and the indifference and carelessness associated with the bringing up of young children in big towns are the chief factors of so large a death-roll. Until a sense of responsibility can be instilled into the minds of the parents the advice of the Health Committee and the admonitions of the coroner are but as sounding brass and a tinkling cymbal.

The Dangers of the Brass Trade.

Birmingham owes a great part of its commercial success to the number of industries connected with the metal trade. Among these stand out prominently the various manipulations with brass, polishing being a fertile source of mischief from the dust produced. It is stated that the workmen object to the use of respirators during their work, that they often take their meals in the same room as that in which the work is done, and that they show a disinclination to wash their hands at any time during or after the process. An inquest was recently held on the body of a brass worker, aged 28 years, in which the medical evidence disclosed how frequently illness is engendered by this kind of work. It was shown that certain symptoms were common among this class when affected by the work in which they were engaged, such as pallor, discolouration of the teeth and gums, abdominal pain, vomiting in the morning, metallic taste in the mouth, night sweats, and general weakness, while inflammation of the stomach was usually present. It was also wisely pointed out that free ventilation, the use of respirators, and periodical medical examination of the workmen would go far towards mitigating the spread of the diseases which are caused by this kind of work. The inspector of factories explained that a special Government inquiry was made a few years ago and that certain rules were drawn up for those working in brass-casting shops, but that these could not be enforced in those where polishing only was done. The coroner observed that the attention of the Home Office should be called to the matter and promised to make a representation in that quarter.

Analysts' Certificates.

A case of much interest to dispensing chemists was recently brought before the Birmingham Police-court. A sample of compound tincture of benzoin was said to be below the standard of the British Pharmacopœia. The case was adjourned in order that the sample might be sent to the Government laboratory. [illegible]
was at variance with that of
the city; the bench therefore

was entitled to a discharge. Evidently opinions differ on what might well be looked upon by outsiders as matters of fact.

Vacation Difficulties.

The universality of August as a holiday month causes great trouble in finding substitutes for official work or private practice. As much as six guineas a week is being offered without success for a locum-tenent to take duty during the absence of a principal.

August 20th.

WALES AND WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

Cardiff Seamen's Hospital.

AT a meeting of the committee held on August 13th it was stated that the estimated cost of the new hospital was £30,000. Towards this sum £13,159 have been already received and a further sum of £3597 has been promised. The trustees of the late Marquis of Bute will contribute £13,242, and if the above-mentioned promised subscriptions are not received by the committee, the trustees will make good the deficiency.

Monmouthshire County Council.

At the meeting of the Monmouthshire County Council held on Aug. 7th a report was presented by the chairman of the Sanitary Committee upon the sanitary condition of the county, being, in fact, a digest of the annual reports of the district medical officers of health. The population of the administrative county at the last census was 230,000, an increase of 27,000 during the past decade. This is not a large population nor is the increase very great compared with other counties, but there are in Monmouthshire a large number of rapidly increasing colliery villages and many of them are in anything but a satisfactory state as regards water-supply, drainage, and the housing of the inhabitants. The county council appears to be quite aware of the circumstances connected with these villages, and one member regretted that the powers of the council were merely advisory—an extraordinary statement in view of the fact that the council possesses very ample powers as regards the provision of isolation hospitals and the prevention of the pollution of rivers. The district councils would, no doubt, attach greater weight to the recommendations of the Sanitary Committee if the county council would itself exercise its own powers—not the least of which is the appointment of a county medical officer of health, a duty which the council has persistently refused to perform.

The New Dietary at Bristol Workhouse.

When the Bristol Board of Guardians were discussing early in the present year the adoption of the new dietary for the workhouse inmates it was anticipated that the change would certainly involve an increased annual charge. The report for the first three months ending midsummer last during which the new dietary has been in operation shows that not only has there been no increase in the expenditure, but that an actual saving has occurred. At the Stapleton Workhouse there was a saving of £130 compared with the corresponding quarter of 1900. It is true that there were slightly fewer inmates in 1901; on the other hand, at the Eastville workhouse, where the number of inmates was greater than in 1900, the expenditure was £10 less.

August 19th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

Presentation to an Aberdeenshire Medical Man.

ON August 14th Dr. James Wilson, of Old Meldrum, Aberdeenshire, was presented with a silver fruit-bowl and a purse of 100 sovereigns. The bowl bears the following inscription: "Presented to James Wilson, Esq., M.D., along with a purse of sovereigns by more than 400 subscribers, in grateful recognition of the exceptional skill, unfailing kindness, and unswerving fidelity with which he laboured among them for over 40 years. Old Meldrum, August, 1901."

Aberdeen Medical Officer's Report for 1900.

The annual report by Professor Matthew Hay, medical officer of health of the city of Aberdeen, for 1900 has just been issued. It deals with a wider range of subjects than usual. The population is given as 150,906. Professor Hay remarks that the death-rate (19·0 per 1000) is not high for a town of the size of Aberdeen and is indeed lower than in the majority of towns with a corresponding population. The death-rate from diphtheria, influenza, phthisis, pneumonia, &c., was in each case above the average, while the rate from measles, scarlet fever, typhoid fever, &c., was found to be on the decrease. The mortality among infants has increased materially since 1866. The total number of cases of infectious disease was 6140 and the number of deaths 196, or 3·2 per cent. of total mortality from all causes. The report deals at great length with the question of vaccination and revaccination. Professor Hay also says that the sanitary state of the town was generally good, the bakehouses had all been inspected in the course of the year and were on the whole in a satisfactory condition, and adds remarks directing attention to "the harmful and even vicious habit of cigarette smoking among young boys." In comparing Aberdeen with the other large towns of Scotland, says Professor Hay, and taking account of the alterations in the estimated populations brought about by the recent census, it will be observed that the birth-rate and marriage-rate of Aberdeen were among the highest, while the death-rate was among the lowest. During the year 762 patients were admitted into the City Hospital, the great bulk of the patients suffering from measles or scarlet fever. The mortality-rate for each disease was, with the exception of measles, gratifyingly low. In the case of measles the rate (2·6 per cent.) was above the average, but this was in large measure due to an outbreak of measles in an institution where a number of the children attacked were already suffering from other serious ailments.

August 20th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Central Pathological Laboratory in Connexion with the Lunatic Asylums of Ireland.

THE proposal for the foundation of a central pathological laboratory for the investigation of mental disease has recently taken a practical shape by the insertion of a permissive clause in the Lunacy Bill which has just passed. According to it the committees of any two or more district asylums may, with the consent of the county council, agree to unite "in providing and maintaining a laboratory for pathological research in connexion with insanity and nervous diseases," and the committees of those institutions may defray the expenses incurred in connexion with their union for the purpose of helping pathological research. It will be remembered that in January last a deputation representing the Royal Academy of Medicine in Ireland and the Irish division of the Medico-Physiological Association of Great Britain and Ireland waited on the Chief Secretary with reference to the project of establishing a central laboratory in Dublin. Sir Christopher Nixon—a member of the deputation—remarked that such research laboratories existed in London and in Edinburgh, while Professor Cunningham stated that a sum of £600 a year would probably be sufficient for the purpose in Ireland as it has proved to be in Scotland.

The Royal Commission on University Education in Ireland.

The Royal Commission on University Education in Ireland have arranged to commence their sittings in Dublin about the middle of September (the Senate of the Royal University at their last meeting having granted the use of their buildings to the Commission). It is stated in the public press that in order to be possessed of as much statistical information as possible regarding the present condition of education in Ireland blank forms or query sheets have been sent to the heads of colleges and schools in various parts of Ireland to be filled up with the information required under the various heads, and some of these queries are certainly peculiar. The terms of reference to the Commission are "to inquire into the present condition of the higher, general, and technical education available in Ireland outside Trinity College, Dublin, and to report as to what reforms, if any, are desirable in order to render that education adequate to the needs of the Irish people." Now one of the returns sent out to be filled up by the heads of intermediate schools, is "with reference to the number of students from above school who proceeded to Trinity College, Dublin, and the Royal University of Ireland in the year 1900." As put by one of the Irish papers, if at the very outset of its proceedings the Commission brings in Trinity College in this way how are the Commissioners to draw the line when evidence is subsequently offered? Then among many true friends of education great surprise has been expressed at another query sent out by the authority of the Commission, asking those to whom the forms are addressed to state, if students are of various denominations, the number belonging to each. To introduce sectarianism so early into the proceedings of the Commission—before any evidence is heard—has aroused among many the suspicion that a determined bias is to be given, even at the very beginning, to the evidence to be tendered at the Commission.

Ambulance Work in Belfast.

Last week the annual inspection took place of the members of the Belfast Fire Brigade, who do so well the ambulance work of the city. The inspection was made by Lieutenant-Colonel C. J. Trimble, L.R.C.P., deputy-commissioner in charge of the north-western district. Forty-five men took part in the display and it came out that Belfast was the only place in Ireland where the presence of the inspecting officer was needed. It is a pity that the example set by Belfast in regard to ambulance work is not followed by other Irish towns. There are now three ambulance wagons in connexion with the Belfast Fire Brigade and last year they were called on 1817 times.

Lunacy in Ireland.

From the fifteenth annual report on the condition and management of lunatics and lunatic asylums throughout Ireland during 1900 I gather that there was a total increase of 306 cases of lunacy, being 253 less than that for the previous year, when 559 cases were reported. The increase was mainly in district asylums—495. The increase in private asylums was 10, while in workhouses there was a decrease of 184. The general increase was 186—less than the average for the past 10 years, which was 462. The figures for 1900 show an increase in district asylums of over 41 per cent. as compared with 1881. As showing the growth of lunacy in Ireland it may be said that the number of insane under care has increased from 250 per 100,000 of the population in 1880 to 470 per 100,000 in 1890.

Overcrowding in Donegal Asylum.

At a meeting of the Committee of Management of this asylum held on August 14th Dr. E. E. Moore, the resident medical superintendent, reported that there were at present in the institution 404 males and 215 females, that is, 619 in all, while the legitimate accommodation was for 322 males and 198 females, or 520 in all; so that there are 99 patients resident in the asylum in excess of accommodation. The excess on the male side was 82 and on the female side 17, so that the numbers were slowly but steadily increasing. All the dormitories were overcrowded, and in the corridors where beds could be put up they were full. These corridors were meant to act as ventilating shafts for the asylum, but owing to patients sleeping in them they were shut at night, and the consequence was that the ventilation of the asylum was seriously interfered with and in the long run the health of the inmates would suffer. The whole question of how to provide increased accommodation is to be considered at the next meeting of the committee.

The Royal University Graduates' Association.

The executive of the Royal University Graduates' Association have issued a circular to the graduates of the Royal University pointing out that a crisis has been reached, as it will soon be settled whether university education in Ireland is to be free and untrammelled, as in all civilised countries, or to be guided and directed by small political and ecclesiastical coteries. It is pointed out that some members of the senate would destroy the Royal University and instead of protecting would sacrifice the interests of the graduates, their policy being to carve the Royal University into two petty ones which would be only local and sectional, and which could hardly be expected to attain to any repute. It is advised that the most strenuous resistance should be offered to such a retrograde policy, and that should this end in failure there is still an alternative for the graduates, that is, to send their sons and daughters to England and to Scotland where they will receive the very best education in colleges and universities of good repute, of certain stability, and free from the narrowing influence of sectarianism The association opposes, they say, Mr Balfour's scheme of a university for the Roman Catholics and a university for the "great Presbyterian bodies of the North not through hostility to any Church whatever, but on the ground that higher education could never thrive in institutions founded not on broad educational principles, but virtually to satisfy ecclesiastical demands and to meet political exigencies Graduates who approve of this policy are asked to become members of the association.

August 20th

PARIS

(FROM OUR OWN CORRESPONDENT)

The Medico Pharmaceutical Association at Lille and the Pasteur Institute

THE law courts at Lille have this week had to decide a dispute of considerable interest and the decision arrived at gives a promise of future developments which are not likely to be lacking in this quality The Pasteur Institute of Lille presided over by Dr Calmette and founded by the proceeds of a public subscription to which he was the most liberal contributor, commenced last year a campaign against tuberculosis in the North of France and established sanatoria as well as dispensaries in which medical advice was given *gratis* The medical men of the district resented these proceedings, for they thought that the great reputation of the institute would attract patients who would thereby be lost to them, or at least that the practitioners selected from among them to attend the patients at the dispensaries would from this circumstance acquire a position in the eyes of the public which would benefit them to the detriment of the rest The medical men of Lille said that they had contributed as ordinary citizens to the fund which established the institute and that it was intended solely for scientific work and not for the practice of medicine or pharmacy in competition with the professional men of the town The pharmaceutical chemists joined the medical men in this protest complaining that the public purchased sera from the Pasteur Institute and that it had given up a portion of its premises to an establishment for the manufacture of sterilised aerated waters from the preparation of which it made a profit A combination was formed by a great many medical men and pharmaceutical chemists in Lille to restrain the Pasteur Institute from carrying on a business by receiving paying patients and by selling sera otherwise than wholesale and to pharmaceutical chemists The result of this combination was the founding of a medico pharmaceutical association constituted in accordance with the conditions prescribed by the French law for professional associations (*syndicats*)—namely, by delivering a declaration of foundation to the prefect of the department. The association has now been in existence for three months which amounts to an official authorisation for the period during which the prefect may issue an interdiction is by law limited to one month It had collected funds, had organised conferences and was going to bring an action at law when it received notice from the authorities that the Minister of Justice had declared the association to be illegal and that proceedings would be taken if it was not dissolved The point raised against the association was that the law only authorised associations among persons of the same occupations or professions and that the Minister considered that medicine and pharmacy were not in this relation to one another The association obtained an opinion from a professor in the Faculty of Law at Lille and on being assured that its constitution was perfectly legal and that the threatened proceedings were an attempt at intimidation by the Minister probably instigated by the eminent personages who protect the Pasteur Institute it refused to dissolve and allowed itself to be prosecuted Judgment has just been delivered and the medical men have to congratulate themselves on persevering in their original policy The judges have decided in their favour by recognising the legality of the Medico Pharmaceutical Association and by declaring that medicine and pharmacy possess the mutual relations required by law for associations of mixed composition The association will therefore be in a position to go on with its projects and to persevere with its attack on the Pasteur Institute

Legal Responsibility of Hospital Officials

The Eleventh Chambre du Tribunal Correctionel has passed sentence on Mdlle Leullier under nurse, Mdme. Gauthier, nurse (*surveillante*) and M Faure, superintendent of the Hôpital Lariboisière They were all charged with wounding and homicide by imprudence On April 6th last Mdlle Leullier by a lamentable mistake took from a cupboard a jar of chloride of zinc instead of a jar of honey and glycerine and she gave six patients enemata containing a corrosive disinfectant and not the emollient which she supposed she was administering Two patients died, the others have not yet recovered This was the mistake which led to the prosecution M Faure the superintendent has been sentenced to 15 days imprisonment and 300 francs (£12) fine Mdme Gauthier to two months' imprisonment, and the under nurse to three months imprisonment They have all benefited by the system of respite which exists in France and which permits the non fulfilment of sentences except in case of a subsequent conviction These sentences even with this respite are regarded by the press as being very heavy It is asked why sentences of imprisonment were passed As a matter of fact there were extenuating circumstances and the court mentioned them in pronouncing judgment The jar of chloride of zinc was red as was also the jar of honey and glycerine and its label was almost illegible Moreover, the unhappy young woman who committed the mistake was overworked The sentence stated that her duties were excessive since she had to work 15 and even 18 hours a day, for which she was paid 42 francs (£1 14s.) a month The sentence recognised that the superintendent had a difficult task and a great deal to do but added that it was necessary for him to give personal attention to everything and that he would be unworthy of his position if he relied on his subordinates only exercising his authority from a distance

Biological Research Fund

Legal authority has just been given for the creation of a fund for scientific research It is divided into two sections and its object is the promotion of purely scientific work relative (1) to the discovery of new methods of treatment of the diseases which attack man, domestic animals, and cultivated plants, and (2) to the discovery apart from the medical sciences of the laws which govern natural phenomena (mechanics astronomy, natural history physics and chemistry) The income of the fund will be derived from the following sources 1 Grants made by the Government, by the departments, by the communes, by the colonies and by other sections of the population 2. Gifts and bequests 3 Individual or collective subscriptions 4 Grants deducted from the portion of the proceeds of the *pari-mutuel* assigned to philanthropic or charitable purposes locally, the annual amounts of these grants, which will not be less than 125 000 francs (£5000) will be fixed each year on the application of the council of management by the special commission held at the Ministry of Agriculture. 5 Interest of money invested in Government securities or deposited with the Treasury The fund is subject to the authority of the Ministry of Public Instruction It is managed by a council assisted by a technical commission concerned with the grants The first section which is the only one that interests medical men has to do with researches having for their object the promotion of the biological sciences and especially the discovery of new methods of treating the diseases of mankind, of the domestic animals, and of cultivated plants

Obituary

Dr Leroy de Méricourt who has just died at the age of 75 years was noted as one of the reorganisers of the French naval medical service He distinguished himself in the Crimea and was formerly Professor at the Naval Medical School of Brest He wrote much upon tropical medicine and hygiene and founded a review which is highly esteemed at the present day the *Archives de Médecine Navale* He was a member of the Academy of Medicine and Chevalier of the Legion of Honour

August 19th

NEW YORK

(FROM OUR OWN CORRESPONDENT)

A Census of Lepers

A COMMISSION selected from the Marine Hospital Service, has been working under Congressional authority since 1899, officer of health of the city of Aberdeen, for 1900 has just been issued. It deals with a wider range of subjects than usual. The population is given as 150,906. Professor Hay remarks that the death-rate (19·0 per 1000) is not high for a town of the size of Aberdeen and is indeed lower than in the majority of towns with a corresponding population. The death-rate from diphtheria, influenza, phthisis, pneumonia, &c., was in each case above the average, while the rate from measles, scarlet fever, typhoid fever, &c., was found to be on the decrease. The mortality among infants has increased materially since 1866. The total number of cases of infectious disease was 6140 and the number of deaths 196, or 3·2 per cent. of total mortality from all causes. The report deals at great length with the question of vaccination and revaccination. Professor Hay also says that the sanitary state of the town was generally good, the bakehouses had all been inspected in the course of the year and were on the whole in a satisfactory condition, and adds remarks directing attention to "the harmful and even vicious habit of cigarette smoking among young boys." In comparing Aberdeen with the other large towns of Scotland, says Professor Hay, and taking account of the alterations in the estimated populations brought about by the recent census, it will be observed that the birth-rate and marriage-rate of Aberdeen were among the highest, while the death-rate was among the lowest. During the year 762 patients were admitted into the City Hospital, the great bulk of the patients suffering from measles or scarlet fever. The mortality-rate for each disease was, with the exception of measles, gratifyingly low. In the case of measles the rate (2·6 per cent.) was above the average, but this was in large measure due to an outbreak of measles in an institution where a number of the children attacked were already suffering from other serious ailments.

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From the fifteenth annual report on the condition and management of lunatics and lunatic asylums throughout Ireland during 1900 I gather that there was a total increase of 306 cases of lunacy, being 253 less than that for the previous year, when 559 cases were reported. The increase was mainly in district asylums—495. The increase in private asylums was 10, while in workhouses there was a decrease of 184. The general increase was 186—less than the average for the past 10 years, which was 462. The figures for 1900 show an increase in district asylums of over 41 per cent. as compared with 1881. As showing the growth of lunacy in Ireland it may be said that the number of insane under care has increased from 250 per 100,000 of the population in 1880 to 470 per 100,000 in 1890.

Overcrowding in Donegal Asylum.

At a meeting of the Committee of Management of this asylum held on August 14th Dr. E. E. Moore, the resident medical superintendent, reported that there were at present in the institution 404 males and 215 females, that is, 619 in all, while the legitimate accommodation was for 322 males and 198 females, or 520 in all; so that there are 99 patients resident in the asylum in excess of accommodation. The excess on the male side was 82 and on the female side 17, so that the numbers were slowly but steadily increasing. All the dormitories were overcrowded, and in the corridors where beds could be put up they were full. These corridors were meant to act as ventilating shafts for the asylum, but owing to patients sleeping in them they were shut at night, and the consequence was that the ventilation of the asylum was seriously interfered with and in the long run the health of the inmates would suffer. The whole question of how to provide increased accommodation is to be considered at the next meeting of the committee.

The Royal University Graduates' Association.

The executive of the Royal University Graduates' Association have issued a circular to the graduates of the Royal University pointing out that a crisis has been reached, as it will soon be settled whether university education in Ireland is to be free and untrammelled, as in all civilised countries, or to be guided and directed by small political and ecclesiastical coteries. It is pointed out that some members of the senate would destroy the Royal University and instead of protecting would sacrifice the interests of the graduates, their policy being to carve the Royal University into two petty ones which would be only local and sectional, and which could hardly be expected to attain to any repute. It is advised that the most strenuous resistance should be offered to such a retrograde policy, and that should this end in failure there is still an alternative for the graduates, that is, to send their sons and daughters to England and to Scotland where they will receive the very best education in colleges and universities of good repute, of certain stability, and free from the narrowing influence of sectarianism The association opposes, they say, Mr Balfour s scheme of a university for the Roman Catholics and a university for the "great Presbyterian bodies of the North" not through hostility to any Church whatever but on the ground that higher education could never thrive in institutions founded, not on broad educational principles but virtually to satisfy ecclesiastical demands and to meet political exigencies Graduates who approve of this policy are asked to become members of the association.

August 20th

PARIS

(FROM OUR OWN CORRESPONDENT)

The Medico Pharmaceutical Association at Lille and the Pasteur Institute

THE law courts at Lille have this week had to decide a dispute of considerable interest and the decision arrived at gives a promise of future developments which are not likely to be lacking in this quality The Pasteur Institute of Lille presided over by Dr Calmette and founded by the proceeds of a public subscription to which he was the most liberal contributor commenced last year a campaign against tuberculosis in the North of France and established sanatoria as well as dispensaries in which medical advice was given gratis The medical men of the district resented these proceedings for they thought that the great reputation of the institute would attract patients who would thereby be lost to them or at least that the practitioners selected from among them to attend the patients at the dispensaries would from this circumstance acquire a position in the eyes of the public which would benefit them to the detriment of the rest. The medical men of Lille said that they had contributed as ordinary citizens to the fund which established the institute and that it was intended solely for scientific work and not for the practice of medicine or pharmacy in competition with the professional men of the town The pharmaceutical chemists joined the medical men in this protest complaining that the public purchased sera from the Pasteur Institute and that it had given up a portion of its premises to an establishment for the manufacture of sterilised aerated waters from the preparation of which it made a profit A combination was formed by a great many medical men and pharmaceutical chemists in Lille to restrain the Pasteur Institute from carrying on a business by receiving paying patients and by selling sera otherwise than wholesale and to pharmaceutical chemists The result of this combination was the founding of a medico pharmaceutical association constituted in accordance with the conditions prescribed by the French law for professional associations (*syndicats*)—namely, by delivering a declaration of foundation to the prefect of the department The association has now been in existence for three months which amounts to an official authorisation for the period during which the prefect may issue an interdiction is by law limited to one month It had collected funds had organised conferences and was going to bring an action at law when it received notice from the authorities that the Minister of Justice had declared the association to be illegal and that proceedings would be taken if it was not dissolved The point raised against the association was that the law only authorised associations among persons of the same occupations or professions and that the Minister considered that medicine and pharmacy were not in this relation to one another The association obtained an opinion from a professor in the Faculty of Law at Lille and on being assured that its constitution was perfectly legal and that the threatened proceedings were an attempt at intimidation by the Minister probably instigated by the eminent personages who protect the Pasteur Institute it refused to dissolve and allowed itself to be prosecuted Judgment has just been delivered and the medical men have to congratulate themselves on persevering in their original policy The judges have decided in their favour by recognising the legality of the Medico Pharmaceutical Association and by declaring that medicine and pharmacy possess the mutual relations required by law for associations of mixed composition The association will therefore be in a position to go on with its projects and to persevere with its attack on the Pasteur Institute

Legal Responsibility of Hospital Officials

The Eleventh Chambre du Tribunal Correctionel has passed sentence on Mdlle Leullier under nurse Mdme. Gauthier, nurse (*surveillante*) and M. Faure, superintendent of the Hôpital Lariboisiere. They were all charged with wounding and homicide by imprudence On April 6th last Mdlle Leullier by a lamentable mistake took from a cupboard a jar of chloride of zinc instead of a jar of honey and glycerine and she gave six patients enemata containing a corrosive disinfectant and not the emollient which she supposed she was administering Two patients died , the others have not yet recovered This was the mistake which led to the prosecution M Faure the superintendent, has been sentenced to 15 days imprisonment and 300 francs (£12) fine Mdme Gauthier to two months' imprisonment and the under-nurse to three months' imprisonment They have all benefited by the system of respite which exists in France and which permits the non fulfilment of sentences except in case of a subsequent conviction These sentences even with this respite are regarded by the press as being very heavy It is asked why sentences of imprisonment were passed As a matter of fact there were extenuating circumstances and the court mentioned them in pronouncing judgment The jar of chloride of zinc was red as was also the jar of honey and glycerine and its label was almost illegible Moreover, the unhappy young woman who committed the mistake was overworked The sentence stated that her duties were excessive since she had to work 15 and even 18 hours a day, for which she was paid 42 francs (£1 14*s*) a month The sentence recognised that the superintendent had a difficult task and a great deal to do but added that it was necessary for him to give personal attention to everything and that he would be unworthy of his position if he relied on his subordinates only exercising his authority from a distance

Biological Research Fund

Legal authority has just been given for the creation of a fund for scientific research It is divided into two sections and its object is the promotion of purely scientific work relative (1) to the discovery of new methods of treatment of the diseases which attack man, domestic animals and cultivated plants , and (2) to the discovery apart from the medical sciences of the laws which govern natural phenomena (mechanics astronomy, natural history physics and chemistry) The income of the fund will be derived from the following sources 1 Grants made by the Government, by the departments, by the communes by the colonies and by other sections of the population 2. Gifts and bequests 3 Individual or collective subscriptions 4 Grants deducted from the portion of the proceeds of the *pari mutuel* assigned to philanthropic or charitable purposes locally , the annual amounts of these grants which will not be less than 125 000 francs (£5000) will be fixed each year on the application of the council of management by the special commission held at the Ministry of Agriculture 5 Interest of money invested in Government securities or deposited with the Treasury The fund is subject to the authority of the Ministry of Public Instruction It is managed by a council assisted by a technical commission concerned with the grants The first section, which is the only one that interests medical men has to do with researches having for their object the promotion of the biological sciences and especially the discovery of new methods of treating the diseases of mankind of the domestic animals and of cultivated plants

Obituary

Dr Leroy de Méricourt who has just died at the age of 75 years was noted as one of the reorganisers of the French naval medical service He distinguished himself in the Crimea and was formerly Professor at the Naval Medical School of Brest He wrote much upon tropical medicine and hygiene and founded a review which is highly esteemed at the present day the *Archives de Médecine Navale* He was a member of the Academy of Medicine and Chevalier of the Legion of Honour

August 19th

NEW YORK

(FROM OUR OWN CORRESPONDENT)

A Census of Lepers

A COMMISSION selected from the Marine Hospital Service, has been working under Congressional authority since 1899 making a scientific investigation of the extent of leprosy in America. They have sent circular letters to physicians, health officers, hospital superintendents, and others, in 600 localities covering the entire country, asking for reports and information regarding leprosy patients. Eight thousand of these circulars have been sent out, but only 2000 were answered. From these 277 lepers have been located, and their names and addresses obtained; 100 of these are known to live in New Orleans, and many of them are well to do and of good family. In Minnesota about 20 cases are reported, mostly Scandinavians living in the rural districts; seven cases were reported from New York, three from Chicago, and 15 from San Francisco, 12 of these being confined in the pest-house. In North Dakota there were 15 and but two in South Dakota: in New Mexico there were at least a dozen, and Baltimore reported three; the remainder were scattered throughout the country. As the circulars have brought but few replies comparatively and suspicious districts make no returns the commissioners believe that only about one-fourth of the cases have been reported. It is evident from this investigation that notwithstanding the widespread distribution of leprous patients throughout this country, and their increase in the last decade, there is no cause for alarm, for the disease is not so fatal, or so contagious, or so easily transmitted as tuberculosis. It has also been shown that cures have often been accomplished after two years' treatment. The commission will probably recommend to Congress that national lazarettes should be established in various parts of the country, one perhaps in New Orleans, one in New Mexico, and another in Minnesota or Montana A generous appropriation will be asked for, sufficient to cover the erection of fine isolated buildings with every appointment for the comfort and pleasure of the sufferers.

Bureau of Food Inspection in the Department of Agriculture.

Mr. B. F. Van Valkenburgh of Brooklyn, for 12 years assistant dairy commissioner and assistant commissioner of agriculture of New York, has just been appointed inspector of dairy exports for this port; the appointment was made und[illegible] Mr. H. E. Alvord, chief of the dairy division of the Bur[illegible] of Animal Industry. An appropriation of $1,500,000 [illegible] made by the last Congress for the use of the Secreta[illegible] Agriculture as a fund for the establishment of a [illegible] connexion with the Department of Agriculture. The d[illegible] of the inspector are to make reports to Mr. Alvord [illegible] facts possible to obtain in connexion with the exp[illegible] dairy products, as to the quality and quantity exporte[illegible] to what points, with the view of putting in force t[illegible] passed by Congress relating to the purity of dairy [illegible] The extent of dairy products exported from New Y[illegible] be gathered from the following facts; for the year [illegible] May 1st, 1901, there were exported 187,285 pac[illegible] butter and 559,554 packages of cheese. The [illegible] laws were amended during the last winter with [illegible] supervise the purity of such exports by the d[illegible] of the Department of Agriculture.

should be administered in full doses to destroy the malarial organisms in the blood and this remedy should be continued for a few weeks after apparent recovery. The breeding places of mosquitoes should be removed by drainage, filling up of holes and surface pools and the emptying of tubs and pails which contain stagnant water. This particular kind of mosquito breeds in surface rainpools or surface stagnant water unless there are fish; equally in pails, tubs, barrels, and tanks of standing water, though they seem to prefer natural accumulations. In pools which cannot be drained it is possible to destroy the mosquito larvæ by the use of petroleum thrown upon the surface, the introduction of minnows and other small fish which eat the larvæ, or by both these methods combined." The Board of Health seek to ascertain the location of cases of malarial fever in order to instruct people as to the danger and the best method of averting it. A case of this disease, whether actively ill or not, if produced by this kind of mosquito, is a constant menace to those in the neighbourhood unless proper precautions are taken to check its spread.

Protest against the Abolition of the Army Canteen.

The last Congress, influenced by the petitions of temperance agitators, abolished the army canteen. The result is reported by military authorities to be a large increase of intemperance, vice, and insubordination. At a recent meeting of the Association of Military Surgeons of the United States the following action was taken:

> The abolition of the army post exchange, or canteen, has resulted, and must inevitably result, in an increase of insubordination, intemperance, discontent, desertion, and disease in the army.

Therefore the association resolved:

> That this body deplores the action of Congress in abolishing the post exchange or canteen, and in the interests of discipline, morality, and sanitation recommends its re establishment at the earliest possible date.

At a subsequent [illegible] of the American Medical Association this resol[illegible] [illegible]mously endorsed.

[illegible] *To In[illegible] [illegible]ulness of Ambulances.*

[illegible] eri[illegible] g[illegible] to Bellevue Dispensary, [illegible]struct and to equip ambulances [illegible] that the treatment of patients [illegible] received into the [illegible] He suggests that [illegible] asbestos or some [illegible] warmer in winter [illegible]ing from shock [illegible]ion of a simple [illegible] with heat-stroke [illegible]gs. If the tem[illegible] preserved at a [illegible]ere would, in the [illegible]at saving of life [illegible] in the [illegible] year

Mary's Hospital; William Henry France, Westminster Hospital; Edgar Herbert Good, London Hospital; George Christopher Grundy, Yorkshire College, Leeds; Percy Gully, Charing Cross Hospital; Arthur Lewis Helser, Daniel Morgan Humby, L.D.S. Eng., Middlesex Hospital; George Wykeham Heron, Westminster Hospital; Thomas Martin Hughes, Owens College, Manchester; [illegible]

[illegible] Tresidder, and James Turtle, London Hospital; John Edward Litton and [illegible] St. Bartholomew's Hospital; Cecil [illegible] Albert James Walton, Thomas Joh [illegible] and Percy Charles Woollatt, London Hospital; [illegible] Weaver, Birmingham University; Solomon James Weinberg, *Owens College*, Manchester; Arthur Denham White and Frank Edred Whitehead, St. Bartholomew's *Hospital*; *Edward Kynaston Williams*, B.A. Cantab., St. Andrew's University; and James Alexander Williams, University College, London.

Passed in Physiology only: Alexander Vigers Benson, London Hospital.

52 gentlemen were referred in both subjects, and one in anatomy only.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—The following gentlemen passed the Preliminary Science Examination for the Licence in Dental Surgery at the July quarterly meeting of the examiners:—

Walter Breese, Birkbeck Institute, John Piercy Brown, Holt School of Science, Birkenhead; Herbert Edgar Collett and William Ewart Derriman, Guy's Hospital; *James Thomas Daly*, Middlesex Hospital; *Norman Sydney Dervin*, Melbourne University [illegible]

[illegible] University; Sydney William Robinson and Robert Alexander Scott, *Guy's Hospital*, *Walter Duckett* Southern, Municipal Technical College, Derby; Bernard Maxwell Stephens, Middlesex Hospital; Francis Edgar Sprawson and Francis Raymond Wilson, Birkbeck Institute; and Henry Harrison Tomlinson, Holt School of Science, Birkenhead.

UNIVERSITY OF LONDON.—At the Preliminary Scientific Examination held in July the following candidates were successful:—

ENTIRE EXAMINATION.

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Glover, University Colle [illegible] University College, Sheffi [illegible] Hospital; Herbert Geor [illegible] Sheffield; Montague Le [illegible]

[illegible] on School of Medicine [illegible]

pital, Helen [illegible] Hospital; Jo [illegible] Ibbetson Wel [illegible] pital, John [illegible] John Metfor [illegible] Yorke, Unive [illegible] University College, Liverpool

Second Division.—Augusta Dorcas Shelton Agar, University College, Bristol, Herbert Ainscow, Owens College; Edgar Alban, Guy's Hospital, Alexander Charles Anderson, Dulwich College; Ewald Balthasar Un [illegible]

Ernest Hods [illegible] versity *Colleg* [illegible] University C [illegible] Hospital; Sy [illegible] Morris, Lond [illegible] Shuttleworth [illegible] Scargill, York [illegible] Thomas Gord [illegible] Grace Maud [illegible] George Wray [illegible] mew's Hospit [illegible] Hospital.

CHEMISTRY AND EXPERIMENTAL PHYSICS.

Arnold Alcock, Owens College, Leonard Tilsley Baker, Dulwich [illegible]

[illegible] for Women, Arthur Leslie Foster, Guy's Hospital, [illegible] Scott [illegible] te study; Sidney [illegible] study; Gertrude [illegible] Free Hospital; [illegible] rleton Wyndham [illegible] Guest,* Oxford [illegible] Institute; [illegible]

[illegible] Sydney Arthur Tucker, St. Bartholomew's Hospital, William Bunting Wamsley, Goldsmiths' Institute; Sidney Bernard Watson, London Hospital; Charles McMoran Wilson,* Owens College; and Arthur Zorab, Guy's Hospital

BIOLOGY.

Godfrey Frederick Ely Allison, Owens College; Charles Ernest *Anderson, Kings College, James Appleyard, University College;* Charles Anthony *Baker*, *Guy's Hospital*; *Lionel Hethorn Booth*,* Epsom and University Tutorial Colleges; John Albert Bullbrook, Guy's [illegible] Howard James [illegible] udy; Rober [illegible] field Colleg [illegible] rsity Tutor [illegible] St.

making a scientific investigation of the extent of leprosy in America. They have sent circular letters to physicians, health officers, hospital superintendents, and others, in 600 localities covering the entire country, asking for reports and information regarding leprosy patients. Eight thousand of these circulars have been sent out, but only 2000 were answered. From these 277 lepers have been located, and their names and addresses obtained; 100 of these are known to live in New Orleans, and many of them are well to do and of good family. In Minnesota about 20 cases are reported, mostly Scandinavians living in the rural districts; seven cases were reported from New York, three from Chicago, and 15 from San Francisco, 12 of these being confined in the pest-house. In North Dakota there were 15 and but two in South Dakota: in New Mexico there were at least a dozen, and Baltimore reported three; the remainder were scattered throughout the country. As the circulars have brought but few replies comparatively and suspicious districts make no returns the commissioners believe that only about one-fourth of the cases have been reported. It is evident from this investigation that notwithstanding the widespread distribution of leprous patients throughout this country, and their increase in the last decade, there is no cause for alarm, for the disease is not so fatal, or so contagious, or so easily transmitted as tuberculosis. It has also been shown that cures have often been accomplished after two years' treatment. The commission will probably recommend to Congress that national lazarettes should be established in various parts of the country, one perhaps in New Orleans, one in New Mexico, and another in Minnesota or Montana. A generous appropriation will be asked for, sufficient to cover the erection of fine isolated buildings with every appointment for the comfort and pleasure of the sufferers.

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Protection against Malaria.

There has been considerable public excitement aroused lately by the alleged existence of malaria in Central Park, New York City. This large public park, to which great numbers of children resort in the summer, comprises 15 acres of land diversified by elevations and depressions, collections of trees, and small lakes and ponds. Though medical opinion is divided as to the existence of malaria in the park, the Board of Health has taken cognisance of these statements and Dr. Herman M. Biggs, bacteriologist to the department, has prepared a circular of information and advice in regard to precautions to be taken against malarial poisoning. The following is an extract from this circular: "It has been shown by recent investigations that malarial fevers belong to that class of diseases which are transmitted by a certain kind of mosquito, namely, anopheles; this genus is not the common one of this region, but is nevertheless found in some localities. Certain simple precautions will protect a person from infection, living in a malarial district. All mosquitoes having been destroyed, a house should be screened to prevent their return, and the bed also should be protected by a net at night, this being the time that this insect does its work for the most part. A person already infected with malaria should be confined and protected from further contact with the mosquito lest he receive added infection. Quinine should be administered in full doses to destroy the malarial organisms in the blood and this remedy should be continued for a few weeks after apparent recovery. The breeding places of mosquitoes should be removed by drainage, filling up of holes and surface pools and the emptying of tubs and pails which contain stagnant water. This particular kind of mosquito breeds in surface rainpools or surface stagnant water unless there are fish; equally in pails, tubs, barrels, and tanks of standing water, though they seem to prefer natural accumulations. In pools which cannot be drained it is possible to destroy the mosquito larvæ by the use of petroleum thrown upon the surface, the introduction of minnows and other small fish which eat the larvæ, or by both these methods combined." The Board of Health seek to ascertain the location of cases of malarial fever in order to instruct people as to the danger and the best method of averting it. A case of this disease, whether actively ill or not, if produced by this kind of mosquito, is a constant menace to those in the neighbourhood unless proper precautions are taken to check its spread.

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Therefore the association resolved:

> That this body deplores the action of Congr[illegible] exchange or canteen, and in the interests of [illegible] sanitation recommends its re-establishment [illegible] date.

At a subsequent meeting of the American Medical Association this resolution was unanimously endorsed.

To Increase the Usefulness of Ambulances.

Dr. Frederick Griffith, surgeon to Bellevue Dispensary, New York, proposes so to construct and to equip ambulances attached to civil hospitals that the treatment of patients may begin at the moment that they are received into the ambulance by the ambulance surgeon. He suggests that the modern ambulance should be lined with asbestos or some non-conductor of heat in order that it may be warmer in winter and cooler in summer. Thus, patients suffering from shock could be kept warm in winter by the addition of a simple heating apparatus and patients affected with heat-stroke could be kept cool by the aid of ice-bags. If the temperature of the ambulance could thus be preserved at a proper degree both summer and winter, there would, in the opinion of this experienced surgeon, be a great saving of life amongst those patients who are suffering from shock in the cooler months and from heat in the hot months of the year and are conveyed to hospitals.

August 15th.

Medical News.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS AND SURGEONS.—The following gentlemen passed the Second Examination of the Board in Anatomy and Physiology at the July quarterly meeting of the examiners:—

Ernest Francis Rimington Alford and James Armstrong, University College, London; Berkeley Noel Ash, St. Bartholomew's Hospital; Cecil Knight Attlee, B.A. Camb., St. Thomas's Hospital; James Landells Blackie and Frederick John Borrie, Otago University and Middlesex Hospital; John Harold Burridge, King's College, London; Arthur Herbert Bond and Harold Clapham, St. Mary's Hospital; William Bryant and Harold George Shackleford Courtney, St. George's Hospital; Thomas Charles Albert Cleverton, London Hospital; Robert Hugh Cotton, St. Thomas's Hospital; Walter Crampton, University College, Liverpool; Arthur Marcellus De Silva, London Hospital and Ceylon Medical College; William Leonard Dickson, Middlesex Hospital; Kenneth Alan Crawford Doig, Westminster Hospital; William Square Edmond, St. Bartholomew's Hospital; Evan Robert Evans, University College, Liverpool; Harry Loft Evans and Charles Roland Babington Eyre, St. Thomas's Hospital; Harry Arthur Fenton, St. Mary's Hospital; George Ernest Oswald-Fenwick, Otago University and University College, London; Harold Nestor Fink, B.A. Camb., and David Hammond Fraser, B.A. Camb., Cambridge University; Walter Taylor Finlayson, St.

Mary's Hospital; William Henry France, Westminster Hospital, Edgar Herbert Good, London Hospital; George Christopher Grundy, Yorkshire College, Leeds; Percy Gully, Charing Cross Hospital, Arthur Lewis Heiser, Daniel Morgan Humby, L D S. Eng, Middlesex Hospital, George Wykeham Heron, Westminster Hospital, Thomas Martin Hughes, Owens College, Manchester; [illegible] ns, and Algernon [illegible] Hospital; Arthur [illegible] lls Jenkins Guy's [illegible] ege, Manchester, [illegible] ge and University [illegible] eorge Mackenzie [illegible] tal, John Eaton [illegible] ning Lathbury, [illegible] n Lowe, William [illegible] ulthorpe Morris, [illegible] Hospital, William [illegible] Hospital; John [illegible] New Zealand, [illegible] and Guy's Hospital, [illegible]

[illegible] Robinson, Frederick Rogerson, and Richard Pugh Rowlands, Guy's Hospital; George Hooper Rains Westminster Hospital; Cecil Edward Reynolds, University College, London, Cyril Stephen Stokes Rigby, Birmingham University, Horace Hammond Rolfe and Herbert Bodley [illegible]
Ruste and Edward [illegible]
Edward John Rocke [illegible]
Randolph St Georg [illegible]
St. Thomas's Hosp [illegible]
Tresidder, and Jam [illegible] Hospital, John Edward Litton and Alexander Turnly, B A Camb, St. Bartholomew's Hospital, Cecil Vosper, King's College, London; Albert James Walton, Thomas John Williams, John Henry Wolfe, and Percy Charles Woollatt, London Hospital, Alfred Ernest Weaver, Birmingham University, Solomon James Weinberg, Owens College, Manchester, Arthur Denham White and Frank Eldred Whitehead, St. Bartholomew's Hospital, Edward Kynaston Williams, B A Cantab, St Andrew's University; and James Alexander Williams, University College London

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62 gentlemen were referred in both subjects, and one in anatomy only.

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Alan Randle [illegible]
King Edwar [illegible]
Carlile Stur [illegible]
versity Colle [illegible]
pital, Helen [illegible]
Hospital, Jo [illegible]
Ibbetson Welsh, London School of Medicine and Royal Free Hospital, John Black Ferguson Wilson, Yorkshire College, Andrew John Metford Wright, University College Bristol; Courtenay Yorke University College, Liverpool, and Warrington York, University College Liverpool

Second Division —[illegible]
Bristol, Herbert [illegible]
Hospital, Alexa [illegible]
Balthasar Unive [illegible] Hospital, Leonard Buckell [illegible] ce Gooch, London Hospital; [illegible] College, Liverpool; John [illegible] Hudson, Guy's Hospital, Annie Wainwright Hyatt, University College, Bristol, Charles Blenkinsop Jones, London Hospital; Edith Anne Jones, University College, Cardiff, and Alwyne Institute, Thomas Bramley Layton, Guy's Hospital; Harold Norman Little, Epsom College, Patrick Francis McEvedy, Guy's Hospital and private study, Bertrand George Eldon Machon, University College Bristol, Ivon Clarkson Maclean, St Thomas's Hospital, Sylvia May Moore, Westfield College; Emily Helen Morris, London School of Medicine and Alwyne Institute, Samuel Shuttleworth Rendall, St Bartholomew's Hospital, Harold Brooke Scargill, Yorkshire College; Stanley Henry Scott, Epsom College; Thomas Gordon Starkey Smith, University College, Liverpool, Grace Maud Stagg, London School of Medicine for Women; George Wray Sudlow, Owens College; Stanley Upton, St. Bartholomew's Hospital, and Harold Beckwith Whitehouse, St Thomas's Hospital.

CHEMISTRY AND EXPERIMENTAL PHYSICS

Arnold Alcock, Owens College, Leonard Tilsley Baker, Dulwich College, Ella [illegible]
Ella Beales [illegible]
way, King E [illegible]
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Grammar School and University Tutorial College and private study, Samuel Earle Cathcart,* Middlesex Hospital, John Basil Close, Yorkshire College, Ethel Constance Cousins,* University Museum, Oxford and Millard Laboratory; Samuel Wilfrid Daw, Guy's Hospital, Maurice Rowland Dobson,* Yorkshire College and [illegible] College and private [illegible], Claude Herbert [illegible] Milner,* Alwyne [illegible] School, Robert [illegible] Institute; Arthur [illegible] Epsom College and London Hospital; Hugh
Ridley Pr [illegible]
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Hospital; [illegible] School Tiverton; Ida Clare Tengely,* London School of Medicine and Royal Free Hospital; St John Alexander M Tolhurst, Guy's Hospital; Sydney Arthur Tucker St Bartholomew's Hospital; William Bunting Wamsley, Goldsmiths Institute, Sidney Bernard Watson, London Hospital, Charles McMoran Wilson,* Owens College, and Arthur Zorab, Guy's Hospital

BIOLOGY.

Godfrey Frederick Ilt Allison Owens College, Charles Ernest [illegible] University College; [illegible] ethorn Booth,* [illegible] tert Bullbrook, [illegible] ospital, Howard [illegible] private study, [illegible] son, Westfield College, Allan Raines Fearnley private study and University Tutorial College, Archibald Thomas William Forrester, St.

making a scientific investigation of the extent of leprosy in America. They have sent circular letters to physicians, health officers, hospital superintendents, and others, in 600 localities covering the entire country, asking for reports and information regarding leprosy patients. Eight thousand of these circulars have been sent out, but only 2000 were answered. From these 277 lepers have been located, and their names and addresses obtained; 100 of these are known to live in New Orleans, and many of them are well to do and of good family. In Minnesota about 20 cases are reported, mostly Scandinavians living in the rural districts; seven cases were reported from New York, three from Chicago, and 15 from San Francisco, 12 of these being confined in the pest-house. In North Dakota there were 15 and but two in South Dakota: in New Mexico there were at least a dozen, and Baltimore reported three; the remainder were scattered throughout the country. As the circulars have brought but few replies comparatively and suspicious districts make no returns the commissioners believe that only about one-fourth of the cases have been reported. It is evident from this investigation that notwithstanding the widespread distribution of leprous patients throughout this country, and their increase in the last decade, there is no cause for alarm, for the disease is not so fatal, or so contagious, or so easily transmitted as tuberculosis. It has also been shown that cures have often been accomplished after two years' treatment. The commission will probably recommend to Congress that national lazarettes should be established in various parts of the country, one perhaps in New Orleans, one in New Mexico, and another in Minnesota or Montana. A generous appropriation will be asked for, sufficient to cover the erection of fine isolated buildings with every appointment for the comfort and pleasure of the sufferers.

Bureau of Food Inspection in the Department of Agriculture.

Mr. B. F. Van Valkenburgh of Brooklyn, for 12 years assistant dairy commissioner and assistant commissioner of agriculture of New York, has just been appointed inspector of dairy exports for this port; the appointment was made under Mr. H. E. Alvord, chief of the dairy division of the Bureau of Animal Industry. An appropriation of $1,500,000 was made by the last Congress for the use of the Secretary of Agriculture as a fund for the establishment of a bureau in connexion with the Department of Agriculture. The duties of the inspector are to make reports to Mr. Alvord of all facts possible to obtain in connexion with the export of dairy products, as to the quality and quantity exported, and to what points, with the view of putting in force the law passed by Congress relating to the purity of dairy exports. The extent of dairy products exported from New York may be gathered from the following facts; for the year ending May 1st, 1901, there were exported 187,285 packages of butter and 559,554 packages of cheese. The agricultural laws were amended during the last winter with a view to supervise the purity of such exports by the dairy division of the Department of Agriculture.

Protection against Malaria.

There has been considerable public excitement aroused lately by the alleged existence of malaria in Central Park, New York City. This large public park, to which great numbers of children resort in the summer, comprises 15 acres of land diversified by elevations and depressions, collections of trees, and small lakes and ponds. Though medical opinion is divided as to the existence of malaria in the park, the Board of Health has taken cognisance of these statements and Dr. Herman M. Biggs, bacteriologist to the department, has prepared a circular of information and advice in regard to precautions to be taken against malarial poisoning. The following is an extract from this circular: "It has been shown by recent investigations that malarial fevers belong to that class of diseases which are transmitted by a certain kind of mosquito, namely, anopheles; this genus is not the common one of this region, but is nevertheless found in some localities. Certain simple precautions will protect a person from infection, living in a malarial district. All mosquitoes having been destroyed, a house should be screened to prevent their return, and the bed also should be protected by a net at night, this being the time that this insect does its work for the most part. A person already infected with malaria should be confined and protected from further contact with the mosquito lest he receive added infection. Quinine should be administered in full doses to destroy the malarial organisms in the blood and this remedy should be continued for a few weeks after apparent recovery. The breeding places of mosquitoes should be removed by drainage, filling up of holes and surface pools and the emptying of tubs and pails which contain stagnant water. This particular kind of mosquito breeds in surface rainpools or surface stagnant water unless there are fish; equally in pails, tubs, barrels, and tanks of standing water, though they seem to prefer natural accumulations. In pools which cannot be drained it is possible to destroy the mosquito larvæ by the use of petroleum thrown upon the surface, the introduction of minnows and other small fish which eat the larvæ, or by both these methods combined." The Board of Health seek to ascertain the location of cases of malarial fever in order to instruct people as to the danger and the best method of averting it. A case of this disease, whether actively ill or not, if produced by this kind of mosquito, is a constant menace to those in the neighbourhood unless proper precautions are taken to check its spread.

Protest against the Abolition of the Army Canteen.

The last Congress, influenced by the petitions of temperance agitators, abolished the army canteen. The result is reported by military authorities to be a large increase of intemperance, vice, and insubordination. At a recent meeting of the Association of Military Surgeons of the United States the following action was taken:

> The abolition of the army post exchange, or canteen, has resulted, and must inevitably result, in an increase of insubordination, intemperance, discontent, desertion, and disease in the army.

Therefore the association resolved:

> That this body deplores the action of Congress in abolishing the post exchange or canteen, and in the interests of discipline, morality, and sanitation recommends its re-establishment at the earliest possible date.

At a subsequent meeting of the American Medical Association this resolution was unanimously endorsed.

To Increase the Usefulness of Ambulances.

Frederick Griffith, surgeon to Bellevue Dispensary, New York, proposes so to construct and to equip ambulances attached to civil hospitals that the treatment of patients may begin at the moment that they are received into the ambulance by the ambulance surgeon. He suggests that the modern ambulance should be lined with asbestos or some non-conductor of heat in order that it may be warmer in winter and cooler in summer. Thus, patients suffering from shock could be kept warm in winter by the addition of a simple heating apparatus and patients affected with heat-stroke could be kept cool by the aid of ice-bags. If the temperature of the ambulance could thus be preserved at a proper degree both summer and winter, there would, in the opinion of this experienced surgeon, be a great saving of life amongst those patients who are suffering from shock in the cooler months and from heat in the hot months of the year and are conveyed to hospitals.

August 15th.

Medical News.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS AND SURGEONS.—The following gentlemen passed the Second Examination of the Board in Anatomy and Physiology at the July quarterly meeting of the examiners:—

Ernest Francis Rimington Alford and James Armstrong, University College, London; Berkeley Noel Ash, St. Bartholomew's Hospital; Cecil Knight Attlee, B.A. Camb., St. Thomas's Hospital; James Landells Blackie and Frederick John Borrie, Otago University and Middlesex Hospital; John Harold Burridge, King's College, London; Arthur Herbert Bond and Harold Clapham, St. Mary's Hospital; William Bryant and Harold George Shackleford Courtney, St. George's Hospital; Thomas Charles Albert Cleverton, London Hospital; Robert Hugh Cotton, St. Thomas's Hospital; Walter Crampton, University College, Liverpool; Arthur Marcellus De Silva, London Hospital and Ceylon Medical College; William Leonard Dickson, Middlesex Hospital; Kenneth Alan Crawford Doig, Westminster Hospital; William Square Edmond, St. Bartholomew's Hospital; Evan Robert Evans, University College, Liverpool; Harry Loft Evans and Charles Roland Babington Eyre, St. Thomas's Hospital; Harry Arthur Fenton, St. Mary's Hospital; George Ernest Oswald Fenwick, Otago University and University College, London; Harold Nestor Fink, B.A. Camb., and David Hammond Fraser, B.A. Camb., Cambridge University; Walter Taylor Finlayson, St.

Mary's Hospital; William Henry France, Westminster Hospital; Edgar Herbert Good, London Hospital; George Christopher Grundy, Yorkshire College, Leeds; Percy Gully, Charing Cross Hospital; Arthur Lewis Heiser, Daniel Morgan Humby, L.D.S. Eng., Middlesex Hospital; George Wykeham Heron, Westminster Hospital; Thomas Martin Hughes, Owens College, Manchester; [illegible]

[illegible] and James [illegible], London Hospital; John Edward Litton and [illegible] St. Bartholomew's Hospital; Cecil [illegible] Walton, Thomas Jo[illegible] Charles Woollatt, L[illegible] Birmingham University; [illegible] Manchester; Arthur Den[illegible] St. Bartholomew's Hos[illegible] Cantab., St Andrew's U[illegible] University College, London.

Passed in Physiology only: Alexander Vigers Benson, London Hospital.

52 gentlemen were referred in both subjects, and one in anatomy only.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—The following gentlemen passed the Preliminary Science Examination for the Licence in Dental Surgery at the July quarterly meeting of the examiners:—

Walter Breese, Birkbeck Institute, John Piercy Brown, Holt School of Science, Birkenhead; Herbert Edgar Collett and William Ewart Derriman, Guy's Hospital; James Thomas Daly, Middlesex Hospital; Norman Sydney Deravin, Melbourne University [illegible] Birmingham University; Samuel [illegible], Owens College, Manchester; Matthew Jackson, Middlesex Hospital; Herbert Henning James, Charing Cross Hospital; John Jackson Law, Technical School, Blackburn, George Edward McMahon, Holt School of Science, Birkenhead, Arthur Miller, Harris Institute, Preston; Arthur Lovering Moon, Guy's Hospital; Frederick Rudolph Moser, Charing Cross Hospital, Norman McLeod Nibbs and John Arnold Oates, Birkbeck Institute; Arthur Brearley Oddie, William Charles Retallack and John Stuart Sawer, Birmingham University; Sydney William Robinson and Robert Alexander Scott, Guy's Hospital, Walter Duckett Southern, Municipal Technical College, Derby, Bernard Maxwell Stephens, Middlesex Hospital; Francis Edgar Sprawson and Francis Raymond Wilson, Birkbeck Institute, and Henry Harrison Tomlinson, Holt School of Science, Birkenhead.

UNIVERSITY OF LONDON.—At the Preliminary Scientific Examination held in July the following candidates were successful:—

ENTIRE EXAMINATION.

First Division.—Frank Cyril Harvie Bennett, St. Mary's Hospital; James Francis Blackett, Merchant Venturers' Technical College, [illegible] John Smeed Bookless, Guy's [illegible] Olave's Grammar School; [illegible] Hospital; Cuthbert Garrard [illegible] University Tutorial College; [illegible] Leonard Colebrook, London [illegible] School of Medicine for [illegible] School of Medicine and [illegible] Edwin Dobbin, University [illegible] Westminster Hospital [illegible] Roker Evans, University College, Paul Leon Giuseppi, St. Bartholomew's Hospital; John Norman Glaister, University College, Bertram Thomas Johnson Glover, University College, Liverpool; Thomas Mellor Hardy, [illegible] University College, Liverpool.

Second Division.—[illegible] Hospital.

CHEMISTRY AND EXPERIMENTAL PHYSICS.

Arnold Alcock, Owens College; Leonard Tilsley Baker, Dulwich [illegible] Elisabeth Mary Gibbon,* Alwyne Institute; Carleton Wyndham [illegible] College; Edith Mary Guest,* Oxford [illegible] Hall, Alwyne Institute; [illegible] College; Herbert Vawser [illegible] and private tuition; Arthur [illegible] Bristol, and University Tutorial [illegible] Jack, Dulwich College; Harold Emlyn Jones, London Hospital, Edward Cronin Lowe,* Guy's [illegible] Tutorial College; Evan David [illegible]; Cecil Frederick Robertson, [illegible] Sanderson, St. Thomas's [illegible]* Oxford University; Claro [illegible] College, Liverpool, and private [illegible], Guy's Hospital; [illegible] Bartholomew's Hospital; William [illegible], Sidney Bernard Watson, London Hospital; Charles McMoran Wilson,* Owens College, and Arthur Zorab, Guy's Hospital.

BIOLOGY.

Godfrey Frederick Ely Allison, Owens College; Charles Ernest Anderson, King's College, James Applevard, University College; Charles Anthony Basker, Guy's Hospital; Lionel Hethorn Booth,* Epsom and University Tutorial Colleges; John Albert Bullbrook, Guy's Hospital, Angel Camacho, Charing-cross Hospital; Howard James Burrell Cane, University Tutorial College and private study; Robert Colgate, University College; Bella Dawson, Westfield College, Allan Baines Fearnley, private study and University Tutorial College, Archibald Thomas William Forrester, St.

leaves, and some of the worst diseases of plants occur in cases in which a fungus is growing on the roots.

Now I would go back for a moment, for I have not mentioned my best instance of competitive nutrition, and it is a curious one. I have a very remarkable instance of that on my own farm. I have said that the roots are not merely for fixing the tree to the ground but also for taking up nutriment; and in order to best devote themselves to fulfilling their double vocation, whilst some of the roots go down deeply and spread out as fixation structures, others do not go down at all, but come up to the top purposely, with the view of getting the first supply of rain and other nutriment that there may be about, such as manure which may exist in the upper layers of the soil. The poplar and some other trees send out numerous rootlets to gather up the moisture and nutriment for the parent tree. In one particular poplar which I have under observation numberless roots have in this way been sent out and reaching the surface 30 or 40 feet from the parent tree have there budded and grown up on their own account. Thus we have now a crescentic line of small poplar trees, the parent forming the centre of the arc. What will be the effect on the parent of these little trees growing up around it? The effect seems practically certain that it will be killed. These branches which were sent out for food for the parent tree have set up on their own account, and as a result of that the parent will have to die. That may be taken as an instance of the diversion of nutrition from one part of an organism to another, if you consider these separate poplars as part of one whole organism. Here is an instance in which a mother tree has sent out her colonies, and these colonies having taken up what was desired by the mother for herself they have not returned it to her, but have kept it themselves, and the result will be the death of the mother tree.

I have already briefly stated that the roots of trees are often attacked by fungi. These also often attack the stems of trees; and here some of the most interesting lessons may be learnt in reference to the pathology of animals. Sometimes fungi will attack quite healthy trees, sometimes they will attack diseased trees, and very often they will attack wounded trees, just as you know occurs in diseases in the human subject. We have certain specific animal poisons, those of the fevers, which may attack perfectly healthy persons, and good health seems to be no security whatever against them. Small-pox is the best instance of that. Indeed, it is even thought that those who are most healthy and have the best supply of fluids and the richest blood in their bodies suffer more severely than others because they have a larger field for the development of the parasitic poison which has been introduced. It is so also in the matter of fungi on plants. There are, of course, an immense variety of these fungi, which have very different tendencies. Some may grow on perfectly healthy plants, no predisposing influence being necessary to their growth; while others wait until the plant or tree has been injured, or until it is sickly, or until it is nearly dead, before they will or can attack it.

Now, the extreme importance of wounds, and the great importance of what we may call the antiseptic treatment of wounds in plants, is illustrated quite as definitely in vegetable as in animal pathology. A wound to the bark of a plant will allow the fungus to settle on it and grow in it and cause disease of the stem, and it will convert the wood tissue of that stem into a soft structure, destroying the wood, or "delignifying" it, as it is called, and it will also destroy the channels for the passage of fluids whose *absorption* is *necessary* for the life of the plant. In other words, the fungus will make the plant rot. I have here a piece of wood in which there are certain blue lines, and if you look at a cross section of the structure you will see that there is a circl f blue lines which correspond with those shown in cut. Each of these blue lines represents the g us which you may demonstrate with the micro- growths may affect the whole length of a tree. he stem of the tree may be very extensively disorg the timber will be converted into a structure ger capable of carrying on the passage of the sa all uncommon. Those of you who have acces ons of Weymouth pines will often find one of t trees with a single bough completely brown and d st of the tree being apparently quite healthy. Yo , too, that some of these boughs are at a consider where they are not very likely to have been injur matter of fact no twigs have been broken off, but very likely you will be able to find that there is a scar, such as I show in this one where a little injury has occurred. That injury may have been due to the attack of a bird or a hailstone, or from a blow, and that slight injury will have allowed the fungus to enter; and that fungus, having passed into the wound, will pass into the stem of the tree, and will probably grow and work up its long axis. Possibly it may not grow very far, as these things differ in growth tendencies. But in those instances in which a whole branch becomes dead it will be found that the fungus has entered at one single wound and has passed into the branch, and that branch has had its circulation interfered with so that the leaves have died, the remaining part of the tree being still healthy. Next the fungus may tend to flower and produce on the stem a spore-bearing body which is equivalent to its flower. This is a very destructive fungus indeed; it spreads far and wide in the tissues and produces the death of the wood. During the last year we have noticed a curious fact at Haslemere. On the Weymouth pine there is a very common fungus called *Peridermium Strobi*, and that fungus has been known on the continent to be liable to be attacked by another fungus. It has happened to us to identify this parasite on a parasite, and it appears to have been the first time that it has been noticed in England. It is very difficult to say where the germs have come from, but we have found a number of cases on the Weymouth pine at Haslemere, and we have been told at Kew that it had not been observed, to the knowledge of the authorities there, in England before, though, as I have said, it has long been well recognised on the continent. The name of the second fungus, if you wish for it, is *Tubercularia maxima*. It may be assumed that there is some law which associates the two kinds of fungus together. So I now hint that the protection of a wound from infectoin is just as necessary in the case of a plant as it is in an animal, though it is not a practicable measure in the great majority of cases. When we cut the bough off a tree it is not often practicable to use antiseptics, but when dealing with valuable trees we should smear the wound which is left by cutting off the bough, to prevent the entrance of a fungus into it, because any injury to the bark involves the risk that a fungus will so enter. A fungus is apt to destroy fir-trees on a large scale by inducing decay of the middle of the wood; it creeps up the whole stem of the tree, and then the tree will be observed to be sickly and it will die. The middle of that tree will afterwards be found to be rotten. We find it to be due to a fungous growth. All rot and decomposition are due to the growth of fungi; it is not chemical decomposition. The tree is quite hollow inside. The source of infection in that case—and here we have another interesting thing to think about in reference to infection in animals—is believed to be by the roots and through the agency of rabbits and rats. The rabbit burrows under the fir-tree, eats the root and injures it a little, and then it runs about under other trees and gathers various things on its back, spores of fungi and so on, and then runs back into its burrow and carries the fungus with it and infects the root, and the fungus grows the whole length of the tree and disorganises it.

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Another point of great interest in reference to fungus-life in trees and plants is the fact that many forms of fungi appear to be capable of almost indefinite periods of latency. They do not always grow—the fungus may be a long time without growing; and here we have another important lesson corroborating what we hinted at in a former lecture when speaking of tuberculosis, that the tubercle bacillus can remain for very long periods of time in the tissues of the body without producing any morbid condition whatever. Sometimes it may live for his whole life in the tissues of its host and not cause any discomfort. There are hundreds of instances in vegetable pathology in illustration of that. The fungus may be present but there may be no active disease; whereas in another case there may be no visible fungus present, but there may be a considerable amount of disease.

There are some curious facts with regard to idiosyncrasy in trees and vegetables. In animal pathology we have to make a great allowance—and I do not think we can make too much allowance—for original differences, of which we can detect no evidence until the disease attacks the individual, and then we find no two individuals are exactly alike as regards the disease. The same disease or the same poison may attack one person and produce a very different result and intensity of disease in him than in another. Yet we do not see any great difference in the persons until the disease occurs To such we apply the term "idiosyncrasy," and we recognise under that term the fact that different individuals are endowed in different ways and react in different ways to the influence of poisons That is a condition which is primary but which is not revealed until there is disease. This idiosyncrasy is a personal peculiarity, and personal peculiarity [illegible] nal world I have [illegible] the same field, of [illegible] I can tell, under [illegible] tree has kept its leaves on all the winter, while the other has shed them in the ordinary way The one which kept the leaves on from last year had its leaves turn brown This does not appertain to one bough of the tree, there is the same peculiarity in the whole of the tree—it has got a personal character and that personal character is a tendency to keep on its autumn leaves Everyone who has been in the country will have seen instances of that retention of the summer foliage, which should have fallen in the autumn, through the winter Young beech trees which grow in hedges and have been cut down are very apt to do this and you can notice examples of it in many trees In the case of the beech trees one tree may be close to another and in exactly the same conditions, one keeping its leaves and the other dropping them This is an instance of a peculiar tendency or idiosyncrasy occurring in the trees, of which we can give no explanation There is an evergreen oak, and my suggestion as regards this phenomenon is that it is an attempt on the part of the oak to become an evergreen It is one of those numerous experiments which life processes are constantly making One of these oaks is trying the experiment as to whether it can keep its leaves through the winter It succeeds in keeping them but they turn brown In process of time it may succeed in keeping them green throughout the winter

Another little lesson which I think we can get from the observation of fungi is the law of diffusion But you must understand that the study of fungi which attack plants and *trees is an immense subject* I expect you are taught in the medical and surgical theatres that the disease known as "tetanus" is due to a specific form of microbe and that it is conveyed by inoculation The disease is always introduced as an inoculation Now, there are certain facts which make that statement difficult of substantiation I am not now going to dispute it, but only to hint at things which make it improbable and to suggest that it is a matter upon which we may possibly get some light by the examination of what occurs in vegetable life Is it not very curious that the germ which produces tetanus should be so widely diffused and yet should so seldom produce its effects? We get no real epidemics of tetanus If it is a specific germ why do we not get a whole lot of tetanus cases a whole lot of tetanus poison lurking in the soil? Instead of that we get one tetanus case here and another there but nothing at all like an epidemic, the cases are almost equally scattered about and there is no local prevalence. We know it is very prevalent in tropical countries, but in England we get nothing which will justify us in regarding it as an epidemic because it is never unusually prevalent at any one time or locality *Now* it is very curious that a specific germ having that power should be so widely diffused However, we have some similar facts in reference to vegetable The fungus which attacks the [illegible] d I think it attacks [illegible] will be that fungus [illegible] attack it That is an illustration of the law of diffusion and there are many questions *relative to the* laws of diffusion with regard to fungi which I suggest are well worthy of our study Science has, in some branches, enlightened us to where these germs are to be sought for and has enabled us to destroy them We may hope for further discoveries

And here I have to allude to another branch of the subject which is of great interest, and to extend a little caution in the inferences which we draw based upon an incomplete examination of the facts in reference to the different species of fungi which attack the human skin There are a number of these fungi One of them produces pityriasis versicolor another causes true favus, another causes ringworm and it is suggested that [illegible] ringworm I would hint th[illegible] n believing that these di[illegible] lief is that from the fungus of common ringworm of the scalp you can produce tinea versicolor, the common chloasma of the chest of [illegible] not ringworm but tinea versicolor on the chest I therefore suggest that we should be a little cautious in inferring because the external appearances produced by the disease which we know as tinea versicolor *are different from those which we* know as ringworm and are diagnosable easily from each other, that the two things are not transmutable After all it may be a modification of the fungous growth and it may be the same fungus which produces the two My belief is that it is, and that the large fungus ringworm and the small fungus ringworm are very likely the same, and that the fungus which produces favus, which is very much less common is only a very modified form of that which produces ordinary ringworm A great lesson in caution on this point is to be derived also from the old doctrine as regards rust on wheat You know that rust on wheat is a disease in which the leaf of the wheat becomes brown all over and dies prematurely The wheat crop is very much injured by this destruction of its leafage It may occur on grass and on wheat. But as to wheat especially on account of the importance of the crop it became an urgent question with agriculturists as to how it could be prevented Farmers observed that where the common barberry grew in the hedges there was likely to be rust in the wheat. Botanists were asked about this and they at once declared that it was impossible, *they said* that they recognised the fungus which grew on the barberry, and that they also recognised that which was produced on the wheat and they said that it was impossible that they could be the same as they belonged to totally different species The farmers protested that where the barberry grew there was the rust and notwithstanding the opinion of the botanists they felt that there was some connexion and they acted upon their belief by getting rid of the barberry trees to prevent the rust in their wheat A law was passed in the State of Massachusetts calling upon farmers to exterminate all barberry trees out of their hedges, it was made compulsory on farmers to do this If they did not do it the work was to be carried out by the local parish authority and the farmers were to be charged with it All this time the scientific men were saying that the farmers were ignoramuses who did not study botany and did not understand the matter because the fungi on the two things were totally distinct And then came the great discovery which is now illustrated in many departments of fungology that the plant is one which requires two different hosts in one host it produces one special spore and in another another spore It is the same fungus which develops on the barberry and then being blown off there takes root on the wheat and becomes spread over the wheat fields Thus the farmers were shown to be quite right—that it was a transmutation and change of form of the same kind of fungus due to the different environment which was thus seen in different stages of its development That I mention as an instance in which science has lagged behind the observation of practical men As scientific men it is for us to be modest in our statements and not to urge too strongly theories which seem contradicted by the general verdict of experience We should learn wherever we can listen to *everybody, and take into account the propositions, and* maybe the mistakes of those who have had opportunities of making practical observations so that we may arrive at the truth from them though it may not at first appear to be the scientific truth So I think with regard to the study of many forms of disease that we shall with further observation simplify our conceptions *with regard to vegetables and animals* and that we shall find that many of the diseases which we have considered as separate are not in reality so, or not so much so as we have thought.

Now I come to a different subject—namely, the effect of living parasites in inducing disease on plants I must hasten through these very curious specimens which I have placed before you They illustrate various doctrines and it is with the doctrines I am dealing to-day—those which have a wide bearing On the table you will see many good specimens of what go by the name of pine apple cones —a very appropriate name because they look like pine apples These are not seed cones The tree is the Norwegian spruce The cones are caused by the presence of an insect, the aphis one of *the innumerable aphides The aphides* are ubiquitous and they affect almost every plant Some aphides affect many plants there are an enormous number with very slight differences, but each for the most part attacks its own particular plant. The history is that a mother aphis in the spring comes forth, having been lodged somewhere on the tree, perhaps in the bark, and crawls up the stem of the fir-tree, and deposits a number of eggs just at the point where one of the branches is about to develop. She surrounds herself and her eggs with what looks like cotton-wool. If you look in the spring you will be able to identify what looks like a little mass of white wool deposit. In this cotton-wool deposit the little eggs are glued together, a beautiful object, the eggs being hung together like a bunch of grapes and kept warm in the woolly covering at the foot of the little growing stem. What is the effect of the presence of these eggs? The mother aphis does not burrow at all, but she wounds the bark a little in order to glue the eggs into the place and make them adhere. The result of this is that the bark at once begins to thicken, and the little leaves which should be ordinarily needle-shaped thicken at their bases and form bracts arranged like a cone. The eggs are hatched out where they were placed at the foot of the twig, and the larvæ thus hatched from the eggs crawl up this cone; the cone is still open at these bracts and the aphides crawl in. Then the bracts close down and shut the aphides in, and there they rest for six weeks and grow. Each fixes its proboscis into the newly-formed tissue, sucks its nutriment, and there stays until it attains its full growth. Then the cone opens just as a seed-cone opens, and the aphis creeps out just as the seed drops out of a seed-cone. The little insect has rudimentary wings, and there is not only one of them but thousands, and they next fix themselves to the nearest leaf, and having fixed their feet they split their coats open and the fly comes out and leaves its limbs and rudimentary wings glued to the leaf. There are two of these growths under the microscope, and very curious they are. No one would know what they are unless they were acquainted with how they had resulted. The fly comes out with different wings and flies away, and being destined for a short duration of life is ready to propagate its kind. This is one of the very best instances I could give you of what is called "a gall." Let us use no mistaken phraseology; let us not speak of these as being made by the insect—they are not made by the insect. It is the result of the influence brought to bear upon the plant by the insect, and what we have to observe is a lesion of altered nutrition, on the part of the plant, due to local irritation. If I made use of a bold expression I might say that the plant mistakes the irritation produced by the living egg for the irritation produced by its own living seed. If there were living seeds the plant would grow a cone about them. It is obvious that the local irritation cannot be consciously appreciated by the plant, and that the tendency to growth on the part of its tissues is the same thing with different kinds of irritation The gall is a product of the tree caused by the insect, but it is not a thing which is made by the insect in any sense whatever The tree builds it and the kind of gall which results depends on the life and nutrition tendencies of the tree. I might exemplify that by saying that here we have the character of the tree illustrated. There are several other species of fir-trees very similar to these common Norwegian spruce. In another, in which the tree is very nearly allied indeed to this—so nearly allied to it that I do not know them apart and have no means of distinction—the tendency is to produce the cone at the very tip of the twig, and to produce a very small one But there are other fir-trees very like this which never produce these false cones. It is only this one kind which has that tendency. One could go through the various kinds of fir-trees and show that an easy means of distinguishing between them is by the different diseases which they develop. If a fir-tree I was looking at had developed the false cones I should be almost sure that it was a Norwegian spruce. For instance, the distinction between the Douglas spruce and the Norwegian spruce is not always easy, but by this gall I know directly that this is a Norwegian spruce. The aphis probably tries experiments on the Douglas spruce, but the tree will not grow its cones. The tree determines the kind of gall which will be produced. Another general law in galls is that the character will depend a good deal on the precise part of the tree which is attacked. There are an immense variety of galls, and the variety depends partly on the difference of the trees and in part on the spot at which the insect makes its attack. Oak-trees are an illustration of this. Here is one of the commonest galls, which is sometimes called a "marble gall." But there are endless varieties of galls. Some are produced on the middle of the leaves and others are produced on the main midrib; and according to the precise tim in the life of the plant and the part attacked so will be th growth which results from the irritation of the gall insec whether fly or aphis. The precise species of insect is, o course, important, but it is far from determining the whol phenomena.

Such, then, are the general laws. I have here a whole lot of specimens, but I do not know that they will add very much to the subject; you may take them and examine them for yourselves afterwards. But a country walk will furnish you with plenty of opportunities for observation, and that is always preferable to taking the observations of others. In this case of the oak-gall the insect carefully selects the actively growing tree, where the sap is moving, deposits its egg in a certain place, and then the tendency for this growth occurs. The green gall is formed and then that gall becomes woody, and the wood serves as a protection for the insect in the winter. Some of these cynips come out in the autumn. I cut this one open and find that it has not been hatched; there it is in the middle of the gall, almost ready to come out. If we had waited a little longer it would have come out as a fly. I have sometimes cut these when the fly was just ready to come forth and it has come out with apparent gratitude for its easy release.

A CASE OF CEREBRAL ABSCESS COMPLICATING GUNSHOT INJURY WITH BILATERAL LOSS OF PERIPHERAL VISION.

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THE following case came under my care while working in No. 2 General Hospital at Pretoria.

On the night of Dec. 26th, 1900, the patient, a private in the 1st Liverpool Regiment, while fighting in the trenches a Helvetia was struck on the back of the head by a rifle bullet. From the history that he gave I gathered that the loss of sight had been immediate, but whether the blindness was total I could not ascertain. Ten days later he was admitted into the hospital, having come down by train. He was said to have lost consciousness while travelling and from one of his comrades I learnt that he had certainly got worse during the journey. When first I saw him he was lying in bed with limbs extended, breathing deeply and with eyes closed; he could be roused, however, and then became somewhat noisy and abusive. The temperature was 103·5°F. and the pulse was 76, with a sharp sudden beat and somewhat increased tension. In the right occipital region was a suppurating wound about two inches long. There was no evident paralysis. The pupils were equal and reacted to light. It was decided to explore the wound at once and chloroform was administered, very little being required.

The scalp wound having been enlarged a somewhat dum bell-shaped aperture was found in the skull. The shape o the aperture conveyed the impression that the bullet ha just entered and emerged from the cranial cavity, splinterin all the bone in its path. The margin was splintered and several small fragments lay loose in the wound. Bulging into this hole was a portion of brain which did not pulsate but felt tense and elastic. It was decided to puncture this with a trocar and cannula. While removing a fragment of bone, however, a bead of pus was seen to escape and a probe inserted at this point passed nearly two inches into the brain. The opening was dilated and fully four drachms of pus and broken-down brain matter came away. No fragments of bone were felt in the cavity which was then gently washed out with sterilised water and drained by a fair-sized tube. The aperture in the skull had its centre about two and a half inches above the external occipital protuberance and one and a half inches to the right of the median line. The next day, though still drowsy and irritable, the patient was more sensible. The morning temperature was 100°, and the evening was 102°. The pulse was 54. On Jan. 8th he was much more sensible and complained of loss of sight. The temperature was 100°. On the 10th his temperature was normal, the wound looked healthy, and the amount of discharge had diminished. He still complained of loss of sight, *but was able to* distinguish the sister and the colour of her dress. He improved uninterruptedly as regards the local condition and though childish for a few days in the end appeared mentally quite normal On the 14th, on making a *rough examination, I found there was* marked diminution of the visual fields. Four weeks later, the wound having healed, he was able to get up His gait was uncertain and as he walked he seemed to peer in front of him. *With a roughly-made perimeter I mapped out the* visual fields as accurately as possible and found that in either eye vision was limited to quite a small area around the fixation point. In most directions this did not exceed five degrees and in none did it reach 10 degrees Figs 1 and 2 indicate the kind of chart obtained I could make out no marked difference in the eyes. He was unable to read half-inch *type further away than two feet At the* end of February, when I left Pretoria, no improvement in vision had been made He had never been able to read, but could spell out the letters on a card. There was no evidence of "mind blindness"

FIG 1

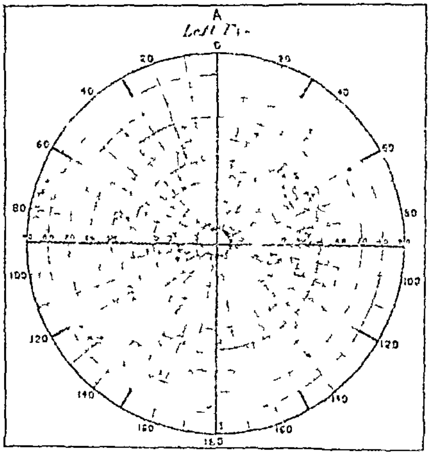
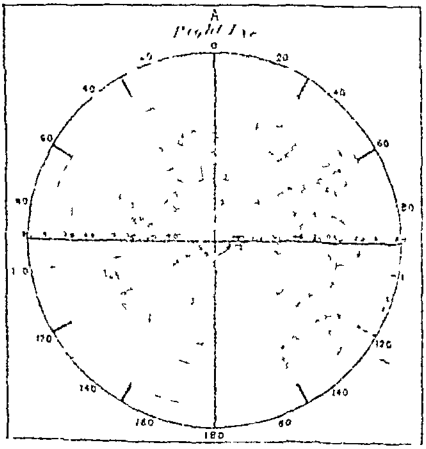


FIG 2.

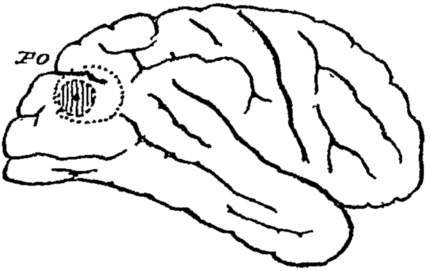


Figs 1 and 2 show somewhat diagrammatically the kind of perimetric tracing obtained The visual area *is seen to be* very small, extending little beyond the macular region in any direction

I have ventured *to record this case on account* of the rarity with which such lesions occur and because of the extensive impairment of vision produced by an apparently unilateral injury

As regards the site of the lesion the aperture in the bone was dumb bell shaped with the long axis horizontal, the centre being one and a half inches from the median line and two and a half inches above the external occipital protuberance The drainage tube entered perpendicularly to the surface of the skull for fully one and a half inches. There must, therefore, have been considerable damage to the cortex and underlying white matter. From the position of the skull wound and its character I see no reason whatever to suppose that there was any injury to the left side of the brain In order to ascertain the portion of brain most probably involved in the injury, I marked out on a skull the site of the perforation and fixing the pin of a trephine two and a half inches above the external occipital protuberance and one and a half inches from the middle line of the head removed a one-inch disc of bone The bone removed was part of the parietal bone immediately adjacent to its posterior border The cortex exposed was the fore part of the occipital lobe A probe passed one and a half inches into the brain substance vertically to the surface penetrated the white matter of the occipital lobe, entered that underlying the posterior part of the parietal lobe (angular gyrus), and nearly penetrated the lateral ventricle. The portions of the brain actually destroyed by the injury and abscess were, I believe, (1) the anterior part of the occipital cortex on its outer aspect, (2) the hindmost portion of the angular gyrus, and (3) part of the white substance of the occipital lobe, including part of the "optic radiation," and the white matter underlying somewhat deeply the angular gyrus (Fig 3).

FIG 3



Drawing of a brain showing area of cortex exposed in trephine wound and possible extent of sub-cortical injury in the case recorded P O, Parieto-occipital fissure

The point of chief interest and greatest difficulty is to explain the very extensive *impairment of both visual fields* produced by an apparently unilateral lesion The question naturally arises Was the injury strictly confined to the one side? At the time of operation nothing was seen which in any way indicated that *the injury had extended to the left* side The fracture was clearly local and situated well to the right of the middle line, and though the margins were splintered there were no fissures extending beyond. The abscess was not large and *after the* matter had been evacuated pulsation was visible in the escaping fluid Very little discharge came from the tube subsequently and the wound healed quickly and without any trouble whatever. The shape of the aperture in the skull seemed to indicate clearly that the bullet had just entered and emerged and no fragments of metal were found The left occipital lobe would be protected from pressure or invasion by the abscess *by the strongest portion of the falx cerebri*

What exactly is the "visual area" of the cortex is still open to discussion. The portions of the cortex to which this function is generally assigned are that of the occipital lobe—*especially its mesial aspect—and the angular gyrus It is* with regard to the latter that there is most uncertainty. Schäfer[1] says: "With regard to the angular gyrus the experiments with Sanger Brown were entirely contradictory to those of Ferrier and Yeo. In animals in which the grey matter of this convolution was destroyed on one or both sides we could discover no defect of vision." He instances, too, the observations of Flechsig on the course of the fibres of the optic radiation. Tracing these during the process of myelination that observer found that none went to the angular gyrus and he therefore excludes this portion of the cortex from the "visual area." Other observers, reasoning chiefly on clinical evidence, take an opposite view. Sir W. R. Gowers[2] says: "The two half vision centres are probably blended in a higher visual centre in front of the occipital lobe. The arrangement is, however, complex. In each centre both fields are represented, but chiefly that of the opposite eye."

This region is also regarded as the mind vision-centre, and a lesion here is believed to cause therefore crossed amblyopia with some impairment of vision on the same side and mind-blindness. "In the very few post-mortem examinations in cases with crossed amblyopia the posterior and inferior part of the parietal lobe—i.e., the angular gyrus in its widest sense—has been involved in the disease." As the higher centre is supposed to be connected to the retinæ it is supposed that a lesion on one side may be to some extent compensated by the opposite hemisphere.

The part of the visual cortex which represents the macular region is generally believed to be that lying on either side of the fore part of the calcarine fissure. Schäfer found that in the monkey "bilateral injury of both mesial surfaces of the occipital lobes appeared to cause loss of central vision, peripheral vision being intact." The cortical representation of the macula, however, appears to be not truly hemianopic but to represent more than the corresponding half of each retina, for generally in cases of hemianopia due to cortical lesion the line of demarcation skirts or goes through the macular region and not through the fixation point.

The case under discussion tends, I think, to show that in man both sides of both retinæ are represented to some extent on one side of the brain. The lesion in the occipital lobe would account for the loss of vision in the left side of the visual fields, and to those who regard the angular gyrus as representing both retinæ, especially the opposite one, the destruction produced by the abscess beneath the angular gyrus would account for the loss of vision in the remainder of the fields. That both macular regions should have escaped, partially at any rate, is possibly to be explained by the bilateral representation of portions of both maculæ. It is difficult, however, to see why the loss of vision in the right side of the visual fields should have been so great. Possibly a gradual recovery will take place in this respect. On the whole, then, I think that the case tends to support the opinion of those who regard the angular gyrus as part of the "visual cortex" and may be described as one of left hemianopia due to the damage to the occipital lobe, with concentric contraction of the fields of vision on the same side as the lesion, due to destruction of fibres of the optic radiation beneath the angular gyrus and to the injury to that convolution. It is, however, of interest to note that there was no evidence of mind-blindness. The patient was unable to read, but he could spell out printed letters and never failed to recognise objects.

For assistance and guidance in the treatment and for permission to publish an account of this case I have to thank Lieutenant-Colonel G. H. Sylvester, R.A.M.C., the officer in charge of No. 2 General Hospital.

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[1] Text-book of Physiology, p. 753.

[2] Diseases of the Brain, vol. i., p. 143.

LYNTON COTTAGE HOSPITAL.—The working men of Lynton and Lynmouth, Devon, for the past two years have held an industrial fair in aid of the funds of the Lynton Cottage Hospital. The fair which was held last week resulted in a sum of £90 being handed over to the institution; in 1900 £65 were obtained.

VACCINATION RETURNS.—At the meeting of the Uxbridge Board of Guardians held on August 20th it was reported that during the six months ended Dec. 31st, 1900, there were 457 births in the several parishes of the union; of these children 179 were successfully vaccinated and 108 were exempted.

SOME RECENT INQUIRIES AND RESEARCHES INTO THE POISONOUS PROPERTIES OF NAPHTHALENE AND THE AROMATIC COMPOUNDS.

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AND

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THE manufacture and employment of naphthalene and of the aromatic series of compounds constitutes a comparatively large industry both in this and other countries, and especially is this the case since they form necessary and essential ingredients in what are now known as the "high explosives." In the short time at my disposal it will be quite impossible for me (R. P. W.) to give a detailed account of the symptomatology, pathology, and precautions to be used when handling these substances. These points were considered by me in 1892,[1] also more recently in an article which will shortly appear in Dr. T. Oliver's book upon "Industrial Occupations." This paper deals solely with their dosage and their relative poisonous actions, and then some recent investigations upon the absorbability of the dinitro-benzene compounds through the skin. This last point is the more important as Strusmann and Strecker[2] in a recent paper upon the subject of dinitro-benzene rather seem to infer that there is no absorption by the skin.

In large doses the nitrated aromatic compounds act powerfully upon the higher centres, producing coma and death. In smaller doses their effects are noticed upon the sympathetic and peripheral nerves, inducing loss of vaso-motor tone and the symptoms of multiple neuritis. Their action upon the blood is in most cases definite and characteristic; many of them seem to form chemical compounds with the hæmoglobin, producing cyanosis, deficient oxidation, and breaking up of the blood cells. With some of these poisons hæmolysis occurs and much degeneration takes place in the tissues of certain organs. The following conclusions we have drawn partly from my own experience with workmen employed in the manufacture of high explosives, partly from experiments upon animals, and partly from the experience of others. The naphthalene group, which is largely used, is probably much less dangerous than are the benzene and toluene groups. Of the naphthalene compounds it is probable that the dinitro-benzene naphthalene is more poisonous than the mono-nitro preparation.

Coming to the benzene group, mono-nitro-benzene when given by the mouth to cats does not seem to affect them at all; they rather seem to thrive and grow fat upon it. The dinitro-benzene is, on the other hand, exceedingly poisonous both to animals and men. The smallest lethal dose of dinitro-benzene for a cat of six pounds is 0·08 gramme if given by the mouth in one dose. In one instance a dose of 0·06 gramme of dinitro-benzene was not fatal but almost so. 1·2 grammes given to a cat by the mouth was fatal in about three hours. In the same ratio the lethal dose for a man of 10 stones would equal 1·82 grammes, but in all probability a smaller dose would be fatal. A lethal dose when divided up and given over a consecutive number of days does not kill—for instance, in a case where we gave 0·09 gramme of dinitro-benzene to a cat in doses of 0·04, 0·02, 0·01, and 0·02 gramme over a period of four days without causing death. It has been stated that dinitro-benzene when taken into the stomach shows a latent period before exhibiting its action. In our experience of experiments upon animals we find that if an animal survives a given dose of the poison for 24 hours it will recover entirely. This in all probability applies also to man. The vapour when inhaled acts immediately and the other preparations are readily absorbed if in a suitable solution. Hypodermically a dose of 0·04 gramme of dinitro-benzene was not fatal to a cat. From experiments with trinitro benzene we found that it was distinctly not very much more poisonous than dinitro-benzene Mononitro toluene is quite inert when administered to cats Our personal experience of nitrotoluene is small, but on inquiries from the places where it is manufactured we were told that it was much too dangerous to work with—in fact, it was described as "simply hellish" The trinitro compound of toluene appears less poisonous that its dinitro benzene equivalent For comparison 50 minims of a 1 per cent. solution of trinitro benzene were hypodermically injected into a cat, causing death in a few hours In another cat an injection of 60 minims of a 1 per cent solution of trinitrotoluene produced only slight symptoms of cyanosis The comparative harmlessness of trinitrotoluene is a very important fact, especially if, as we believe it does, it applies to man Trinitrotoluene has been occasionally substituted for dinitro-benzene in some manufactories with great benefit to the workmen If it can be found practically possible to replace the benzene compound by the toluene compound in all these industries it will be a very valuable step

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[1] Provincial Medical Journal, Sept. 1st, 1892.

[2] Friedreich's Blätter für gerichtliche Medicin, July and August, 1901.

So much, then for the comparative poisonous properties of naphthalene and the aromatic series of nitro compounds These all refer to their action when introduced into the system either hypodermically or by the mouth I (R. P W) have long felt that dinitro benzene, with which I am specially familiar, is very largely absorbed by the skin, but up till quite recently I could find no conclusive evidence that this substance was capable of being directly absorbed The only experiment pointing to its possibility and probability occurred some years ago in the case of a German firm who were working with this substance In order to eliminate the danger due to the inhalation of the vapour and the fine powder suspended in the air the following experiment was carried out and was narrated to me by an eye witness It consisted in applying to the men an oro nasal mouthpiece fastened on to the face with an outlet and inlet tube carried to the outer air This was fitted with valves through which the wearer inspired the fresh air and exhaled the vitiated breath Under these circumstances it seemed that there was no possible chance of the dinitro-benzene vapour or powder obtaining access to the mouth or nose, but even with this precaution the incidence of sickness in the factory was not affected and the only other channel by which the poison could get to the blood if this experiment was properly carried out must have been the skin The possibility or impossibility of absorption by the human skin of drugs in any large quantity seems to be a very difficult problem, and Schäfer[3] says that literature extending over a century indicates that the production of impartial testimony on either the affirmative or negative side has proved of no little difficulty He says that watery solutions are not absorbed. Krause maintained that ethereal and alcoholic solutions can be absorbed but Fleisher, Ritter, and Winternitz, on the other hand, have stoutly denied the possibility The application of oily solutions of certain drugs veratrine, aconitine potassium iodide, morphine, quinine, and salicylate of soda are probably quite inert, and the only exception appears to be mercurial ointment, which is undoubtedly absorbed The fine globules of mercury in mercurial ointment are forced under the skin, the black oxide by the action of the chloride of sodium forms calomel, and this in the presence of oxygen is further changed into corrosive sublimate, which in this state is readily taken up into the system. This negative evidence made me somewhat sceptical as to the absorbability of the aromatic series of compounds but when discussing the question with Mr Orsman our chemist he said that on one occasion when working with toluelidine he accidentally spilled some on his fingers, and he narrated how he at once felt the physiological effects such as faintness and giddiness which he considered due to absorption Another point is that workmen engaged in working amongst these higher fluid distillates are always very careful not to subject their hands to any prolonged immersion in them fearing the results I therefore asked Dr John Hay of Liverpool to kindly undertake the following experiments for me

CAT 1 —In the afternoon of Oct. 10th 1900 the back of a female cat was carefully shaved whilst the animal was under an anæsthetic An ointment composed of anhydrous wool fat, containing 25 per cent dinitro-benzene, was applied to the skin over an area of three square inches A piece of lint was laid over the anointed skin and the whole was covered and sealed with a gauze and collodion dressing The next day, at 10 A M, the cat was noticed to be somewhat stupid, but if startled in the slightest it jumped up in its cage and fell down stiff and rigid with its limbs extended At 1 P M on this day the cat was dying Its respirations were gasping with long intervals of quiescence. The tongue was a livid blue as were also all the mucous membranes On opening the thorax after death the lungs were observed to be pale The blood was collected It was of a dull chocolate brown tint and coagulated readily Spectroscopically it gave a dark absorption band corresponding with the meth hæmoglobin band On microscopical examination of a fresh specimen many of the red corpuscles appeared small and misshapen It was not possible to find dinitro-benzene in either the blood or the urine

As a criticism on the above experiment it might be advanced that the dinitro benzene entered the circulation through cracks and small cuts almost unavoidably produced whilst trying to free the cat s back from its down Therefore it was decided to shave the fur off three or four days before the anointing, so that any chance abrasion or cut might have time to heal

CAT 2.—On Oct 12th the fur was shaved off from the back of a fine large tabby cat, an anæsthetic being used to keep the animal quiet during shaving On the next day the skin appeared quite clean and practically free from abrasions or cuts On the 15th a 25 per cent. dinitro benzene ointment was applied to an area of one and a quarter square inches and was carefully sealed with a collodion dressing as before On the next day distinct but slight cyanosis of the mucous membrane was observed The cat appeared to be otherwise normal On the 19th the tongue and lips were markedly blue The reflex excitability of the cat was noticed to be distinctly increased. On examination of the urine it was found to contain blood The cat died on the next day whilst under an anæsthetic On examining its blood spectroscopically absorption bands similar to the meth hæmoglobin absorption bands were observed The liver showed the naked eye appearances of fatty degeneration

CAT 3 —On Oct. 20th the back of a cat was shaved and any abrasions of the skin were allowed to heal On the 23rd a piece of parchment three inches by one inch covered with 25 per cent dinitro benzene ointment was applied and sealed with collodion and gauze dressing By the 24th the collodion and gauze were quite firmly fixed and it would have been quite impossible for the cat to have transferred any of the ointment into its mouth The nose and the mucous membrane of the mouth and tongue were however, pale and cyanosed On the next day the nose and mucous membrane were still pale and bluish, but the cat otherwise appeared healthy The cyanosis was still more marked on the 26th and there was quite a deep blue colour at the sides of the tongue It was noticed to be salivating freely and there was a definite alteration in its voice On this date an anæsthetic was administered and another strip of anointed parchment was sealed on to its back. On examining the blood it was found to be altered, irregular and refractile bodies were found apparently on the red corpuscles and the corpuscles were altered in shape The corpuscles did not run into rouleaux as in normal blood The pseudometh-hæmoglobin absorption bands were distinctly present and the blood was definitely brown to the naked eye At 1 P M on the 27th the cat looked distinctly worse, there was marked salivation the nose was very pale, and the tongue was even more cyanosed The cat was constantly crying out and lying curled up at the back of its cage It was not resistive in any way and walked with some stiffness There was distinct increase in the patellar reflex The urine was highly discoloured but there was no bile The blood was difficult to obtain as the ear almost refused to bleed It was chocolate brown The alteration and irregularity in shape of the corpuscles was even more marked than on the 26th Some of the small glittering bodies were seen floating free in the plasma The cat was still alive on the 29th but looked very ill The symptoms previously mentioned were aggravated the gait was more reeling, and the cat showed a tendency to fall on to its side There was distinct spasticity of the hind legs which were lifted high up as it walked The patellar reflex were increased On the 30th the cat was apparently dying it was unable to walk and lay on its side There was marked twitching of the head and paws The patellar reflex was still increased The cat was killed Its blood was a very rich chocolate brown, and the pseudo meth hæmoglobin band was demonstrated in it The urine was almost as dark as blood and contained both methæmoglobin and also oxyhæmoglobin. No dinitro-benzene could be demonstrated in the urine or in the blood. On making a microscopical examination of the kidneys they were found to be in a condition of inflammation, probably a toxic nephritis.

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[3] Text book on Physiology, 1898.

Dr. Hay gives the following account of an experiment performed upon himself: "On Oct. 8th, before dressing, I anointed my groins with a small portion of the 25 per cent. dinitro-benzene ointment, weight 400 milligrammes, containing 0·1 gramme of dinitro-benzene. I repeated this in the evening before going to bed. On the 9th I noticed very marked blueness about the lips and the finger nails; the tongue was also markedly blue. There were no subjective sensations. Before dressing I anointed my groins again with a similar quantity, but at 12 noon. owing to the cyanosis increasing in intensity, I carefully washed off all the ointment. At 1 P.M. the lips were a livid blue and the nails and skin generally of a deadly hue. The pulse was 100 to 120; it was regular in time and force and with its tension apparently raised and fuller. There was a feeling of fulness in the head and some throbbing headache, increased by movement. There was no obvious alteration in the urine. On cutting the thumb the blood appeared of a distinctly brown and darker colour than is normal. There was definite blurring of the oxyhæmoglobin bands, but no absorption bands with red. An examination of the urine gave negative results. Three ounces were sent to Dr. White. [The examination of the urine of Dr. Hay gave no reaction of the dinitro-benzene test. This is easily explained, as in no instance with which I (R. P. W.) am acquainted has so short an exposure to the dinitro-benzene poison ever given a reaction either in man or any animals.] At 6 P.M. the pulse was still full and bounding, from 96 to 98, regular in time and force. There were a rather metallic taste in the mouth and frontal and orbital headache, accompanied by a feeling of fulness, increased by movement, especially when running up and down stairs. Oxygen was inhaled for five minutes without any relief or alteration in the appearances of the lips and skin. The veins of the hands and the ears were full and engorged. A distinct tremor of the hands was present. On the 10th there was still some cyanosis of the lips, but not so marked as on the 9th. The headache had almost disappeared and there was no tremor. The pulse was still somewhat frequent. On the 11th my health was practically normal with the exception of a slight tendency to headache."

These experiments prove most conclusively the ease with which dinitro-benzene when in close contact with the skin becomes absorbed. It is, however, common knowledge that the skin of a cat is thinner, more vascular, and less horny than that of a man, and therefore this personal experience is of great value Facts like these, which are important, suggest the necessity of instituting experimental inquiry into the methods of operation of many of the industrial poisons—i.e , plumbism, phosphorism, mercurialism, &c.

Passing to the subject immediately before us, it would appear that given the manipulation of a certain strength of poison a corresponding amount of sickness will ensue and that the incidence of sickness among those manufacturing explosives varies with the proportion of dinitro-benzene. Handling, grinding, heating, and otherwise manipulating pure dinitro-benzene are at all times most risky and dangerous to the worker. If the process involves any possible personal contact the strictest precautions must under such circumstances be carried out. With a less percentage of dinitro-benzene in the material manipulated we have often associated a marked amount of sickness; for instance, when working with 14 parts of dinitro-benzene to 100 parts of the other ingredients our experience has given a ratio of sickness varying from 5 to 40 per cent. of the workmen immediately employed. The amount of sickness is largely affected by atmospheric conditions, such as temperature and moisture, also by the hours of work. Our experience is that with percentages under 10 and preserving the ordinary strict precautions acute cases should be non-existent. In the early days of association with the use of dinitro-benzene the dinitro was very largely contaminated with the mono-nitro-benzene and also probably with some of the toluene compounds. In recent years, with a much more carefully prepared dinitro-benzene, but with almost the same percentage of it, the incidence of sickness has been markedly lessened. The following consideration may partially explain this fact. Pure dinitro-benzene consists of colourless crystals, but through impurities the commercial dinitro-benzene is often of a darkened colour, especially when mixed with mono-nitro-benzene, and under these circumstances the men frequently object and will even refuse to work.

In a previous part of this paper it has been shown that the mono-nitro-benzene is practically inocuous to animals; it is probably also inocuous to man and if so we can only suppose that the liquid greasy mono-nitro-benzene may assist in a material degree to render the dinitro-benzene more adhesive and thereby more easily absorbed through the skin. The mono-nitro-benzene acts as a powerful solvent of dinitro-benzene just as do the fats and oils. Acting upon this thought 0·1 gramme of chemically pure dinitro-benzene crystals alone was applied to the skin of a cat sealed as in the previous manner, yet after three days no alteration had taken place in the animal. In a second experiment 0·1 gramme of chemically pure dinitro-benzene dissolved in mono-nitro-benzene was applied to the skin of another cat at the same time. In this latter cat after the same number of days' exposure to the poison cyanosis became visible. The area of exposure of both of these poisons to the skin was identical—viz., a space of two square inches. These experiments emphasise the necessity there is of some solvent to enable the poison to be carried through the skin, for had the same dose of poison been suspended in an animal fat symptoms of poison would have been very marked. It also rather suggests that the numerous oxidising ingredients associated with the dinitro-benzene in the manufacture of high explosives may have some influence upon absorption. It must not be forgotten that in the practical working of these substances particles alight upon the body where they undergo friction and pressure and are moulded into the coil and sebaceous ducts. Recently it has been proved that not only the sebaceous but also the coil glands excrete a certain amount of oil which acts as a ready solvent to the dinitro-benzene. The presence of oil on the hands, where there are no sebaceous glands, has an important bearing upon the necessity of frequent washings of all exposed surfaces of the skin. No part of the skin, except absolutely necessary, should be left uncovered by the special clothing ordered. The hair of the head should be cut close and the face have as little hair on as possible. Caps should be tight-fitting and cover as much as can be conveniently arranged.

In conclusion, we should like to advert to the necessity which exists for instituting a Government laboratory in which experiments such as we have carried out can be performed instead of leaving these points to the energy and enthusiasm of private workers.

ON THE PROPHYLAXIS OF CARCINOMA.

BY C. B. KEETLEY, F.R.C.S. ENG.,
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IF we grant that the *materies morbi* of carcinoma is most likely a living organism, the situations generally attacked by carcinoma suggest (1) that its specific cause flourishes in either the secretions or the cells of the skin-glands, including the mammary gland—e.g., milk, butter, cheese, sebaceous material, and sweat; and (2) that before milk, butter, and cheese are allowed to rest in contact with weakened parts—e.g., ulcerations—either inside or outside the body, such articles should be sterilised by heat, while the secretions of the glands of the skin should be kept away by cleanliness. It is assumed that everyone will agree that chronic inflammations of parts liable to primary cancer should be cured, if possible, and that ulcerations and cicatrices in such localities, unless there are predominating reasons to the contrary, should be removed.

Almost all primary carcinomata are seated in the breast, the alimentary canal, the skin, and the uterus, or in canals, ducts, and glands subsidiary to those parts or directly opening into them—e.g., the larynx, liver, pancreas, vagina, and urethra. The majority of those which have come under my own observation have occurred in either the breast or in the alimentary canal (including in the latter the lips and the rectum).

Reflecting on what medium would be a likely or possible carrier of the essential cause of cancer (whatever that may be) to two such different localities as the breast and any segment of the alimentary canal—e.g., the œsophagus or the pylorus—I first thought of water, which is taken by all into the stomach as drink and used by many to the breast as a cleansing medium. The possible responsibility of water is not to be lightly denied, but there are several considerations which tend to exculpate it. 1. Some sufferers from cancer of the breast had not been in the habit of applying water to it. 2. Those who had, generally used soap as well, and the use of soap and water followed by drying, would be rather more likely to remove disease germs than to implant them. 3. Water is universally used as food, but there are countries in which carcinoma of the alimentary canal is said to be very rare and others where it is very common. At the same time, and of course, it must be acknowledged that a disease-germ may exist in the water of one place, country, or continent, and be absent in another.

Now, there is another fluid very much more specially associated with both the alimentary canal and the breast than is water—viz., milk. Milk (including its products, butter and cheese) is universally used as food in such countries as England and Germany, where cancer of the stomach is common, and is, I am informed by my friend Sir William Kinsey, comparatively little used in India and Ceylon, where cancer of the stomach is very rare. An objector, while granting that a very large proportion of carcinomata (I am speaking, of course, of primary ones) affect either the breast or the alimentary canal, might point out that still a large percentage remain which are located in either the uterus or the skin. With regard to the skin it must be remembered that the breast is itself a skin-gland, and it seems to me probable that an organism which can live and multiply best in milk might yet survive and get along very well in the secretions of the sweat-glands or of the sebaceous follicles. Nor is it necessary, in order to support the view which I am calling attention to, to assume that the *materies morbi lives mainly in the milk itself. Its habitat may* be the epithelial cells which line the gland, the milk still being the carrier of the organism from the breast to elsewhere. Indeed, the great characteristic of cancerous growth—viz., the enormous multiplication of epithelial cells—suggests strongly that they are the habitat of the cancer organism. Further, the difficulty of cultivating cancer-germs in dead media points to their multiplying best in living cells and offers a possible explanation of the apparently much less frequency of direct infection from one individual to another of cancer than of tubercle. The fact that millions of persons take milk and its products as food and yet escape cancer is of no more significance than that millions of such people escape tubercle.

Cancer seems slow to infect any plain surface of skin or mucous membrane free from folds or depressions where its cause can lodge for a time undisturbed. It is rare in the urethra, which is free from transverse folds and frequently washed out by the urine. It is only, in exceptional instances even of advanced cancer of the breast that "cancer en cuirasse" occurs, and that may be due to secondary infection *viâ* the subcutaneous lymphatics. The commonest seats of primary carcinoma in the alimentary canal are obviously parts where food may lodge or adhere—e.g., the lips, the margins and under-surface of the tongue, the tonsils, the gullet behind the larynx and again where it is crossed by a bronchus, the [illegible] near to the pylorus, the pylor[illegible] the sigmoid flexure, the rectum, any part of the alimentary canal which has been the seat of chronic ulceration or of cicatricial contraction, and the lower portion of the large bowel in those curious cases of multiple polypi, which would of course tend to delay the passage of solid fæces, just as hillocks and trees check the downward course of snow on a hillside. All these facts seem to me to point to the probability of the cancer-germ being conveyed by food, but requiring time and rest to establish itself, and taking advantage of ulcerated and otherwise injured spots.

There are, it must be acknowledged, primary carcinomata arising in places which one would scarcely think of as accessible to milk and its products. There are, e.g., the laryngeal, the pancreatic, the hepatic, and, above all, the numerous uterine cancers. The larynx, the lungs, the pancreatic duct, and the bile ducts open directly or indirectly into the alimentary canal; and the uterus opens by way of a wide canal to the surface of the body. But it is possible that primary cancerous infection is sometimes conveyed *viâ* the lymphatics, just as secondary is, no tumour forming at the seat of entry, and that it then rests and multiplies at such epithelial-lined cavity as it may reach, perishing in situations where there is no epithelium. A secondary carcinoma implies that not only the cancer-germ but the epithelium in which it lives and the growth of which it so greatly excites, has been conveyed from one part of the body to another. Carcinoma of deep-lying organs, such as the brain and structures like bone, are, it is well known, generally, if not always, secondary.

While it is easy to explain the infection of a part of the alimentary tract by food it is not so easy to explain the infection of the mammary gland. The milk-ducts are obviously possible, indeed probable, channels for the conveyance of germs from the nipple to deeper parts. It seems to me that a not unlikely manner in which the nipple, or some eczematous spot on it, is infected is by the sufferer's fingers. It is true that the fingers are seldom dipped into milk and that only those of the lower classes often handle cheese. Butter, however, comes frequently into contact with the fingers of nearly all women, and it is not considered sufficiently polluting to require that the hands shall be carefully washed afterwards. When considering the possibility of water being the cancer-carrying medium I thought perhaps the nipple was infected by the linen, but linen and cotton undergo a treatment at the laundry calculated to kill any disease essence. Flannel, however, is treated more gently; still, even flannel, though not exposed to heat, is freely rubbed with soap. The mention of flannel reminds me that lanoline—a fat obtained from lamb's wool and now a favourite application to the skin—might easily prove a favourable medium for the protection, if not for the culture, of any organism which lives in sweat-glands or milk follicles.

With regard to the frequent occurrence of cancer on the hands of workers in petroleum, on the scrotum of the chimney-sweep, the lip of the pipe-smoker, and in the lungs of the cobalt-miner, it does not seem very likely that the *cancer or any other living organism would flourish in* paraffin, in carbon, in smoke, or in an ore which is a mixture of a metal with sulphur and arsenic. Such substances probably merely predispose to cancer by, so to speak, preparing the human soil, sometimes by causing a chronic eczema.

I should be exceedingly grateful to any of the readers of THE LANCET who would, either through its columns or privately, inform me of facts bearing on the possible guilt or innocence of milk, butter, or cheese in the etiology of carcinoma. I hope I shall be excused for asking gentlemen who may respond to this request (1) that the distinction between carcinoma and sarcoma shall always be carefully remembered; and (2) that any references that they may make to published sources of information shall be exact enough for verification. In particular, I think, the experience of medical men who have practised in foreign countries might prove instructive. But I am afraid that there are now few regions, not even the most remote islands, where butter and cheese are not imported, even if cows are not kept. I have endeavoured, not very successfully, to collect facts from veterinary friends. I have to thank Mr. Gresswell of Louth for a kind effort to assist and I hope that now the attention of able observers like him is called to the subject ultimately much may be learnt from them.

If my remarks should lead anyone to avoid uncooked milk, butter, and cheese, and if also it should prove in the end that those articles of diet have nothing to do with the conveyance of cancer, I think it will matter little. The danger of contracting tuberculosis is already sufficient to justify such an attitude towards those foods. It is not as if I had, e.g., suggested in an alarmist manner and without sufficient proof that cancer was caused by the practice of clothing the lower extremities, especially in winter, and that all adult males over 45 years of age would wear, at their peril, anything heavier than a short gauze-skirt. The Lord Chancellor, all Bishops, and all Fellows of the Colleges of Physicians not of Highland origin might prefer death to such indignity. But to suggest to people that they should refrain from swallowing unsterilised milk and milk-products is not an unwise thing on grounds some of which are fully acknowledged.

Throughout this paper where the word "cancer" is used it is as a synonym for carcinoma. And it is assumed (1) that carcinoma depends upon some living materies morbi; and (2) that all life can be destroyed by a moderate degree of heat applied for a reasonable time. I am afraid that both these assumptions might be disputed, but they are so far generally granted that this would not be a suitable place to recapitulate the arguments in support of them. The following rules for the prophylaxis of cancer might, therefore, be laid down safely, because even if they did not gain the end immediately desired they would attain others scarcely less valuable, just as the sons in the fable, though with all their digging they found no buried gold in the field bequeathed to them, yet gained health and rich crops.

1. Chronic inflammations, suppurations, and especially ulcerations, should not be neglected or allowed to drift. Still better, commencing troubles of the kind should be treated promptly and not allowed to become chronic. With regard to ulcerations, especially of the alimentary canal, and with regard, also, to suppurations, especially of the breast, it is to be remembered that the cicatrices left by their cure are liable to become the seat of malignant infection. It is therefore doubly desirable to cure such ulcerations and suppurations in their earliest stage, so that little or no cicatricial tissue may remain and in cases where the arguments for and against the removal, as opposed to the simple healing of an ulcer, are otherwise evenly balanced, the indication to remove a place especially liable to cancer should prompt one to excision.

2. Well-known sources of irritation of mucous membranes and of skin should be avoided—e.g., smoking when any trace of soreness is discovered in the mouth, on the tongue, or on the lips, and the habitual use of strong condiments and spices. Workers in special trades, such as chimney-sweeping, should lose no time in having the smallest cutaneous rashes or other trouble promptly cured. Among milk-products cheese is itself an irritant to mucous membranes. Some syphilitics with a tendency to ulceration of the tongue notice that a fresh attack frequently follows eating cheese.

3. A woman should allow nothing to come in contact with her nipples except smooth, clean linen, cotton, or silk, and the soap and warm water with which she washes herself. After being washed the nipples should be gently and thoroughly dried. She should not touch them with her hands or fingers at all. During lactation the nipple should be cleaned and gently dried after each act of suckling and then protected with a dry and clean covering. The nipple should not be merely withdrawn from the infant's mouth and pushed back under the mother's clothes. If wool be worn it should be sterilised by heat.

4. Whoever takes as food uncooked and unsterilised milk, butter, and cheese should recognise that he does so at the risk of introducing into his system the germs of disease, and that among these disease essences, so to call them, may be that of carcinoma.

Before any reader condemns me for publishing the above hypotheses without having submitted them to experimental proof he should bear in mind that much time and probably the coöperation of many observers would be required for such a work. Moreover, antiseptic surgery was at first based on hypotheses which were not only then unproved but which even to some extent—e.g., in the amount of blame attached to the air—were erroneous.

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A CASE OF SPONTANEOUS GANGRENE IN AN INFANT.

BY T. ARMSTRONG BOWES, M.D. CANTAB.

ON March 25th, 1901, a vigorous primipara was delivered of a full-term living male child. He was to all appearances in perfect health, though a little thin, and took the breast well. About April 7th he had thrush, from which he made a satisfactory recovery. On the 10th the child was noticed to be peevish and had lost flesh. He would not take the breast, but beyond this nothing amiss could be discovered and his temperature was normal. The umbilicus was perfectly healed. On the morning of the 11th a small vesicle was noticed in the centre of the back in the lower lumbar region, and when first seen in the evening this had become a small pustule, not larger than a hempseed, with a slightly raised, rather dusky red area of the size of a florin surrounding it. Careful inquiry failed to elicit any history of traumatism. By the following morning the pustule had burst, leaving a small circular ulcer, and the red area had spread considerably upwards but not so much downwards. In the evening the redness round the ulcer had become of a deep mulberry colour, which was unaltered by pressure. The red zone had increased and in addition the umbilicus and some of the finger-tips presented small red excoriated areas. During the night the ulcer discharged a considerable quantity of thin, slightly sanguineous, odourless serum. On the morning of the 13th the almost black area extended from one inch round the seat of the original pustule. The surrounding dusky area had reached half way up the shoulder blades and the circulation in it was extremely slow. By the evening the inner darker area was three inches in diameter, the skin commencing to peel off in the centre. The child had been very fretful all day, but had taken his food. The outer dusky area now reached to the upper level of the scapula. On the morning of the 14th a photograph of the child was taken. It showed a dark irregular patch of considerable extent at the site of the original lesion where the skin was actually sloughing. From this extended a black and dark purplish area upwards to the scapulæ, outwards to the flanks, and downwards over the sacrum, gradually shading off to lighter dusky red to involve the neck, the posterior portions of the shoulders, the outer portions of the chest and abdomen, the whole of the buttocks, and the outer part of the thighs. The photograph showed the lighter unaffected skin of the upper arm and lower portion of the thigh towards the knee, but it failed to portray the variety in colour and the gradually shading of the skin involved in the affection. The superficial abdominal veins were of a light claret colour and the abdominal viscera showed as a dusky background to the dull, lifeless-looking, inelastic pallid skin of the abdominal walls. The child gradually sank and died the same evening. Throughout the whole duration of the case the temperature never rose above normal and at death the red excoriated areas on the fingers and at the umbilicus had not become deeper in colour and had only increased very slightly in extent. No post-mortem examination was permitted.

The absence of traumatism or of any previous disease or cachexia points to the above case as one of spontaneous gangrene. According to Keating[1] gangrene in infants, excluding noma and cancrum oris, occurs either spontaneously or as a concomitant or sequel to various diseases, such as pemphigus, syphilis, varicella, measles, erysipelas, &c. The spontaneous form is stated to occur at any age up to late childhood and although sometimes affecting children to all appearances perfectly healthy is more usual in those suffering from debility or cachexia. It may attack any portion of the body, the onset being severe with raised temperature, becoming depressed as the disease advances. It may be symmetrical or commence synchronously at several different foci, or as in the above-narrated case start from one isolated spot. The prognosis is very grave. The only suggested cause is spasm of the arterioles of the affected area, and it appears doubtful as to whether this be of central or of peripheral origin, though changes in the spinal cord have been described in some cases wherein the disease has been symmetrical. The cause of the cases following the diseases above enumerated is suggested as a local infection by the microbes of the disease in the presence of a lowered vitality of the subject.

The literature relating to the disease is scanty and after careful search I have been able to find records of four cases only which bear a resemblance to the one I have detailed. Reed[2] describes a case of gangrene of the leg, thigh, and foot in an infant 14 days old, commencing below and outside the knee, without any evidence of injury; no embolism or thrombosis of the femoral artery was found at the post-mortem examination. From the description it is probable that the case was not seen till the gangrene was well-established and there is no evidence as to how the disease began or advanced in its earlier stages. Manley[3] describes an ante-partum gangrene of the legs and thighs in a child living at birth and surviving for 24 hours after, but unfortunately there was no post-mortem examination of this case, in which the skin was actually peeling from the buttocks when the child was born. Norman[3] records a case of idiopathic gangrenous erysipelas in which the initial lesion was a blister resembling a burn on the left forearm and from which the arm, chest, and greater portion of the back were all involved in a gangrenous process within three days. And, lastly, the *Medical Press and*

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[1] Encyclopædia of Diseases of Children, vol. ii., Part I.
[2] Brit. Med. Jour., vol. i., 1881, p. 639.
[3] THE LANCET, Dec. 15th, 1888, p. 1173.

Circular[4] gives an account of a case exhibiting numerous foci of invasion, commencing as small papules, followed by blisters, and resulting in ulcerations reaching the diameter of half-a-crown, the duration of the case being 11 days from commencement to a fatal termination.

The case I have described appears worthy of record from its apparent rarity, from the absence of any severe initial symptoms, the fact that the temperature was never raised above normal, and from the extreme rapidity with which so large an area of skin was involved, the whole duration from commencement to the fatal issue being only three and a half days.

Herne Bay, Kent.

HOSPITAL CAMP SANITATION IN SOUTH AFRICA.

BY BURTON A. NICOL, M.R.C.S. ENG., L.R.C.P. LOND.,
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IN my experience as civil surgeon on the staff of two of the large general hospitals in South Africa I was much impressed with the large amount of sickness prevalent among the orderlies on the hospital staff. As these men are to some extent trained to recognition of the risks of infection and to methods of cleanliness and disinfection one would not expect a very large incidence of disease among them in spite of their exposure to so many risks. They have also, at least in my experience, availed themselves of the advantages of inoculation against enteric fever in a much greater proportion than the ordinary soldier, so that if this has been a benefit it ought to have helped towards reducing disease in their ranks. I have no figures to quote from, but I know that at Estcourt during the first few months of the work of No. 7 General Hospital the nursing of the sick was hampered greatly by the amount of sickness prevalent among the orderlies. To such an extent was this so that in the first four months about one-third of the orderlies who were originally attached to the hospital staff had passed through the wards; most of them had enteric fever, a smaller number suffering from dysentery or diarrhœa of a dysenteric type. At Newcastle (No. 14 General Hospital) there was also a considerable amount of sickness among the orderlies. At first it was not so marked as at Estcourt, but it should be pointed out that the proportion of fever cases in [illegible] the disease apparently [illegible]e cases were practically [illegible]rly large proportion of severe cases

My attention was thus drawn to the general sanitary condition of the camps and to the precautions which were being taken to prevent the spread of contagion from patients to those whose duty it was to look after them and restore them to health. At No 14 General Hospital at Newcastle printed rules were circulated among wardmasters and orderlies as to their duties with regard to the management of infectious cases, the treatment of excreta, &c. The following is a summary of the observances laid down for their guidance in these regulations and of the general methods employed. Kaffirs at both hospitals were employed as ground scavengers and kept the camp beautifully clean, picking up every scrap of paper, wood, and other refuse. These men, however, would have nothing to do with the handling of excreta, so that this was all dealt with by Indians specially employed for the purpose. It was very fortunate that these men were available, as our men were thus able to devote themselves entirely to their nursing duties. When an orderly had placed the night-stool, chamber-pot, or bed-pan containing an enteric or dysenteric stool outside the tent one of these ward Indians at once picked it up and carried it to the enteric fever enclosure where it was emptied into the excreta buckets. It was then washed out with 1 in 800 corrosive sublimate solution, some izal solution (1 in 20) was placed in it, and the utensil was at once returned to the ward. The excreta buckets were kept covered and when three-fourths full were taken to the incinerator, where the contents were boiled down to dryness, mixed with sawdust, and then burnt. The urine was supposed to be treated in the same way, but I am afraid that careless orderlies were frequently in the habit of emptying urinals into slop-buckets, which were in turn emptied into separate sanitary handcarts (large zinc drums on wheels). It thus often escaped thorough disinfection.

The soiled linen was always removed in red handcarts from the wards, being first sprinkled with carbolic solution, 1 in 20; it was taken to the enteric fever enclosure, placed [illegible] minutes, dried, and then taken to [illegible]ent to the wash. All mattresses, [illegible]t would have been destroyed by [illegible] in Thresh's steam disinfector. Excreta and all linen from dysentery wards were treated in exactly the same way as if coming from an enteric fever ward. All bed-pans, night-stools, urinals, and slop-pails belonging to enteric fever wards were marked with the letter "E" in red paint and kept apart in every possible way from similar utensils in other parts of the hospital. They were always kept outside the wards at one particular corner of the tent or marquee. The Indians employed in this sanitary work were used only for removing excreta, slops, and rubbish from the wards, they were not employed on any ordinary fatigue work, such as carrying water, food, &c., or cleansing utensils for food or drink. They were on duty at all times, so that at night the removal of stools from the precincts of the wards was carried out as promptly as in the day. The enteric fever enclosure was in charge of a non-commissioned officer and he was responsible for the carrying out of all details in connexion with the work of disinfection. He was assisted in his work by one European and three Indians. The floor of this enclosure was of cement; it was cleaned daily and washed with sublimate solution 1 in 800. Every ward was supplied with a bottle of carbolic solution, 1 in 20, no special bottle was, however, provided and a brandy or other similar bottle was invariably used. This was dangerous, as the wards were not provided with any receptacle where it might be safely and conveniently kept. Orderlies were instructed after handling patients or infected articles and before meals to wash their hands in carbolic solution, 1 in 20, and to use a nail-brush. This order was [illegible] towels, [illegible]vance of [illegible]ys were kept for enteric fever wards and were all marked with the letter "E."

It will thus be seen that a fairly comprehensive scheme was arranged for the proper treatment and disposal of refuse and infected material and for the prevention as far as possible of the dissemination of disease. Many other points were neglected, and it is possible that a closer attention to detail would have improved upon the general results obtained. No general sanitary officer was appointed to exercise supervision over the details laid down in the scheme. This work was divided among the various civil surgeons and Royal Army Medical Corps subalterns, each one acting in turn as sanitary officer for one week; the work was certainly not done as thoroughly as would have been the case had it been the duty of one man to superintend closely all the details of sanitary work in the neighbourhood of the camp. The orderlies were very inexperienced in hospital work—the majority of them could not be made to understand the gravity of the risks they were running by carelessness with regard to personal cleanliness. They were being constantly changed from ward to ward, so that before a man had time to benefit by the instructions of the nurse and medical officer he was removed to non-fever wards and another novice supplied in his place. They were frequently put on night duty at the end of what was always a long and heavy day's work. This must have acted disadvantageously on their general health, increasing their risks of infection by lowering their resistance to disease. Orderlies, whose work lay entirely in non-fever wards during the day, or even in the office, would be sent into a fever ward for night duty. The disadvantages of such a proceeding to both orderly and patients are very obvious.

Great attention was paid to apparent cleanliness, to such an extent that hardly a straw or burnt match end could be seen in the neighbourhood of the camp; slop water that had been used for washing enteric fever patients was, however, frequently thrown out over the ground instead of being carried away. I have seen a trained nurse do this, and the orderlies frequently did it. It is a very difficult practice to detect and check. Convalescent patients and orderlies were in the habit of micturating on the ground after sunset in portions of the camp when they were likely to be unobserved instead of going to the latrine. The ground was thus fouled in many ways, though apparently clean.

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[4] Medical Press and Circular, vol. ii., 1889.

There was a scarcity of ward utensils, drinking-cups, tumblers, &c., so that these articles were frequently used in common. No proper arrangements were ever made for storing milk, beef-tea, &c., in the wards. Dishes, forks, knives, spoons, &c , were often not so thoroughly cleansed as they should have been, as this work was done in the wards or immediately outside, which was objectionable. The milk for fever cases was served out three times a day, a pint at a time. This was placed in each patient's bowl on his bedside table; the bowl thus served the double purpose of a drinking-cup and a basin for storing the milk. The consequence of this was that thirsty patients either helped themselves to a large quantity at a time and then waited without food for many hours until the next pint came, or if at all typhoidal neglected it, and it became the food-supply and a death-trap for all the flies in the ward. Patients convalescent from enteric fever and dysentery often used latrines in common with other patients. Efforts were made to prevent this. The urine from enteric fever patients undoubtedly often escaped the thorough disinfection it should have received.

The greatest defect of all in this camp was certainly a very deficient water-supply. The town of Newcastle had for some years found their water-supply insufficient for their own needs and were considering various schemes for improving the supply. With a large general hospital of 520 beds and a very large number of troops quartered in this district the deficiency became suddenly acute. To make things worse the year 1900 was rather dry and the rains came very late in the season. Pipes were laid on over the hospital camp and connected with the town supply; they were, however, usually empty. Water could sometimes be obtained from the pipes for about an hour early in the morning; later in the day it had almost invariably to be carried from a standard at the railway station, which was situated at a slightly lower level than the hospital. A great deal of water was carted in water-carts drawn by mules or oxen. This was unsatisfactory as the carts were of the wooden barrel on wheels type; they were difficult to keep sweet and clean. They were at one time discovered to be very foul. The men complained that the tea was unpalatable and alleged that the water gave them diarrhœa. The deficiency was so serious that no one could understand why the site was not condemned at once for hospital uses, for it was quite impossible to keep patients in that condition of cleanliness which everyone agrees is essential in a hospital, especially where there was a large proportion of enteric fever cases. A regulation existed that all patients who were sufficiently well should receive a hot bath before admission to the ward. They could not have even a cold bath; the carrying of such water as was used from the carts to the wards greatly increased the amount of work done by the orderlies, and must have discouraged its free use. Nice wash-houses had been erected for the use of convalescent patients, they were filled with rows of bowls with water laid on for each bowl. I never saw water in them except in the very early morning and sometimes not then

The quantity of soda-water obtainable was limited by the deficiency of water in the town, the supply being a purely local one. We could not obtain it for our fever cases in the quantity which we thought necessary, the amounts were again and again cut down. It was noticed that although the hospital could not get the quantity of aerated water it wanted the hotels in the town were never short. The water used by orderlies and patients for drinking purposes was neither filtered nor boiled, that used in the wards was kept in canvas water-coolers outside the tents, to which the dust readily obtained access, The water-supply at Estcourt, I may say, was very good.

The sites were, I believe, usually well chosen. The hospital at Estcourt was in a particularly good position on the slope of a small hill. It was near the railway, so that a special siding was constructed by which means the hospital trains were run right to the bottom of the camp. At Newcastle, however, we were occupying a site which had been used for some months by one of the stationary hospitals before our arrival; it was on a low piece of ground near the river and was much too close to the town. The consequence was that flies were much more troublesome than at Estcourt; the camp, though near the station, had no siding of its own and its position in other respects was undesirable.

I feel certain that a more careful selection of hospital sites might have been made in certain cases, and with a closer supervision over some of the details of sanitary work would have saved a great deal of the sickness among the hospital staff. In this way both directly and indirectly the efficiency of the hospitals would have been increased. The authorities did not seem to recognise the fact that a continued use of one particular site was disadvantageous from the consequent fouling of the ground which was being continually carried on when a large number of enteric fever cases were brought together. The great advantage of a canvas hospital is its mobility; this advantage is lost where one site is persistently used for many months in spite of obvious and very serious defects. Some light is also thrown upon the value of the investigations made by the recent Hospital Commission in their flying tour through South Africa when it is remembered that Newcastle was one of the towns visited by them and witnesses were there examined. No comment, so far as I know, has been made by them upon its water-supply, and the hospital, I believe, still exists upon the same site.

ON THE BEHAVIOUR OF OXY-HÆMOGLOBIN, CARBONIC-OXIDE-HÆMOGLOBIN, METHÆMOGLOBIN, AND CERTAIN OF THEIR DERIVATIVES, IN THE MAGNETIC FIELD,

WITH A PRELIMINARY NOTE ON THE ELECTROLYSIS OF THE HÆMOGLOBIN COMPOUNDS.[1]

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I.—THE OBSERVATIONS OF FARADAY AND PLÜCKER ON THE DIAMAGNETIC PROPERTIES OF THE BLOOD.

IN the course of his investigations on magnetism and diamagnetism, read before the Royal Society in the year 1845, Faraday[2] found that, notwithstanding the iron which its colouring matter contains, the blood is a diamagnetic liquid. "I was much impressed," he remarked, "by the fact that blood was not magnetic, nor any of the specimens tried of red muscular fibre of beef or mutton. This was the more striking because, as will be seen hereafter, iron is *always* and in almost all states magnetic. But in respect to this point it may be observed that the ordinary magnetic property of matter and this new property are in their efforts opposed to each other; and that when this property is strong it may overcome a very slight degree of ordinary magnetic force, just as also a certain amount of magnetic property may oppose and effectually hide the presence of this force."[3] Faraday further found the blood to behave like all the constituent tissues of animal bodies which he investigated and was led to state that "if a man could be suspended with sufficient delicacy, after the manner of Dufay, and placed in the magnetic field he would point equatorially, for all the substances of which he is formed, including the blood, possess this property."[4] De la Rive and Brunner,[5] later, suspending a bound-up frog between the poles of an electro-magnet, observed it to assume an equatorial position, thus realising Faraday's prediction that a complex animal organism must be diamagnetic in accordance with the properties of its constituent tissues and of the water which enters so largely into their composition. Shortly after the publication of Faraday's researches on diamagnetism Professor Plücker[6] of Bonn, in a well-known paper which appeared in 1848, after describing the characteristic behaviour of magnetic and diamagnetic liquids contained in watch-glasses placed upon and between the poles of power- [illegible] the results of his observations on [illegible] of the blood. He not only con- [illegible] the blood of the frog, of man, [illegible] of Faraday's statements, but by employing the microscope in his observations he was able to show that the blood corpuscles are more strongly diamagnetic than the liquid in which they float.[7]

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[1] A paper read before the Royal Society on June 20th, 1901.

[2] On New Magnetic Actions and on the Magnetic Condition of all Matter, Philosophical Transactions, 1846, Part I.

[3] Experimental Researches in Electricity, vol. iii., 1855, p. 36, para. 285.

[4] Ibid., para. 2281.

[5] De la Rive and Brunner's researches are only known to me at second hand from the account given of them in Valentin's "Grundriss der Physiologie" (4 Auflage, 1855, p. 507), where an engraving is reproduced in which a bound-up frog is shown placed between the poles of the electro-magnet.

[6] Experimental Untersuchungen über die Wirkung der Magnete auf gasförmige und tropfbare Flüssigkeiten. Refer to the heading, "Über das magnetische und diamagnetische Verhalten der tropfbarflüssigen Körper," in "Poggendorff's Annalen der Physik und Chemie," vol. lxxiii., 1848, para. 49, p. 575.

II.—OBJECTS OF THE PRESENT INVESTIGATION.

At a time when all facts bearing on the physical properties and the chemical relations and structure of the blood-colouring matter are rightly claiming the attention of many of the leading workers in physiological chemistry it appeared to me very desirable to examine the magnetic properties of the crystalline blood-colouring matter itself, in the condition of utmost available purity, and, whatever the results might be, to extend the inquiry to its leading [illegible] shown that the blood is dia- [illegible] at the blood corpuscles are more decidedly diamagnetic than the liquid in which they float, it was yet conceivable, though improbable, that the iron-containg hæmoglobin would prove to be a feebly magnetic body, of which the true magnetic behaviour was concealed by the substances with which it is associated in the blood corpuscles. Whether hæmoglobin proved to be magnetic or diamagnetic it obviously would be of great interest to examine the magnetic properties of the iron-containing substances which the blood-colouring matter yields when it is decomposed by acids in the presence of oxygen, and in the event of a difference between the magnetic behaviour of the mother-substance and its derivatives to push the inquiry in a direction likely to lead to the discovery of the cause of the discrepancy. In pursuance of such an object I have been led to inquire whether the pure blood-colouring matter in aqueous solution is an electrolyte, and having discovered that it is one to examine the results of its electrolysis. On this part of my inquiry the statements which I have to make in this paper are strictly preliminary, and, except in the first most interesting particular that oxy-hæmoglobin and CO-hæmoglobin separate in the first instance from their aqueous solutions when these are subjected to very feeble currents, are to be considered as liable to correction by future more extended work.

III.—THE ELECTRO-MAGNET EMPLOYED IN THE PRESENT RESEARCH.

The electro-magnet employed was constructed by Ladd many years ago and is sufficiently powerful to be employed for observations on the rotation of the plane of polarisation of light. I had it fitted with an accurately closing glass case and, with adequate arrangements for the proper suspension of the bodies under examination. I am not possessed of instruments which would enable me to determine directly the strength of the magnetic field employed in my several sets of experiments. The Rev. F. J. Jervis-Smith, F.R.S., Millard Lecturer in Experimental Mechanics in the University of Oxford, to whom I had the pleasure of showing my experiments, had the great kindness to make careful measurements of the coils and has practically reconstructed an electro-magnet similar in dimensions to mine, with the same windings, and of which the iron core derived from a similar instrument made by Ladd was probably identical in properties to that in my electro-magnet. Using Professor Rowland's method for determining the field he obtained the following results. Intensity of the earth's horizontal magnetic component at Oxford = 0·18. Distance between faces of pole pieces, three centimetres. Current in ampères, 2·4, 3·3, 4·2; magnetic field in C.G.S. units, 516, 700, 870. Probably it is safe as an approximate estimate to assume that my field was about 1000 C.G.S. units with a current of five ampères.

All the fundamental experiments on the magnetic properties of oxy-hæmoglobin, CO-hæmoglobin, and methæmoglobin were made by suspending cakes of the dried crystalline bodies by means of one or a few fibres of silk between the poles, thus avoiding the disturbing influence of glass tubes, however feebly magnetic. In the case of hæmin the substance was similarly examined, in the first instance by suspending as far as possible rectangular cakes formed by the aggregation of crystals. In the case of hæmatin the substance, being in an amorphous pulverulent condition, was necessarily examined in glass tubes, but its intensely magnetic properties prevented in its case, as in that of hæmin, any difficulties arising from the very feebly magnetic properties of the glass tube containing it.

IV.—OXY-HÆMOGLOBIN A STRONGLY DIAMAGNETIC BODY.

The oxy-hæmoglobin employed in the present research was prepared by myself during the past winter from the blood of the horse by employing substantially the method of Hoppe-Seyler. In some cases the blood corpuscles were separated from the defibrinated blood by long-continued centrifugalising; generally, however, the defibrinated blood was mixed with 10 times its volume of a mixture made by diluting 10 volumes of saturated NaCl solution with 90 volumes of distilled water and the corpuscles were then separated by means of the centrifuge.

In either case the magma of corpuscles was treated with a small quantity of distilled water and pure ether, and the mixture having been thoroughly agitated in a stoppered separating funnel, the aqueous solution of the blood-colouring matter was separated and filtered into flasks surrounded with ice, and subsequently treated with one-fourth of its volume of pure absolute alcohol at a temperature of – 5° C, and the mixture placed in an ice chamber for 24 or 36 hours. The oxy-hæmoglobin which crystallised was separated from its mother-liquor by means of the centrifuge. The crystalline mass was repeatedly washed with distilled water at 0° C. and the washed crystals treated with distilled water at 30° C.; the saturated solution was rapidly centrifugalised, rapidly filtered into flasks surrounded by ice and salt, and the hæmoglobin caused to crystallise by the addition of absolute alcohol under the prolonged influence of cold. After being crystallised three times the oxy-hæmoglobin was collected on filters and the moist mass of microscopic crystals drained. The pasty crystalline mass was dried *in vacuo* over sulphuric acid at a temperature which never exceeded 5° C

Behaviour in the magnetic field.—An irregular mass of three times crystallised oxy-hæmoglobin dried *in vacuo*, weighing 1·088 grammes, and measuring 18 millimetres in length, 13 millimetres in depth, and 13 millimetres in breadth, was suspended by a couple of fibres of unspun silk between the poles of the magnet, the distance between these being 20 millimetres; the mass was made to rest in the axial position before the current was passed through the coils.

Three cells of an accumulator were employed; on closing the key the mass of hæmoglobin instantly assumed the equatorial position. The experiment was repeated with masses of hæmoglobin prepared at various times and re-crystallised from one to three times, and weighing from 0·5 to 2 grammes, and invariably they were found to be powerfully diamagnetic.

A specimen of oxy-hæmoglobin of the horse, kindly prepared for me under the direction of Professor Hofmeister in the Chemico-Physiological Laboratory of the University of Strasburg by the ammonium-sulphate method, and which had been five times crystallised, proved to be as powerfully diamagnetic as the oxy-hæmoglobin prepared by Hoppe-Seyler's method.

V.—CARBONIC-OXIDE-HÆMOGLOBIN IS, LIKE OXY-HÆMOGLOBIN, STRONGLY DIAMAGNETIC.

Mode of preparation.—The carbonic oxy-hæmoglobin employed was prepared by saturating a concentrated solution of twice crystallised oxy-hæmoglobin with pure CO, and then crystallising the CO compound by the addition of absolute alcohol and exposure to a temperature of – 5—10° C.

Behaviour in the magnetic field.—A nearly rectangular prismatic mass of CO-hæmoglobin which had been dried *in vacuo*, and which weighed 0 642 gramme, and of which the length was 17 millimetres, the breadth 6·5 millimetres, and the depth 13 millimetres, was brought into the axial position between the poles of the electro-magnet, the distance between these being 18 millimetres. On passing the current from three cells of an accumulator through the coils of the electro-magnet the mass instantly assumed the equatorial position. The experiment was repeated with different specimens of CO-hæmoglobin and invariably with the same result.

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[7] In 1874, Dr. R. C. Shettle, in a paper read before the Royal Society [illegible] they are entirely erroneous.

In the absence of all data as to the diamagnetic moment of either oxy- or CO-hæmoglobin it is impossible to state whether these bodies differ in any degree in respect to their behaviour in the magnetic field. Working carefully but merely qualitatively it would appear, however, that their behaviour in the magnetic field is identical.

VI.—METHÆMOGLOBIN IS, LIKE OXY-HÆMOGLOBIN, STRONGLY DIAMAGNETIC.

The substance was prepared by adding to a saturated solution of twice crystallised oxy-hæmoglobin of the horse a few drops of solution of ferricyanide of potassium until the characteristic change in colour and in the spectrum indicated the complete conversion into methæmoglobin. The solution was cooled to – 5° C., treated with one-fourth of its volume of absolute alcohol at – 10° C., and the mixture placed in ice and salt for a period of 36 hours. The crystalline methæmoglobin which separated was then washed with repeated quantities of ice-cold water, collected on a filter, drained, and dried *in vacuo* at a temperature not exceeding 5° C. Experiments with lumps of this substance varying in weight between 0·3 and 1·0 gramme showed it to be apparently as diamagnetic as oxy-hæmoglobin.

VII.—HÆMATIN AND ACETHÆMIN (HÆMIN)—INTENSELY MAGNETIC SUBSTANCES.

Preliminary remarks.—The more recent analysis of Jaquet, Zinoffsky, and Hüfner have led to the conclusion that, at any rate in the horse, the dog, the ox, and the hen, there exists a remarkable constancy in the proportion of the iron which exists in hæmoglobin (0·335 per cent.).[8] If it be assumed that one molecule of hæmoglobin contains one atom of iron, the molecular weight of the hæmoglobin of the dog, the horse, the ox, and the hen would be 16,669, a result which concords admirably with the volume of oxygen and carbonic oxide which can enter into combination with hæmoglobin on the assumption (first of all advanced by Lothar Meyer) that one molecule of hæmoglobin can combine either with a molecule of oxygen or of carbonic oxide. The empirical formula for the hæmoglobin of the dog calculated by Jaquet from his analysis is probably very near the truth—namely, $C_{758}H_{1203}N_{195}S_3FeO_{218}$.

Why should hæmoglobin possess so enormously high a molecular weight? The question suggested itself to Bunge who has furnished us with a reason which is eminently suggestive. "The enormous size of the hæmoglobin molecule," says this writer, "finds a teleological explanation, if we consider that iron is eight times as heavy as water. A compound of iron which would float easily along with the blood current through the vessels could only be secured by the iron being taken up by so large an organic molecule."

When oxy-hæmoglobin is subjected to the action of acids and alkalies it splits up with great ease into a coloured iron-containing body and into an albuminous body (or mixture of such bodies). The former, to which the name of "hæmatin" has been given, is a derivative of the molecule group existing in the blood-colouring matter, upon which its colour, its spectroscopic characters, and its physiological properties doubtless depend, though it is a derivative which is unquestionably a product of oxidation, and in no sense represents the real hæmochromogen. According to Hoppe-Seyler the empirical formula of hæmatin is $C_{31}H_{35}O_5N_4Fe$, whilst according to Nencki its composition is represented by the formula $C_{32}H_{32}O_4N_4Fe$.

When the decomposition of oxy-hæmoglobin is effected by glacial acetic acid in the presence of alkaline chlorides a perfectly crystalline substance separates which has been hitherto known under the name of *hæmin*, but which we shall now, following the suggestion of Nencki, term *acethæmin.* This body was looked upon by Hoppe-Seyler as a hydrochloride of hæmatin; the recent researches of Nencki and Zaleski have shown that acethæmin contains 8·59 of iron, and possesses a composition represented by the formula $C_{31}H_{33}O_4N_4ClFe$; it contains an acetyl group, and both the acetyl and chlorine in it are linked to the iron. When this body is dissolved in weak solutions of sodium hydrate in the cold the chlorine and acetyl are separated, and on neutralisation with acids hæmatin of composition $C_{32}H_{32}O_4N_4Fe$ is obtained. It is with these two coloured iron-containing decomposition products of hæmoglobin, hæmatin and acethæmin, that my observations have been carried out. Before referring to these in detail I wish again to insist that these oxidation-products in no sense represent the unaltered iron-containing group to which the blood-colouring matter owes its physiological properties. As Hoppe-Seyler showed, when hæmoglobin is decomposed by acids and alkalies *in the absence of all traces of oxygen*, hæmatin is never formed, but a colouring matter which possesses the same spectrum as that which had previously been described by Stokes as that of reduced hæmatin. This substance Hoppe-Seyler called hæmochromogen, and he expressed the opinion that it constitutes the veritable coloured radical upon which the physiological properties of hæmoglobin depend. The experimental facts advanced by Hoppe-Seyler have always appeared to me absolutely inadequate to warrant this hypothesis, which, however, is most suggestive and demands a thorough and a new investigation.

A. *Magnetic properties of acethæmin.*—The acethæmin employed in the present research was prepared by me from ox's blood by the method of Schalfijew. Some of the specimens were purified by re-crystallisation from glacial acetic acid, others by dissolving in a chloroformic solution of pure quinine, and subsequently adding to the filtrate hot glacial acetic acid, saturated with NaCl.[9] My first observations were made with a block of agglomerated hæmin crystals weighing 0·6455 gramme and measuring 26 millimetres in greatest length, 18 millimetres in height, and six millimetres in thickness; this block was suspended by two fibres of silk, so as to occupy the equatorial position in reference to the pole pieces of the magnet. The distance between the poles being 30 millimetres, on passing a current from three accumulator cells through the coils the mass instantly assumed the axial position and was strongly attracted to the nearest pole, the suspending silk fibres being sensibly deflected from their original vertical position. Even when the poles of the electro-magnet were 40 millimetres apart the mass instantly set in an axial position when the current was passed. The observations were repeated with numerous specimens of hæmin and always with similar results.

B. *Magnetic properties of hæmatin.*—The hæmatin employed in these researches was prepared by dissolving re-crystallised and perfectly pure acethæmin in a weak solution of chemically pure sodium hydrate at ordinary temperatures, and precipitating the filtered solution without delay by neutralising with dilute sulphuric acid. The precipitated hæmatin was thoroughly washed, drained, and dried. In consequence of its absolutely amorphous pulverulent character my magnetic observations on this body were conducted with the aid of tubes of very feebly magnetic glass, containing from 0·1 to 0·4 of pure hæmatin. The intensely magnetic character of hæmatin was as easily demonstrated as had been that of acethæmin.

VIII.—THE ELECTROLYSIS OF SOLUTIONS OF PURE OXY-HÆMOGLOBIN AND CO-HÆMOGLOBIN.

Preliminary observations.—The remarkably definite results of my research, which had shown that oxy- and CO-hæmoglobin are decidedly diamagnetic substances, whilst their iron-containing derivatives, acethæmin and hæmatin, are powerfully magnetic, naturally led me to speculate on the possible cause of these differences. It appeared to me that if hæmoglobin were found to be an electrolyte, apart from the interest which would attach to the discovery of the fact, a study of the products of its electrolysis might throw great light upon the question. Do we not know, for instance, that those compounds in which iron and other magnetic metals are present in electro-negative radicals are diamagnetic?[10]

In spite of my having made great efforts to purify as completely as possible the substances with which I worked it is questionable whether their purity was sufficient for electrolytic researches. The experiments which I have yet made on this division of my subject must therefore be looked upon as strictly preliminary, and I hope in the course of the coming winter to extend them greatly, making use of compounds of hæmoglobin which have been subjected to far more frequent re-crystallisation. In the course of these experiments, *beside studying the proximate products of* electrolysis with currents of different strength and potential, I intend to determine by the methods of Kohlrausch and Ostwald, with as great accuracy as possible, the specific conductivities of solutions of oxy- and CO-hæmoglobin.

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[8] For a discussion of all the more recent analysis of hæmoglobin see my article on "Hæmoglobin" in Schäfer's "Text-book of Physiology," p. 199 et seq.

[9] Refer to my previously quoted article in Schäfer's "Text-book of Physiology," and to Nencki and Zaleski's recent article, "Untersuchungen über den Blutfarbstoff. 1. Ueber die Aether des Hämins," Zeitschrift fur Physiologische Chemie, vol. xxx., 1900, p. 384 et seq.

[10] Miller: The Elements of Chemistry, Part I., "Chemical Physics," London, 1855, p. 422; H. du Bois: Propriétés Magnétiques de la Matière Pondérable, Rapports Présentés au Congrès Internationale de Physique Réunis à Paris en 1900, Paris, 1901, tome ii., p. 460.

The following are the results of my electrolytic experiments which I wish at present to place on record. Firstly, when solutions of pure oxy-hæmoglobin are subjected to electrolysis at a temperature of about 15° C. between platinum electrodes, from 12 to 16 cells of a carbon zinc bichromate battery being employed, and the current passing through the liquid being from three to five milliampères, a rapid subsidence of the colouring matter takes place, the upper layers of the solution becoming perfectly colourless. The depositing colouring matter retains the spectroscopic character of oxy-hæmoglobin and when stirred with it is absolutely and almost instantaneously soluble in the liquid from which it has separated. Exactly the same result occurs in the case of carbonic-oxide-hæmoglobin. Secondly, on continuing the passage of the current through the solution in which precipitation has occurred secondary reactions occur, gas is developed both at the anode and cathode, and in many cases a dirty white-brown deposit forms at the cathode. Thirdly, under conditions of strength of current and potential which were not determined with sufficient accuracy and which I have not yet been able to reproduce at will the solutions of oxy-hæmoglobin and CO-hæmoglobin have, under the long-continued action of the current, on several occasions deposited at the anode an insoluble red colouring matter containing both the albuminous and the iron-containing residues of hæmoglobin. In the case of CO-hæmoglobin the compound deposited has presented the peculiar colour of CO-hæmoglobin.

IX.—GENERAL CONCLUSIONS.

The following are the conclusions to which I have been led by my experiments:—1. The blood-colouring matter, oxy-hæmoglobin, as well as carbonic-oxide hæmoglobin and methæmoglobin, are decidedly diamagnetic bodies. 2. The iron-containing derivatives hæmatin and acethæmin are powerfully magnetic bodies. The differences in magnetic behaviour between the blood-colouring matter and acethæmin and hæmatin point to the profound transformation which occurs in the hæmoglobin molecule when it is decomposed in the presence of oxygen. 3. The preliminary study of the electrolysis of oxy-hæmoglobin and CO-hæmoglobin renders it probable that in the [illegible] taining group, on which [illegible] is (or is contained in) an [illegible] to analogy the iron in [illegible] diamagnetic and not magnetic properties.

In conclusion, I beg to acknowledge my indebtedness to Professor von Bunge of Basel, to Professor Franz Hofmeister of Strasburg, and to Dr. von Ehrenberg, the technical director of the chemical factory of Messrs. Merck of Darmstadt, for their great courtesy and kindness in placing at my disposal preparations of hæmoglobin prepared by themselves or under their direction.

Montreux, Switzerland.

TONSILLOTOMY RASH.[1]

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THE occurrence of a skin eruption following operations, often referred to as "surgical rash," is familiar to all of us, but its association with the removal of tonsils and adenoids is, perhaps, not so widely recognised but that a few notes may be of interest. Recent experience of several instances prompted a reference to my hospital and private records which has revealed 34 cases in the course of seven years. Although relatively to the large number of operations this is but a small percentage, I feel from recent experience that they represent but a portion only of those actually occurring and that a thorough and systematic inquiry would afford evidence of greater prevalence. It is the custom at the Central London Throat and Ear Hospital for all patients who are operated upon in the extern department to attend after a week's interval for examination; and in several instances the parent has reported that the child was kept at home because it had a rash which was thought to be "something catching." Subsequent investigation, however, in most cases proved its innocence of specificity. In other cases the rash was still visible on the patient, and unattended by constitutional symptoms. Of the 34 cases, three (which were in-patients) proved to be scarlet fever, while one developed diphtheria. The remainder were simple non-specific cases.

With regard to the character of the rash, the eruption generally appears on the second or third day, either papular, roseolar, or erythematous in type. It most frequently attacks the neck, the chest, and the abdomen, sometimes extending to the face and the extremities. The earliest appearance noted is the day following operation, the latest one is the sixth day. Its duration is generally two or three days but may extend to five days After reaching its maximum intensity it rapidly disappears without desquamation but is sometimes associated with intense itching. It may occur at any age; the youngest was 14 months and the oldest was 23 years.

With regard to sex, excluding the specific cases, 20 were females and 10 were males. As a rule there is but slight constitutional disturbance and the child does not appear to be any the worse. In those cases which I was able personally to investigate the temperature was only increased from 1° to 2° F. Although the incidence of so innocent a complication in our most common operation may not be unfamiliar to many of us I am not aware of any published references having been made to the subject. It is, however, a matter of some importance both to us and to the patient, since foreknowledge will help our diagnosis and prevent any undue precipitancy in forming the graver estimate of its nature. The occurrence of scarlet fever in three cases and diphtheria in one has, however, an important practical bearing insomuch that the removal of actively inflamed tonsils is advocated by many surgeons.[2] There are distinct advantages in this practice since the prominence of an inflamed tonsil affords facilities to the guillotine which disappear on subsidence of the inflammation and there do not appear to be any serious disadvantages. In the absence of any anæsthetic the operation certainly may be more painful, but it most effectually relieves the temporary angina and the removal is thorough. It may thus happen that tonsillotomy is undertaken in the early stage of recognised or unrecognised scarlet fever, diphtheria, or other specific fever, and it is maintained by many eminent specialists that not only no additional risk is involved, but that it is an expedient course to take.[3] This may be so if tonsils alone are removed, but one may reasonably doubt the expediency when a large crop of adenoids requires removal in addition, since the formation of so extensive a denuded surface is not unattended with risk.

The incidence of a rash upon any solution of continuity of tissue, operative or accidental, is well known and has been well discussed, but there are a few points associated with this particular operation which may throw some light upon its pathology. Examination of the blood during the week following the operation has with few exceptions afforded me evidence of an increase in the number of the monocular white corpuscles. This leucocytosis, which rarely lasts beyond the tenth day, may be more than coincidental, yet it is hardly surprising after so great a disturbance of lymphoid structures. The removal of tonsils and adenoids likewise affords a very large area for absorption of toxic matter. The rash may also be interpreted as one due to drug intolerance, since most of the cases were taking the usual mixture of sodium salicylate and potassium bromide. Still, whatever its pathology may be the knowledge that a rash often follows tonsillotomy and that it is not necessarily specific may be reassuring to practitioners experiencing the phenomenon for the first time.

Since the presentation of this note eight further cases have been observed and are included in the numbers given.

Devonshire-street, W.

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[1] A paper read at the annual meeting of the American Laryngological Association.

[2] Lennox Browne: Diseases of the Nose and Throat, fifth edition, p. 346.

[3] Ibid., p. 523.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF CYSTINURIA IN WHICH CADAVERIN WAS FOUND IN THE URINE.

BY P. J. CAMMIDGE, M.R.C.S. ENG., L.R.C.P. LOND.,
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THE published cases of cystinuria, and especially those in which diamines have been found in the urine, are so few that the following is worth recording.

The patient was a girl, aged 12 years, who was seen in consultation by Dr. T. Churton of Leeds in January, 1900. In the course of a routine examination he unexpectedly found cystin crystals in the urine, and knowing that I was interested in such cases he kindly handed the specimen over to me. The urine which I received on Jan. 27th was rather pale in colour but did not smell of sulphuretted hydrogen[1] as is sometimes the case; the specific gravity was 1026 and the reaction was faintly alkaline; no albumin or sugar could be detected. Under the microscope a few six-sided plates of cystin with some triple phosphate crystals were seen. Diamines were sought for by the method of Udranszky and Baumann.[2] The whole available quantity of urine, 90 cubic centimetres, was vigorously shaken with three cubic centimetres of benzoyl chloride and 10 cubic centimetres of 10 per cent. sodium hydrate solution until the smell of the benzoyl chloride had disappeared. After standing, the precipitated diamines were separated from the phosphates, &c., which had also come down, by treatment with warm alcohol and subsequent reprecipitation with distilled water several times. Finally, a deposit of small white crystals was obtained which separated out from a perfectly clear mother liquid; this was filtered off, dried, and weighed. The dry weight was found to be 0·024 gramme. Microscopically the crystals presented the appearance of needles and narrow plates similar to those formed by benzoyl cadaverin; they were insoluble in ether but readily soluble in alcohol and strong sulphuric acid; the melting point was 129° to 130° C., characters which agree with those of benzoyl cadaverin. An attempt to prepare the picrate and double platinum salt was not successful, but this is not surprising considering the small amount of material; the yield was also too small to allow of an ultimate analysis being made. It can hardly be doubted, however, that the substance isolated from the urine was a diamine and that it consisted in all probability of pure cadaverin (pentamethylene-diamine, $C_5H_{14}N_2$).

Unfortunately, I have not been able to obtain any further specimens of the urine or a sample of the fæces, so that I am unable to say whether the excretion of cadaverin was a constant phenomenon or whether a diamine could be obtained from the solid excreta or not. The case is of some interest, however, not only because it adds one more to the 110 recorded cases of cystinuria, but also because it occurred in a female, and of the known cases only 30 are mentioned as being of that sex; further, the presence of cadaverin in a comparatively large amount is noteworthy, for, including Udranszky and Baumann's original case, this substance has been isolated from the urine in but five other cases of cystinuria, and one of these I examined with Dr. A. E. Garrod in 1899.[3]

Wakefield.

NOTE CONCERNING A SIGN OFTEN ASSOCIATED WITH EARLY PHTHISIS.

BY WALKER OVEREND, M.A., M.D. OXON.,
LATE SENIOR PHYSICIAN TO THE TOTTENHAM HOSPITAL AND RADCLIFFE FELLOW.

IN many cases of pulmonary phthisis, but more particularly in those which follow the ordinary sequence of initial deposition and consolidation within the upper lobes accompanied by dulness in the supra-clavicular and supraspinal areas, a number of venous varicosities one-third to two-thirds of an inch in length may often be observed beneath the skin in the neighbourhood of the spines of the seventh cervical and three upper dorsal vertebræ. They appear early and may become very conspicuous. At times they become apparent only after stretching the skin laterally. Local pain is occasionally felt, also slight œdema may be found over these vertebral spines. The following is an example.

The patient, aged 26 years, had suffered from cough since the beginning of April, 1901. It was probably due to influenza primarily. A note taken in the middle of May reads thus: "At the left posterior apex crepitant râles followed by slight expiratory murmur, in the lower lobe a click succeeds each inspiration; at the right posterior apex coarse râles audible, many rhonchi in lower lobe. Numerous varices visible around the spines of three upper dorsal; they occur, although sparingly, all over the left back as low as the angle of left scapula." A description of the venous ramifications of this region may serve to explain their origin. The venous network (dorsi-spinal) which lies around the dorsal spines, also furnishes branches which pass forwards between the transverse processes to join the vertebral veins in the neck and intercostal veins in the chest. The vertebral veins emerge from the transverse processes in the sixth cervical and terminate in the innominate. The veins of the upper two or three left intercostal spaces unite near the bodies of the vertebræ to form the left superior intercostal vein, which passes across the arch of the aorta to enter the left vena innominata, and the left bronchial vein opens into it. The right superior intercostal vein enters the vena azygos major. Bearing in mind these venous communications, the process by which any obstruction or deposition, be it tuberculous or not, begins to hamper the return of venous blood and leads to the formation of these spinal varices, becomes more intelligible. The obstruction may consist of enlarged and congested bronchial glands in the root of the lung, pressing upon the left superior intercostal vein during its passage across the arch of the aorta, or a thickened pleura may affect injuriously the course of the vein or any of its tributaries and lead to distal engorgement. It is important to recall the fact that the upper lobes lie tightly fixed within the three upper ribs and that they reach from the sixth cervical vertebra as far down as the third dorsal spine. The varices occur at first just within this area, between the spines and the edge of the shoulder-blade. Frequent coughing and the horizontal posture in bed, no doubt, will participate in and facilitate their production. Patients suffering from emphysema, asthma, and bronchitis, exhibit varicosities as well, but these are scattered over the chest, both front and back, and along the margins of the lower ribs, diffusely and indiscriminately. When the signs of obstruction clear the dilatations disappear, but the process requires some months. As the patient increases in weight and the fat layer beneath the skin becomes thicker, they would naturally appear less visible. In young children—five to ten years of age—who are rapidly growing or convalescing after influenza and measles, the veins are often marked and auscultation within the same region usually reveals some abnormality, tubular breathing, prolongation of inspiration, enfeebled breath-sounds, or creaking sounds. Such children are extremely vulnerable. They should be well fed and clothed, periodically weighed, and kept under observation for months.

The sign appears to me to be useful, and I have not come across it in any of the text-books and special treatises. The attention of the practitioner is at once arrested by it and the condition of the posterior apices of the upper and lower lobes determined. The presence of auscultatory signs within this dorsal area, combined with wasting and myoidema, I believe, render the diagnosis of early phthisis, even in the absence of sputum and bacilli, practically conclusive.

Clacton-on-Sea.

A CASE OF RELAPSING DIPHTHERIA.

BY H. C. BEASLEY, L.R.C.P., L.M., L.R.C.S. IREL.

REFERRING to the annotation in THE LANCET[1] on the observations of Dr. Barbier and Dr. Lobligeois regarding certain cases of "relapsing diphtheria" in the Hôpital Trousseau, Paris, the accompanying notes of a case may be of interest.

I saw the patient, a girl, aged seven years, on July 11th when she was suffering from typical diphtheria affecting the nasal chambers which were covered with membrane and from which exuded a bloody discharge, and also the tonsils and uvula which were coated with membrane; this was the third day of the disease. I injected 2000 units of anti-diphtheritic serum, this being followed by a fall in temperature. On July 12th, as the membrane was extending to the larynx, I gave a further injection of 4000 units of the serum (Parke, Davis, and Co), which brought down the temperature to normal, but the membrane continuing to extend further down the larynx and the child being in imminent danger of asphyxia, on the 13th I performed tracheotomy. The case after this proceeded so favourably that no further injection of serum seemed to me to be indicated and on the 18th I removed the tube for an hour, but the nervousness of the patient necessitated its re-introduction until the following day when it was entirely dispensed with. At this date a careful examination of the throat revealed no sign of any remaining membrane and the case progressed so favourably that on the 24th the patient had so far advanced that I did not see her again until I was sent for on the 29th, when her mother said that she had been sick the previous day and seemed very bad again. On examination of the patient the tracheotomy wound had almost entirely healed. The temperature had run up to 103° F. and was accompanied by an extremely rapid pulse, and the child looked very ill. On inspection of the throat a fresh patch of membrane of about the size of a shilling had appeared on the left tonsil. Judging from the sickness of the previous day, this was the second day of a fresh invasion and I at once injected 4000 units of the serum with a most gratifying result, the temperature and pulse rate falling to normal by the next morning. The patch of membrane had begun to get smaller, and from this date convalescence was uninterrupted.

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[1] Journal of Pathology and Bacteriology, February, 1900.
[2] Zeitschrift für Physiologische Chemie, 1889, Band xiii., S. 562.
[3] Journal of Pathology and Bacteriology, loc. cit.

[1] THE LANCET, August 3rd, 1901, p. 299.

Though no bacteriological examination was made I think the clinical course of the case was such as to render the diagnosis certain. The points of interest to be noted are as follows: 1. The short interval of protection afforded by the injection of 6000 units of serum, as well as by the antitoxin which we may presume to have developed in the blood of the child herself in the primary attack; this might possibly be explained by the first two injections having been given so late that the serum had only power to check, but not completely to overcome, its antagonist. 2. The value of the serum as evidenced by the remission of most of the symptoms excepting the spread of the membrane in the primary attack, without which I believe the tracheotomy would have been a failure, and its success when given at an earlier date and in a larger dose on the relapse taking place. 3 The importance of giving a large and early injection of serum.

Ashford, Middlesex.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

ST. THOMAS'S HOSPITAL.

A CASE OF ACUTE INTESTINAL OBSTRUCTION RECURRING SEVEN TIMES IN FIVE YEARS AND RELIEVED SIX TIMES BY OPERATION.

(Successively under the care of Mr. G. H. MAKINS, Mr. W. H. BATTLE, Mr. C. A. BALLANCE, and Mr. EDRED M. CORNER.)

THE most striking point about strangulated umbilical hernia is the very high mortality with which it is accompanied and with this is associated a great tendency to recurrence after "radical cure." The cause of this liability to return is to be found in the condition of the abdominal wall in those adults liable to this form of hernia. It is soft, stretched, and loaded with fat, and can offer no resistance to any dilating force; while any suture applied to effect a permanent closure of the hernial opening cannot hold together the softened tissues. The following case is very remarkable for the large number of times—four in all—in which strangulation of an umbilical hernia occurred. On three subsequent occasions the bowel was obstructed owing to adhesions which had formed after the operations for the relief of the strangulated hernia. For the notes of the case we are indebted to Mr. Corner.

The patient, a woman, aged 53 years, had been married for 36 years and was the mother of 13 children, eight of whom were living. The patient was very fat and bronchitic, but otherwise there was no history of illness. Her occupation was that of a monthly nurse and she had noticed an umbilical hernia for five years. Her first admission was on August 29th, 1896 She had had strangulation for two days and was operated on by Mr. Makins. Omentum and three knuckles of small gut were found in the sac. The former was ligatured with silk and removed; the latter were returned to the abdomen. Owing to the adhesions the sac was only partially removed. A radical cure was performed, salmon gut sutures being employed; the skin was sewn with horsehair. She was discharged on Oct. 3rd, after being 34 days in hospital. The patient was now free from trouble for four months when in a violent fit of coughing the hernia appeared again.

On the second admission (Feb. 2nd, 1897) the hernia had recurred and been strangulated for one day. On admission there was a very small tender lump to the right of the scar of the former operation. Operation was performed by Mr. Makins. A knuckle of small gut was found in the sac and returned. A radical cure was performed as above. She was discharged on Feb. 26th, having been in hospital 24 days. The wound was quite sound. The hernia recurred about one year after this operation, but caused little trouble for 15 months, when it became strangulated for the third time. The interval between her admissions to the hospital was two years and three months.

On the third admission (June 2nd, 1899) there had been acute obstruction for two days, preceded by some chronic obstruction for some time. The recurrent hernia was of large size. Operation was performed by Mr. Battle. The sac was found to contain omentum and small gut. The former was ligatured with silk and removed; the latter was returned to the abdomen. Owing to the bad condition of the patient and the numerous adhesions, especially one to the left of the hernia, the sac was only partially removed and the layers were sutured hurriedly. The wound healed by first intention, but the hernia returned before the patient left the hospital. She was discharged on June 27th, after a residence of 25 days. The patient now experienced repeated attacks of pain in the hernia, which became strangulated for the fourth time, three weeks after her discharge.

On the fourth admission (July 19th, 1899) the hernia had been strangulated for seven hours. Operation was performed by Mr. Battle. The sac was found to contain transverse colon, omentum, and small gut. The omentum was ligatured and removed and the gut returned to the abdomen. The adhesions were more numerous now than they had been previously; the one to the left of the umbilicus, which had done so much to prevent the completion of the third operation, was found to consist of the omentum and transverse colon, adherent to the abdominal parietes. A radical cure was performed, silk sutures being used throughout, and the wound drained. The patient was discharged with a stitch sinus on August 12th The duration of residence was 24 days. The stitch sinus persisted and she suffered from recurring attacks of pain and occasional vomiting. Fifteen months after her discharge symptoms of strangulation again occurred.

On the fifth admission (Nov. 5th, 1901) the hernia was recurrent but small and reducible. Operation was performed by Mr. Ballance. The sac was found to contain omentum and transverse colon which was strangulated by a band of adhesions The band was divided and the gut was reduced, the omentum being ligatured and removed. A radical cure was performed with salmon gut sutures. She was discharged on Dec 15th The duration of residence was 40 days. The patient was never free from abdominal pain and discomfort and presented herself at the hospital in four months' time with symptoms of intestinal obstruction. She had from time to time had attacks of pain, vomiting, and constipation of short duration.

On the sixth admission (April 8th, 1901) there had been acute obstruction for two days and subacute for a week.

Operation was performed by Mr. Corner. An incision was made through the right rectus. The small bowel was found to be distended. A large number of adhesions were broken down. The chief obstructing agent was doubtless due to the re-formation of the large adhesion encountered by Mr. Battle at the third and fourth operations and which now consisted of transverse colon, the remains of the omentum, and small intestine and was fixed to the anterior abdominal wall. The layers were sutured with salmon gut, as were also the edges of a small recurrent hernia at the lower angle of the old scar. The old stitch sinuses (two) were scraped out, but they discharged copiously and infected the lower angle of the wound. The patient was discharged on May 8th. The duration of residence was 30 days. The patient always had pain in the abdomen and a month after her discharge a purpuric eruption broke out on her legs and a week later on the arms and abdomen. Symptoms of intestinal obstruction occurred for the seventh time, seven weeks after she left the hospital.

On the seventh admission (July 19th, 1901) there had been obstruction for 16 hours. Her abdomen was distended and most tender in the upper half. Operation was performed by Mr. Corner. An incision was made through the right rectus, but the adhesions were too dense to enable anything to be found except collapsed small gut. A further incision was made through the left rectus and the collapsed small gut was followed until the upper coil of the jejunum was found to be extremely thick and œdematous. The exact seat of the obstruction could not be ascertained owing to adhesions but was evidently very high in the small intestine; and the patient's condition forbade further operative treatment. The abdomen was closed after the transverse colon was brought out, as it had been opened in separating an adhesion. Death occurred from unrelieved obstruction in 24 hours (July 20th). Unfortunately, the body decomposed so rapidly that its diffluent condition prevented a post-mortem examination.

Remarks by Mr. Corner.—The above case is interesting as illustrating the frequent recurrences of intestinal obstruction, which was six times relieved by operation and at the seventh the obstruction could not be found. The woman was first admitted in 1896 and Mr. Makins operated; the second operation was done in 1897, also by Mr. Makins; the third and fourth operations were performed in 1899 by Mr. Battle; the fifth operation in 1900 by Mr. Ballance; and the sixth and seventh operations in 1901 by myself. On examining the literature of intestinal obstruction and strangulated hernia I was unable to find any case which could show such an extensive clinical record. The first four admissions were for strangulated umbilical hernia and the last three were for obstruction by adhesions. Strangulated hernia has the lowest mortality of all forms of intestinal obstruction, though strangulated umbilical and ventral herniæ have a higher death-rate than either the inguinal or femoral varieties. The mortality is so high in the former variety of hernia because of their large size, multiplicity of adhesions, difficulty in reducing the contents, the fat, flabby condition of the patient, and so forth. No case of femoral or inguinal hernia has been admitted to St. Thomas's Hospital in which strangulation has occurred and been relieved four times. Out of 61 operations during 1891–99 for strangulated umbilical hernia only four were performed on recurrent cases. Recurrences after "radical cure" for umbilical and ventral hernia must be fairly frequent. Out of 81 operations for "radical cure" six were recurrent cases, of which four were strangulated and two had intestinal obstruction caused by adhesions. Hence recurrent cases seem only to return when the urgent symptoms of strangulation arise.

The second variety of obstruction from which this woman suffered was caused by adhesions and is one which bears a high mortality. Three operations were performed for this; two were successful and at the third the seat of obstruction could not be reached. It was noticed in this case that the obstructing adhesions were chiefly derived from the ligatured ends left after the omentum had been removed, which subsequently gave rise to a mass consisting of the remains of the omentum, the transverse colon and small gut all becoming adherent to the anterior abdominal wall. The other adhesions did little harm except being the most likely cause of various colicky pains. This form of obstruction is commoner in umbilical and ventral than in femoral or inguinal hernia, and must especially be borne in mind in those of long standing, recurrence, or irreducibility. The hernia may even, as sometimes happens, be easily reducible. From the date of the first operation to that of her death five years elapsed.

ADDENBROOKE'S HOSPITAL, CAMBRIDGE.

A CASE OF INTESTINAL OBSTRUCTION AND PERITONITIS FROM GANGRENOUS MECKEL'S DIVERTICULUM; RECOVERY.

(Under the care of Mr. George Wherry.)

It has been estimated that Meckel's diverticulum exists in about 3 per cent. of all persons. Even when it is recognised that in many of these the diverticulum is small and unimportant it is rather remarkable that more cases are not met with in which harmful symptoms arise from this developmental anomaly. Probably the explanation is to be found in the fact that "in nearly all reported instances of strangulation under a diverticulum the process has been adherent to a point other than the vicinity of the umbilicus."[1] When the diverticulum is attached to the umbilicus there is little likelihood of any strangulation occurring.

A boy, aged 14 years, was admitted into Addenbrooke's Hospital, Cambridge, on Jan. 22nd, 1901, with obstruction of the bowels. The abdomen was tympanitic and much distended; the patient vomited and there was violent pain round about the umbilicus. The onset of the attack occurred a week previously, but the more acute symptoms began three or four days before admission. No fæces or flatus had been passed for a week with the exception that Mr. R. E. Smith of Finchingfield, Essex, who was called in on the 19th, had washed away a little fæces with an enema.

An operation was at once performed under chloroform and the A.C.E. mixture. A median incision below the umbilicus let out about half a pint of turbid fluid with a foul smell; there were peritonitis and recent adhesions. The distended intestines were purplish and engorged and were tightly constricted by a band made by Meckel's diverticulum. The band was clamped near the bowel and the remainder was removed; the adherent ampullated end was black and stinking. The clamp on the stump of the diverticulum next the bowel was let free to allow the exit of some of the flatus from the distended bowel; it was then stitched with silk all around an adjacent ashy-grey patch in the intestine. There were some other ulcerated spots in the bowel which threatened to perforate, one of which was folded and stitched over with silk. Some fluid was then sponged out of the pelvis and a large rubber tube was placed in the lower part of the wound down to the bottom of the pelvis; a small superficial drain of gauze was left in the upper end of the abdominal wound.

Rapid recovery followed; the lad had some delirium during the next day or two but otherwise no anxiety arose. There was a free action of the bowels on the third day and the pelvic tube was then removed. There was a fæcal discharge from the wound later which lasted for a week or two but gradually stopped without operative interference. Mr. Smith kindly reported to Mr. Wherry that on June 21st "the boy was as well as ever" except for a slight watery discharge from the sinus, which was never fæcal.

Remarks by Mr. Wherry.—The case on admission closely resembled one of acute appendicitis with peritonitis, but there were no indications of the locality of the lesion. The diverticulum was a tube about three and a half inches long and had a firm adhesion to the mesentery at its distal clubbed end, leaving a loop across the mesentery in which the small intestines were fixed and strangulated. As the loop did not give way, but pressed like a tense tape against the congested bowel, the distal end of the diverticulum became gangrenous. The absence of any mesentery would favour the death of this extremity, as stretching proceeded in the diverticulum. No doubt if the band had given way an extravasation of fæces would have occurred with the relief of obstruction. The bowels at the operation were only partly emptied of flatus. The gentle uniform pressure of moderately distended intestine in such a condition may assist in repair of the damaged intestinal walls.

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[1] Treves: Intestinal Obstruction, 1899, p. 47.

ROYAL SURREY COUNTY HOSPITAL

A CASE OF LAPAROTOMY FOR INTUSSUSCEPTION IN AN INFANT AGED FOUR MONTHS, RECOVERY

(Under the care of Mr C J SELLS)

THE early age of the patient and the apparent absence of collapse, even though the intussusception had lasted three days, are worthy of remark At the present time it is fairly generally recognised that laparotomy is the best treatment, but even as late as 1888 Mr A. E. Barker was able to find during the preceding 12 years in London only one case of successful laparotomy for intussusception [1] For the notes of the case we are indebted to Dr S Clifford Pritchard, house surgeon

A girl, aged four months was admitted into the Royal Surrey County Hospital on the morning of May 13th The history showed that for the previous two days the child had apparently been suffering from abdominal pain and the bowels had not been opened except for a little "slimy blood." On abdominal examination nothing could be found, but per rectum the prolapsed portion of the intestine was felt After a further examination under chloroform, however, this was found to have disappeared As the general condition of the patient was good it was therefore decided to wait. During the day the child seemed to be quite comfortable and passed a little flatus, the temperature which was 100° F on admission had dropped to 99° F by 6 P M On the following morning (May 14th) as the bowels had not been opened a warm water enema was given and a further rectal examination was made and the end of the intussusception was again felt. It was therefore decided to operate at once

Chloroform having been given an incision was made from the umbilicus to the pubes (about three inches in length) in the middle line The intussusception was found without much difficulty and was carefully reduced by shelling it out from the distal end without any damage to the peritoneum The parts were rather œdematous and about 18 inches of the ileum had passed in at the ileo cæcal valve The incision was then closed and the patient was returned to bed During the day and following night the temperature rose steadily until it reached 103 at 6 A M on the next morning It then dropped to 99° at 6 P M and the bowels were opened for the first time. They were again opened four hours later and the temperature had risen to 101 8° From this point the temperature again fell and the patient made an uninterrupted recovery

Reviews and Notices of Books.

Uterine Fibro myomata their Pathology Diagnosis and Treatment By E STANMORE BISHOP, F R C S Eng With 49 Illustrations London Rebman Limited 1901 Pp 324 8vo Price 15s net

ONE of the most debateable points in gynæcology at the present day is the question What are the dangers of a fibroid tumour and how is it best treated? That the treatment of such tumours is becoming more and more a matter of their removal by operation is clear from the records of the numerous cases so treated in current medical literature Whether, as Dr Champneys would have us believe the danger of death from a fibroid tumour apart from operation is only 0·000138 per cent or not is a contentious question upon which no two authorities are agreed Is it or is it not true that sarcomatous degeneration in a fibroid tumour is of common occurrence? If we search the text books for information upon this point we find the most divergent statements, and yet this is not uncommonly urged as an indication for the early removal of these tumours According to Mr Roger Williams non malignant uterine neoplasms have no special proclivity to malignant disease, on the contrary they are less prone to originate such changes than are the morphological elements of the uterus itself No doubt much of the difficulty in answering such a question lies in the ease with which a fibro sarcoma may be mistaken for a fibro-myoma, and since in many instances a certain answer can only be given by following up the after history of the patients information upon the point is always likely to be scanty and of little value In an attempt to give a comprehensive review of the whole subject Mr Bishop has written this book upon Uterine Fibro myomata From the graphic description of the numerous symptoms and ills which, the author holds accompany a fibroid tumour it is evident that he regards the life of a patient with such a tumour as one of some misery As he says if a patient escapes the numerous dangers of the presence of such a tumour, 'she leads a life which is often little more than a vegetative existence—the menopause is usually delayed and protracted, she is prematurely aged by the pain and depletion she has undergone, the prospect for such patients is gloomy in the extreme' Truly a miserable outlook. Yet there are some of us who would be inclined to regard such a description as perhaps a little more despairing than is quite warranted by the actual condition of things in many such cases. In illustration of the view which he takes the author has collected a number of cases of death resulting from fibroid tumours It is, however, a pity to have included cases where certainly a fibroid was present and the patient died but where there was no evidence forthcoming to connect the two events as for example, the case in which after death from apoplexy a calcified subperitoneal fibroid was found The author does not regard malignant degeneration of a fibro myoma as a common occurrence, and agrees with the view that sarcomata of the uterus arise *de novo* from the endothelium of the small vessels In regard to the origin of fibro-myomata he agrees with Pilliet who considers them as arising in the adventitia of the uterine capillaries, this gives origin to a zone of embryonic cells which multiply and develop into rows of concentrically placed smooth muscular fibres arranged round the vessel

In summing up the effects of medicinal treatment upon fibroid tumours the conclusion arrived at is that "prolonged medicinal treatment of fibro myomata with a view to radical cure is useless If a tumour is obviously increasing in size with or without increasing loss of blood surgical or electrical treatment is called for A chapter is devoted to the discussion of the rôle of electricity Upon the whole the author considers that the use of the constant current is admissible in certain cases where hæmorrhage is the principal symptom and where no contra indication exists The remainder—almost half of the book—is taken up with the consideration of the surgical treatment of these tumours In a general review of such treatment Mr Bishop discusses the various kinds of operations that may be performed and recommends the following four methods enucleation or myomectomy, abdominal or vaginal, abdominal hysterectomy or pan hysterectomy, vaginal hysterectomy with or without morcellement and a combination of these two latter methods He himself is in favour of vaginal hysterectomy when it is possible, a modification of Kelly's abdominal operation with removal of the cervix or pan hysterectomy by the combined method beginning from below His results before 1896 show a mortality of 25 per cent, since the abandonment of abdominal drainage the employment of the combined method, and the use of a celloidin dressing for the abdominal incision a mortality of just below 6 per cent The reasons given for the choice of the operation of combined vaginal and abdominal hysterectomy are as follows The abdominal cavity is open for as short a time as possible The separation of the bladder opening Douglas's pouch and tying the uterine arteries, are more easily carried out from the vagina. Once the uterine arteries are tied the operation is almost bloodless. When performed from above these steps have to be carried out at the end of the operation when the fingers are tired. The principle of previous vaginal freeing can be adapted to Kelly's operation and greatly facilitates the performance. In dressing wounds Mr. Bishop uses a mixture of celloidin dissolved in ether and absolute alcohol. He claims for this method that the wound can be washed without disturbing the patient, that there are no bandages to ruck up, that there are no dressings to change, that there is no fear of dust or dirt, and that there is less need of keeping the patient in one position. At the end of from 10 to 20 days the dressing peels off. For success in using this dressing several things are essential. The original wound must be aseptic, it must be dry, there must be no oozing of blood, and all air must be carefully pressed out.

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[1] THE LANCET August 4th 1888 p 200

The last chapter, upon Final Results, is a good example of how difficult it is to get information about old patients. In answer to a number of letters addressed to different surgeons a great deal of general information has been obtained, but very little of real worth. Most of the answers given are derived from general impressions and therefore are of no scientific value. In an attempt to find out if patients after operation drift into the workhouses or infirmaries the author has applied at a large number of such institutions. In almost every case the reply is in the negative, no such cases have been met with. From this the conclusion is drawn that the operation of hysterectomy is not, as a rule, followed, as has been said, in any appreciable number of cases by such disabling conditions as fæcal fistula, ventral hernia, vaginal prolapse, or persistent pain.

The book upon the whole is a very fair summary of the present knowledge and practice with regard to fibro-myomata of the uterus. If it contains nothing very original and if the conclusions are in part tinged with the author's evident bias towards surgical interference, yet it gives a good deal of information upon a matter of great interest in a readily accessible form.

Bericht über die Achtundzwanzigste Versammlung der Ophthalmologischen Gesellschaft (Report on the Twenty-eighth Ophthalmological Congress), Heidelberg, 1900. Edited by W. HESS and TH. LEBER, with the assistance of E. VON HIPPEL and A. WAGENMANN. With 17 plates and eight Woodcuts. Wiesbaden: J. F. Bergmann. 1901. Pp. 250. Price 8*s*. (Obtainable from F. Bauermeister, foreign bookseller, Glasgow.)

THE congress to which this report refers opened under the presidency of Professor Leber, who, after giving a friendly greeting to the members, proceeded to confer the von Graefe Prize for the best essay on the Relations of the Central Nervous System and Accommodation. The two essays sent in by Professor Stephan Bernheimer and Professor Carl Hesse had been reported by the judges to be equally good, and the Graefe prize was divided between them. Professor Fuchs of Vienna was then voted to the chair by acclamation. The first paper read was by Dr. Hugo Wintersteiner of Vienna on Traumatic Cysts of the Iris. Several cases were reported. The next paper was on the Treatment of Glaucoma by Resection of the Sympathetic, by Dr. K. Grunert of Tübingen. Fifteen cases were reported, in all of which Professor Hofmeister performed the actual operation, but from other sources than his own observation Dr. Grunert was able to accumulate 47 cases, which with his own made a total of 62. The chronic acute and subacute forms of glaucoma were subjected to this treatment with the result that improvement resulted in all the cases of acute glaucoma, which were five in number. In 16 cases of chronic glaucoma 11 were improved; in 13 cases of glaucoma absolutum six were improved; in 16 of glaucoma simplex 10 improved; in eight cases of glaucoma simplex absolutum seven were improved. In four cases of hydrophthalmus the treatment failed in three but was a success in one. Dr. Grunert considered that the results were satisfactory but that more numerous data were required. Tables are appended showing the degree of improvement that was observed in each case. Dr. W. Uhthoff of Breslau read a long paper on Infectious Optic Neuritis or—to translate it more correctly in accordance with the mode in which he treats the subject—on optic neuritis as occurring in infectious diseases such as syphilis, typhus, typhoid fever, measles, and scarlet fever, and discusses the question whether the micro-organisms escape from the circulation and directly affect the nervous system or not. A paper on the Pathogenesis of Methyl-alcohol Amblyopia was read by Dr. A. Birch-Hirschfeld, who from his experiments has arrived at the conclusion that the primary seat of the action of the poison in the eye is in the ganglion cell layer of the retina and that the granule layers are subsequently affected, these conditions leading to partial degeneration of the optic disc. Professor Schmidt-Rimpler of Göttingen and Professor E. von Hippel of Heidelberg reported cases of Luxation of the Lens. The Action of Suprarenin on the Eye is the subject of a paper by Dr. K. Wessely of Heidelberg, in the course of which he shows that it prevents and removes vascular dilatation and causes dilatation of the pupil and reduces the tension of the globe.

At the sitting of the Congress on the second day Mr. H. R. Swanzy of Dublin was in the chair. Professor Fuchs of Vienna read a paper on Detachment of the Retina after Cataract Operations. Dr. F. Schiek (Halle, a.S.) described and illustrated with drawings—here reproduced in five well-executed plates which are deserving of being studied—cases of Choroiditis Exsudativa Plastica.

Professor Sattler of Leipsic laid emphasis on the advantages of the open-air treatment of all wounds of the eye and proposed that it should be applied after cataract operations. He only places a little damp pledget of wool to the lids for a short time, but takes the greatest care to secure complete asepsis before undertaking the operation. Various speakers seem to have dispensed for some time past with the long and cumbrous bandages formerly in use. Professor St. Bernheimer of Innsbrück gave the results of his experiments upon monkeys to determine the position of the sphincter centre. He states it to be a small-celled median nucleus. Dr. A. Bielschowski of Leipsic read a paper upon the so-called "divergence paralysis" and endeavoured to prove the existence of a subcortical centre for the eversion of the eyes. Other papers are on Binocular Vision, by Dr. L. Heine of Breslau, illustrated by three woodcuts; on the Limits of Acuteness of Vision, by Dr. F. Best of Giessen; and on the Visibility of Schlemm's Canal in the Living Subject.

On the third day of the Congress Professor Bernheimer of Innsbruck was in the chair and papers are stated in the report to have been read by Dr. Ed. Hummelsheim, on *Central and Peripheral Acuteness of Vision; by Professor* A. von Reuss of Vienna, on Exhausted Areas of Vision; by Dr. E. Hertel of Jena, on Changes of the Retinal Vessels in Arterio-sclerosis; on Intra-ocular Disinfection, by Dr. W. Mayweg of Hagen; on the Finer Histology of the Lacrymal Gland, especially in regard to the Presence of Fat in the Epithelial Cells; on Three Cases in which a Fragment of Iron traversed the Eyeball, by Dr. A. Wagenmann of Jena. Several of these papers were illustrated by drawings, which are reproduced in the report. The report concludes with an account of demonstrations of various cases and instruments that were exhibited before the meeting, which appears from the account here given to have been a very successful one.

Saunders's Year-Book of Medicine and Surgery. Under the general editorial charge of GEORGE M. GOULD, M.D. London and Philadelphia: W. B. Saunders and Co. 1901. Pp. 680. Price (for two vols.) 26*s*.

THE experiment made last year in issuing this work in two volumes has, we are told, proved very acceptable to subscribers and consequently this plan is continued, and the book now before us is solely concerned with "medicine." The high standard of the work exhibited in previous years is fully upheld, and an excellent summary is given of the principal contributions which have been made to medical science since the publication of the last volumes. The section of General Medicine is edited by Dr. Alfred Stengel and Dr. D. L. Edsull of Philadelphia. The abstracts on typhoid fever will be found interesting, especially the remarks on "typhoid infection without intestinal lesions" and the reports on laparotomy in cases of peritonitis occurring in the course of the fever.

The experiments of Dr. W. Goldie are also worthy of note; repeating the experiments of Flügge, he demonstrated that colonies of tubercle bacilli are obtained upon plates which are held near the mouths of patients suffering from pulmonary tuberculosis when they cough.

The section of "Pediatrics" is edited by Dr. Louis Starr and Dr. A. Hand, junior, of Philadelphia, and that on Pathology and Bacteriology by Dr. D. Riesman and Dr. A. O. J. Kelly of Philadelphia. The results of Sata's experiments in Mixed Infection in Pulmonary Tuberculosis are fully given and it is shown that the majority of advanced cases of pulmonary tuberculosis are mixed infection and that a large part of the pathological changes is the result of such secondary infection.

Dr. Archibald Church of Chicago is responsible for the section of Nervous and Mental Diseases, and Dr. L. A. Duhring and Dr. M. B. Bartzell of Philadelphia for that of Diseases of the Skin and Syphilis. Dr. R. W. Wilcox of New York and Dr. A. A. Stevens of Philadelphia report on Materia Medica, Experimental Therapeutics, and Pharmacology. Dr. G. L. Stewart of Cleveland writes on Physiology. Dr. Wyat Johnston (Montreal) edits the section of Legal Medicine; Dr. J. W. Abbott (Boston) that of Public Hygiene and Preventive Medicine; and Dr. W. Jones and Dr. Reid Hunt (Baltimore) that of Physiologic Chemistry.

Physical Diagnosis of Diseases of the Chest. By RICHARD C. CABOT, M.D., Physician to Out-patients, Massachusetts General Hospital; Assistant in Clinical Medicine, Harvard Medical School. London: Baillière, Tindall, and Cox. 1901. 142 Illustrations, pp. 326. Price 10*s.* 6*d.*

PHYSICAL signs can only be learned by actual experience; the various types of breathing, normal and abnormal, the variations in the rhythm and sounds of the heart, and the numerous phenomena connected with diseases of the chest can only be recognised after prolonged and careful study of a large number of cases. Further, physical signs must be accurately interpreted, otherwise hopeless confusion and innumerable errors will inevitably result. The bedside and the out-patient rooms are the only places where a correct idea of the physical examination of patients can be satisfactorily acquired.

Some help can, however, doubtless be obtained from a written description of physical signs, and numerous works have been published with this intent. The one now before us is one of the best on "Physical Diagnosis of Diseases of the Chest" which we have yet met with. It is of convenient size and the descriptions are couched in simple and exact terms. The point that we especially notice is that considerable stress is laid on departures from the ordinary physical signs of health which may yet not be diagnostic of disease For example, what more common mistake is made, not only by students, but by junior practitioners, than the diagnosis of "a cavity at the right apex," based on the fact that there is a small patch of bronchial breathing under the right clavicle—a phenomenon frequently occurring in perfectly healthy chests?

An interesting section is headed, "Modifications in the Second Sounds as Heard at the Base of the Heart." The majority of current text-books still repeat the mistaken statement that the aortic second sound is always louder than the pulmonic second in health, but Dr. Cabot shows that the relative intensity of the pulmonic second sound, when compared with the second sound heard in the conventional aortic area, varies considerably at different periods of life, and he shows that the relative intensity of the two sounds in the aortic and pulmonic arteries depends primarily upon the age of the individual, the pulmonic sound predominating in youth and the aortic in old age, while in the period of middle life there is relatively little discrepancy between the two, therefore pathological accentuation of the pulmonic second sound must mean a greater loudness of this sound than should be expected at the age of the patient in question and not simply a greater intensity than that of the aortic second sound. The same observation obviously applies to accentuation of the aortic second sound. These are facts of great importance in the diagnosis of cardiac disease which the student will do well to bear in mind. Dr. Cabot's work will be found a useful one both for study and for reference.

LIBRARY TABLE.

Le Diagnostic Précoce de la Tuberculose Pulmonaire. Par MM. les Drs. CH. JOURDIN et G. FISCHER, Médecins Aides-Majors. (*The Early Diagnosis of Pulmonary Tuberculosis.* By Dr. CH. JOURDIN and Dr. G. FISCHER.) Paris: A. Maloine. 1901. Pp. 148. Price 2 francs 50 centimes.—As the authors of this little book point out in their prefatory chapter, there is no doubt of the extreme importance of making an early diagnosis in cases of pulmonary tuberculosis, especially in view of the recent developments in the treatment of that disease by means of hygienic principles. They point out the difficulty of making an early diagnosis and they quote Catrin's remark: "Every one during his life, without knowing it, has been, is, or will be tuberculous, oftentimes dying from it, but more often being healed of it." The book is divided into three parts: (1) consideration of the signs furnished by external examination of the body and especially of the lungs; (2) consideration of the symptoms given by an examination of the blood and the circulatory system; and (3) consideration of the information afforded by experimental tuberculosis, agglutination tests, and the like. The authors are convinced of the great value of radioscopy and radiography, but, as they say in their final chapter, no one sign or method of diagnosis can be taken as giving indisputable proof but each sign acquires increased value according to the number of other signs and symptoms which are found to coincide with it. The book is simply and plainly written and will be found to be a valuable *résumé* of the opinions existing upon the matter with which it deals.

Rhodes's Steamship Guide for 1901–1902.—This excellent little work gives the intending passenger every conceivable information about how to get to almost any port in the world. It is a pity, we think, that our steamship lines are not more utilised for purposes of travel. To begin a journey by going to some place on board a steamer is the best way to open a holiday. The only objection is that it is a comparatively slow means of travel, and this when time is limited is a consideration. But otherwise, for the holiday maker who is going to any Mediterranean country, we should say, "Go by sea," and this book will tell him how to go. Apart from the purely guide portion of the work there are appended most interesting chapters upon naval construction and machinery. If the reader masters these he cannot do better than next to read Kipling's delightful story of "The Ship that Found Herself"

Intemperance. By Professor CAMPBELL, M.D. London: Burns and Oates. 1901. Pp. 36. Price 1*s.*—This brochure is divided into three parts—viz., Natural Remedies, Spiritual Remedies, and Auxiliary Remedies. The word "intemperance" is, we may remark, used solely in the restricted sense of alcoholic intemperance. Of the evils of drunkenness there can be no doubt, neither is there any doubt that many people drink far more than is good for them without ever getting drunk. But though Professor Campbell's remarks are for the most part sound, yet we think he spoils his case by protesting too much. His moderate drinker is, for instance, most immoderate. However, we must allow that for a certain class of character there is no medium between total abstinence and intemperance. On page 30 Professor Campbell mentions "medical practitioners who prescribe port and sherry on account of the alcohol contained in these wines. ......" Port and sherry are not, or at any rate should not be, prescribed so much on account of the alcohol which they contain but on account of the vinous ethers. If some method could be found of producing these ethers, both fixed and volatile, free from alcoholic fluids they could be prescribed apart from wines or brandies, but at present they cannot be so used.

Homoculture by Selection. By HENRY SMITH, M.D. Jena. London: Watts and Co. 1901. Pp. 38. Price 6*d*.—This pamphlet, which is mainly made up of reprints from articles contributed by the author to magazines and newspapers, contains a great number of truisms. For instance, "Social reformers must know how to cause good, and how to repress evil conduct" and "Teach the people that if they wish to have fine, healthy, and perfect children, men and women who are deformed and diseased mentally and physically must not marry nor mate ... teach them that they must help to get laws enacted to make such an act a crime and that just punishment will be the consequence." These are admirable sentiments, but Dr. Smith does not vouchsafe any information as to how he is going to obtain the realisation of such desirable ends.

When to Operate in Inflammation of the Appendix. By C. MANSELL MOULLIN, M.D. Oxon., F.R.C.S. Eng. Second edition. London: John Bale, Sons, and Danielsson, Ltd. 1901. Pp. 40. Price 2*s*. 6*d*.—These clinical lectures were originally published in, and have been reprinted from, the *Clinical Journal*. They have, however, been partly rewritten and revised for the present edition. Mr. Moullin insists upon the necessity for early operation, one "preventive in the strict sense of the term." An operation such as this must not be confused with "what is commonly called early operation upon the fourth or fifth day."

Thirty-one Twenty-four Hour Charts for Private Nurses. Arranged by FLORENCE WHITE. London: James Townsend and Son. Price 1*s*.—These charts are arranged so that the nurse, if she keeps them properly, can show to the medical practitioner a record which will enable him to see at a glance his patient's progress as regards temperature, pulse, respiration, the nourishment and stimulants taken, the medicines taken, the working of the bowels and kidneys, and the amount of sleep obtained. The charts should be found to be useful.

The Ophthalmoscope: A Manual for Students. By GUSTAVUS HARTRIDGE, F.R.C.S. Eng., Surgeon to the Royal Westminster Ophthalmic Hospital. With 65 Illustrations and four Plates. Fourth edition. London: J. & A. Churchill. 1901. Small 8vo. Pp. 153. Price 4*s*. 6*d*.—This well-known little manual has been on several occasions favourably noticed in our pages. It is clearly written and is admirably adapted for the beginner. He is not repelled by meeting on the first page which he opens an array of formulæ that he is unable to comprehend—a mathematical presentation of the subject—but Mr. Hartridge presents him with numerous and excellent diagrams which enable him to follow the path of the rays of light illuminating the fundus. The different appearances that are commonly visible of the several regions in the normal eye are well given, such as the variations in the arteries and veins both in regard to numbers, colour, and distribution, the form and colour of the optic disc, and the presence or absence of recognisable vessels in the choroid. The aspects of the principal forms of disease, such as glioma, detachment of the retina, hæmorrhages, papillitis, and others, are fully described, and as the author has drawn from nature and with large experience all the more important features are accurately reproduced. In the next edition we might suggest to Mr. Hartridge that new and better executed chromo-lithographs might replace the present ones. In the first figure of Plate 1 the disc appears to us to be too rosy in hue. Fig. 3, again, is not typical of the changes in old age. At first glance it might be considered to represent hæmorrhages in, or on, the choroid. The manual is otherwise a very good and trustworthy guide for the student.

Atlas der Krankheiten der Nase, ihrer Nebenhöhlen und des Nasenrachenraumes. Von Privat-docent Dr. P. H. GERBER, in Königsberg. Der Atlas Erscheint in 6 Leiferungen à 5-6 Tafeln nebst Text zum Preis von 6 mark für die Lieferung. Einzeln Lieferungen verden apart nicht abgegeben. (Atlas of Diseases of the Nose, the Accessory Cavities, and of the Naso-pharynx. In six parts with five or six plates with accompanying text. Price 6 marks for each part. Single parts are not sold.) Parts 2 and 3. Berlin: S. Karger, Karlstrasse, 15. 1901.—The plates in these parts are devoted to epithelial changes, atrophic rhinitis, atrophic rhinitis fœtida, hypertrophic rhinitis, papillary hypertrophies, naso-pharyngeal hypertrophies, polypi, and naso-pharyngeal polypi. The plates are well drawn, but they are not so well coloured as they might be. They show a tendency to effect the reproduction of the drawings with as few colours as possible; thus the tints of the mucosa are not quite like nature, they are all too pink in hue. The extreme value of good reproductions of drawings of diseased conditions is now recognised as being one of the most successful aids to a proper comprehension of those morbid states to which the human frame is subject, and is useful alike to the practitioner and to the teacher. To the teacher, because he can show to a class on the pictures those points to which he will direct their attention in the clinic; to the practitioner, as he can by their aid obtain much valuable information. Dr. Gerber's atlas is a useful work.

De Omnibus. By the CONDUCTOR (BARRY PAIN). 8vo. London: T. Fisher Unwin. 1901. Pp. 135. Price 2*s*.—This little book contains some desultory expressions of opinion on men, women, and manners, which are put by Mr. Barry Pain into the mouth of an omnibus conductor. There is nothing medical about the book except that it is highly laughable, and in our opinion any really humorous book may be regarded as a therapeutic agent in these days when the pressure of the day's work makes so many of us over-serious. Mr. Barry Pain's conductor is a shrewd and humorous man, and if his experiences do not encourage us to take a very high view of human nature they at any rate provoke mirth, which, we presume, is all that Mr. Barry Pain has intended to do. Angkin, the social reformer, has "grievances ag'inst ev'rythink. 'E inj'yes denarncin' and egsposin', and overthrowin' and abolishin'. If yer listen ter 'im yer'd think as most things were worm-eaten, an' the rest was 'oney-combed, and anythink left over were the thin end o' the wedge." Ike, the hard case, is described with similar apt allusiveness. The jokes against the types of Angkin and Ike may be obvious but they are none the less good; and the same may be said of most of the points which Mr. Barry Pain makes—they are not new, but he makes them gaily and fairly. "Woman the Obscure" is a capital satire on a sort of vague thoughtlessness to which too many of us are prone; "Queer Fares" are very queer; while "Them Boys" is a sound collection of the exploits of bad urchins. A bright little book.

Walks in London. By AUGUSTUS J. C. HARE. Seventh edition, revised. London: George Allen, Charing-cross-road, W.C. 1901. Pp. 780. Price 12*s.*—The publication of another edition of Mr. Hare's entertaining and instructive itinerary dealing with the many objects of interest in London is a fitting opportunity for those Londoners—and their name is Legion—who know very little of their London to take a first step in the direction of cultivating an acquaintance with the vast field of historical and antiquarian treasure which they are in the midst of. Let Mr. Hare be their guide and philosopher, and we predict that he will assuredly become their friend.

New Inventions.

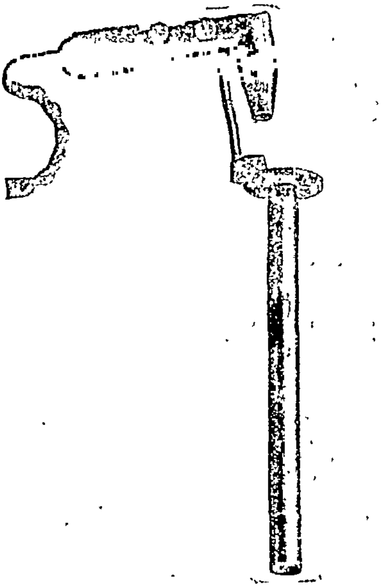
THE MODERN URETHROSCOPE.

THE introduction of electric illumination and the more recent improvements in the construction of suitable incandescent lamps have rendered the modern urethroscope so simple and efficient that from an instrument having a comparatively limited value among a few specialists it has attained a prominent position in the armamentarium of genito-urinary surgery. The difficulty of obtaining a suitable illumination of the urethroscopic field which so hampered practical examinations with the older instruments has been overcome by two separate and distinct methods, one or the other of which is now used in all forms of the modern urethroscope. In one of these the source of illumination (the electric lamp) is introduced into the urethroscopic tube close to the mucous membrane, which it directly illuminates, while in the other the source of light is altogether outside the tube, the field being illuminated by rays of light thrown down the tube, either by a reflecting mirror, prism, or lens as the case may be. The difficulty with all instruments having an internal source of illumination is that a portion of the field is obstructed by the lamp and its carrier, which, small as it is, is capable of interfering to a considerable extent when the smaller tubes are used. The light is adapted to one length of tube only and although all portions of the urethra may be observed with the long tubes, it is frequently of advantage when working in the anterior urethra to use shorter ones. With these instruments it becomes necessary to use a separate light carrier for each length of tube used. The tiny lamp is tender, easily burned out, and apt to be short-lived. All these objections are trivial, however, in comparison with the fact that the urethroscope with internal illumination is not a good working instrument. It is practically impossible to render it surgically clean. The presence of the lamp hinders the use of applicators in conveying medicated solutions directly to the mucous membrane and of swabs when bleeding and discharge are present. If this is attempted the lamp frequently becomes entangled in the cotton swabs, or becomes covered with blood or pus, rendering it, for the time being, useless and a very possible source of infection in subsequent examinations.

The illumination of the urethroscopic field by a source of light from the outside, reflected into the tube, is as old as urethroscopy itself and far antedates the experiments of Desormeaux, the first to make any serious use of this method of urethral investigation. Previously to the year 1892 all forms of the urethroscope with external illumination used the mirror in some form to direct the rays of light, and while in many of these instruments this method was fairly satisfactory it was of necessity accompanied by many drawbacks. The dazzling effect of extraneous rays of light on the eye of the operator became exceedingly unpleasant in prolonged examinations, the apparatus was usually cumbersome, and even the best of these instruments lacked necessary power.

In 1892 I devised an instrument on an entirely different principle from that of former urethroscopes, the rays of light from a small electric lamp being directed through a plano-convex lens to the bottom of the urethroscopic tube, thus attaining a better illumination and obviating most of the objections pertaining to the reflecting instruments. The instrument in its present form presents many improvements over the original device due to alterations which have suggested themselves from time to time and to advances made in electric illumination. I have also to thank Messrs. Wappler and Co. for the excellent manner in which they have put these suggestions into practical form and the success attained by them in its construction. It consists of a metal tube or cylinder an inch and a quarter in length by somewhat less than half an inch in diameter, the first half inch of which is narrowed down conically forming a funnel-[illegible]

The funnel portion unscrews from the upper tube and a plano-convex lens at this point serves to concentrate and to direct the rays of a small electric lamp placed immediately behind it. This lens may be readily removed for cleaning. The handle consists of a cylindrical piece of hard rubber about one-half inch in diameter and one and a half inches long, to the upper end of which is fixed the electric lamp, while the lower end is arranged to receive the cords leading to the battery. A small electric switch in the form of a milled wheel is placed on one side of the handle, a half turn of which makes or breaks the current. The two small screws seen on the other side of the handle serve, the upper one to clamp fast the hood, the lower to fasten the lamp in position.


Otis urethroscope showing the lamp and a portion of the urethral tube.

The lamp is of the variety known as "high efficiency," differing from the ordinary lamp in a specially prepared filament which enables it to give out a very intense light without a corresponding increase in the amount of heat. It is unusually strong and capable of standing a current of from 16 to 20 volts. It is attached to a wire running through the centre of the handle in such a manner that it may be raised or lowered and clamped in position by the lower screw. The only adjustment which may be necessary is, when changing the lamp, to see that the filament of the new lamp should come exactly in the centre of the lens. A small piece of brass with a pin-hole in it has been placed on the handle behind the lamp socket so that by holding this to the light and moving the lamp up or down until the filament is exactly across the centre of the hole the lamp may be clamped in the correct position. A strong wire connects the instrument to the urethroscopic tube by means of a simple joint. With reference to the length of the handle and the weight of the instrument, both of which have been criticised both favourably and adversely, I would say that these depend entirely on the whim of the operator, as the handle may be lengthened to any extent or entirely obviated, while by a slight alteration in material and construction the weight of less than one ounce may be reduced to a few grains.

The accompanying illustration is from a photographic reproduction exactly half the size of the original instrument. A straight line drawn along the lower edge of the urethroscopic tube through the illuminating apparatus practically demonstrates that the latter does not stand in front of the opening of the urethroscopic tube, as is commonly supposed, but is below it and consequently causes no interference with a direct view of the field or the introduction of instruments.

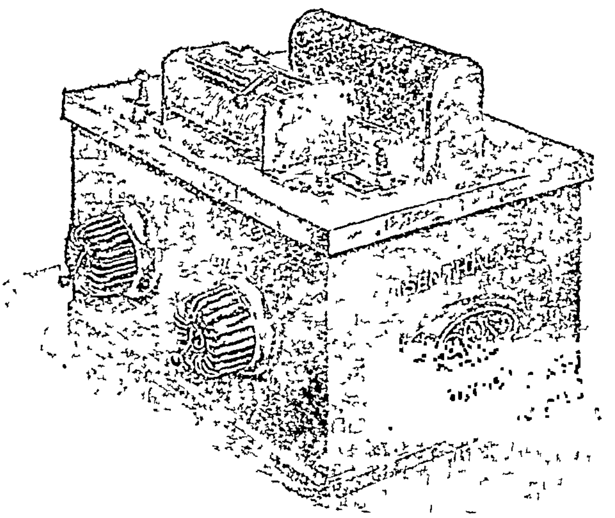
Great pains have been taken and many experiments made to perfect this instrument, with the result of obtaining an illumination of field such as is not found in any other instrument of any type. It gives the entire field of the tube used. It offers no obstruction to the use of applicators and at the same time nothing is inserted into the urethra which cannot be rendered thoroughly aseptic by boiling. It is simple in construction, strong, and inexpensive, and it fulfils all the indications of a good practical working instrument.

WILLIAM K. OTIS, M.D.,

Consulting Surgeon, City Hospital, New York; Attending Surgeon St. Mark's Hospital, Fellow, New York Academy of Medicine, and of the American Association of Genito-Urinary Surgeons, &c.

PORTABLE TRANSFORMER FOR CONTINUOUS CURRENT.

THIS apparatus has been designed essentially for the economical and convenient use of the continuous current from the main. Two types are made—the first, being 110 volt, works at pressures between 100 and 130 volts; the second type, being 220 volt, works at pressures between 200 and 230 volts. The transformer has been so desgined that neither rheostat nor lamps are required, while special heavy wires or cables are not necessary for carrying the current into the consulting-room or operating-room. Indeed, the apparatus may be directly attached to any wall, plug, or even lamp. The following instruments may be used directly from the main by means of this transformer: surgical lamps (from two volts to 30 volts), induction coils (small current), and electrolysis needles. The former instruments, taking small currents, may be used simultaneously with the cautery points or snares without affecting their work in the slightest degree The efficiency of this transformer is stated to be, when using the cautery point, about 86 5 per cent., whereas the efficiency through a rheostat would be 5 per cent. We have watched the working of this apparatus and we found the results to be very satisfactory and most conveniently attained. Its advantages for surgical work are obvious. The weight of the large type is 50 pounds and that of the ordinary type 33 pounds. These portable transformers for continuous current (one of which is shown in the accompanying illustration) are made by Messrs. Isenthal and Co., of 85, Mortimer-street, London, W.



ASYLUM REPORTS.

Cumberland and Westmoreland Asylum (Annual Report for 1900).—The average number of patients resident during the year was 648 and comprised 333 males and 315 females. During the year 192 cases were admitted, 102 of these being males and 90 females. Of these 45—viz, 28 males and 17 females—were not first admissions. Dr. W. F. Farquharson, the medical superintendent, states in his report that the admission-rate equalled that of 1895 and was higher than in any other year since the opening of the asylum. This increase, however, was due to the large number of private and out-county patients admitted. These numbered 43, of whom 16 were private, and 27 were out-county patients. "The admissions included many [illegible] character; thus there were six case[illegible] 13 cases of epilepsy, five cases of [illegible] patients over 70 years of age. I[illegible] insanity had lasted more than a year before the patient was brought to the asylum Of the 192 patients admitted 100 came here in weak health, while eight were in an extremely feeble and exhausted state, and several of these died within a few days after admission." Cases of melancholia were proportionately less numerous than usual in the admissions, cases of mania being almost thrice as numerous as cases of melancholia. 45 cases were suicidal and 15 of these had actually attempted suicide before admission. An hereditary predisposition to insanity was ascertained to exist in 27 per cent. of the admissions. More than 20 per cent. of all the cases were marked by a history of alcoholic intemperance. In many of the alcoholic cases the mental symptoms passed off within a few days after admission as soon as the alcoholic poison was eliminated from the system. "These patients invariably promise faithfully to give up intemperate habits, but few of them appear to have sufficient self-control to abstain for any length of time. Such cases cannot be detained sufficiently long in an asylum to cure them of their craving for drink; prolonged detention in an inebriate institution, could this be legally carried out, would be much more beneficial to them" Six of the patients were women with insanity after childbirth. In many instances the attack of insanity was found to be preceded by some bodily disease, influenza being a very common antecedent. The only effect of the war and popular excitement on the admissions to the asylum seems to have been an increase in alcoholic cases; "at least one such patient was admitted the inception of whose attack dated from Mafeking night." During the year 77 patients were discharged as recovered—viz., 41 males and 36 females, or 11·8 per cent of the average number resident. The deaths during the year amounted to 72—viz., 35 males and 37 females, or 11·1 per cent. as calculated on the same basis. The death-rate was the highest there had been at the asylum for 17 years In the previous year the contrary was the case, the death-rate being as low as 6·8 per cent. The mean death-rate of the two years was 8 9, which corresponds almost exactly with the average death-rate since the opening of the asylum. Of the deaths six were due to senile decay, three to epilepsy, four to pneumonia, eight to organic brain disease, 12 to cardiac disease with pulmonary complications, 13 to general paralysis, and 16 to pulmonary tuberculosis and other tuberculous diseases. A post-mortem examination was made in every case Five patients sustained accidental fractures of bones during the year and all made satisfactory recoveries. There was one outbreak of influenza which attacked a considerable number of the patients and staff in the early part of the year. Sanitary improvements in the form of soil drains and bacteria beds have been completed and are working satisfactorily. The Commissioners in Lunacy state in their report that the medical case-books are illustrated with photographs and are well kept, and that the post-mortem notes are creditable.

THE LANCET.

LONDON: SATURDAY, AUGUST 31, 1901

The Investigation of Cancer.

IT is now more than a month since the British Congress on Tuberculosis was brought to a close and we had hoped that before the end of the Parliamentary session the Government would have announced the appointment of a Commission thoroughly to investigate the question as to the identity or not of human and bovine tuberculosis. Important affairs of State cannot always be decided upon off-hand, and there are doubtless considerations other than scientific that have to be weighed before a responsible Minister can prudently advise the Sovereign to take such a step as that recommended by the Congress The President of the Local Government Board has, however, stated in the House of Commons that such an appointment is under consideration by the Cabinet; and with this assurance we may confidently leave the matter in his hands Mr LONG is a statesman who has already proved that he possesses, not only an intelligent grasp of what is essential for the preservation of health, but also the requisite determination to carry his projects into effect If and when the help of the Local Government Board is required to fight against another dread disease we hope that an administrator of his pattern will be found in authority

For there is yet another malady that, equally with tuberculosis, demands the attention of the legislature in support of the medical profession. We refer to cancer or malignant disease, which, in regard at any rate to the acuteness of the suffering entailed on its victims, is even more terrible than tuberculosis Our readers will remember that in his gracious address of welcome to the foreign delegates to the recent Congress His Majesty the KING gave emphatic expression to an opinion which, in view of recent events, every loyal Englishman will endorse with respectful sympathy "There is still," said His Majesty, "one other terrible disease which has up to now baffled the scientific and medical men of the world, and that is cancer God grant that before long you may be able to find a cure for it or to check its course I think," added the KING, "that to him who makes the discovery a statue should be erected in all the capitals of the world" We cordially endorse the view. Cancer has steadily increased in fatality, both absolutely and relatively, ever since the commencement of civil registration, the mortality attributed to it having more than doubled within the last 40 years In 1899, the latest year for which returns have been published, the deaths from cancer in England and Wales exceeded 26,000 in number Without going deeply into statistics we may remark that although in early life cancer claims fewer victims than does pulmonary tuberculosis, nevertheless, at all ages beyond middle life it is considerably more fatal than the latter disease, especially amongst women. In the valuable series of reports prepared at Somerset House we are kept informed year by year of the rapidly increasing death toll levied by cancer on different sections of the community so far as this can be gleaned from the national registers of death But it appears to us that in order to arrive at a sound judgment respecting the *essential nature* of cancer very much is required beyond a merely statistical analysis of the mortality to which it gives rise The etiology of malignant disease in its varied forms will never be fully understood save after diligent and rightly directed study of cases in the hospital and rigid examination of specimens in the laboratory This is the method which has revealed the true nature of tubercle and certain other scourges of humanity, and has shown them to be preventable In these later days the tendency amongst persons afflicted with cancer is to resort in gradually increasing numbers to the hospitals of our great towns where good nursing and the best medical advice are at their disposal And inasmuch as at these institutions careful necropsies are made in fatal cases by competent pathologists there is little doubt that even now there exists in the registers of these hospitals a vast amount of information of precisely the kind required which might readily be made available for detailed examination if only a suitable authority were commissioned for the work *Why should there be any longer delay?*

A doubt has often been expressed whether a Royal Commission is better adapted than other known methods for the investigation of a scientific subject like an elaborate inquiry into the etiology and prevention of malignant disease in all its protean forms For our part we think nothing but immense good could come from the appointment of such a Commission No immediate discoveries might follow its work, but there would be sifting and codifying of evidence that could not fail to be enormously helpful to future investigation, while valuable suggestions might come from unexpected quarters In the distinguished chief of his own medical department the President of the Local Government Board possesses a counsellor of rare ability and we are sure that any project of the kind which received Mr W H POWER's approval would secure also the confidence and willing coöperation of the medical profession

Suggestive Discussions at the British Medical Association.

THE papers and discussions which were respectively read and held at the recent meeting of the British Medical Association at Cheltenham were fully up to the high standard usually attained at the annual assemblies of the Association. Some of the discussions were essentially practical, whilst others had a more theoretical aspect We refer to two which seem to us likely to be of particular importance as foreshadowing future developments of knowledge

In a leading article in THE LANCET of Feb 2nd of this year we alluded to the doubt which had been expressed by some observers as to the power of alcohol to produce peripheral neuritis, and during the discussion at Cheltenham opened by Dr E. S REYNOLDS some of the speakers expressed the same opinion, but the majority suggested that the causation was a mixed one. Dr DIXON MANN thought that alcohol acted by interfering with the molecular changes in the nerve-cells, so rendering them liable to be affected by the arsenic, and Dr A. P. LUFF supported this view. Dr. T. N. KELYNACK produced statistics which seemed to indicate that much of the so-called alcoholic paralysis met with in Manchester and district during recent years had really arisen from the use of arsenicated beer, but he considered that the effects of arsenic had been modified by the method of its administration in beer and urged that they had been accentuated by the action of the arsenic. Dr. NATHAN RAW also believed that all the cases in the epidemic referred to were caused by arsenic and that alcohol intensified its action; he also pointed out that the effects of arsenical neuritis were recovered from more rapidly and completely than were those of the alcoholic form. Dr. F. M POPE hesitated to accept the theory that alcohol alone could produce the disease, and Sir WILLIAM GAIRDNER argued that in view of the large amount of alcohol consumed and the rarity of neuritis in previous years alcohol could not be the cause of the condition. Professor W. OSLER, on the other hand, said that although alcoholic neuritis is rare in America, yet it did occur, and the symptoms observed were identical with those which had been described in arsenical cases, with the exception of those relating to the skin and the vaso-motor functions, and he fully believed that alcohol was the cause of the disease in the cases which he had seen. With such differences of opinion emanating from well-known authorities it is evident that at present no definite conclusion can be arrived at. As Dr. REYNOLDS pointed out there are three possibilities: first, that the symptoms were caused by alcohol and arsenic acting together—e.g., that the arsenic caused the effect upon the skin and that the alcohol caused the neuritis; secondly, that all previous cases were really due to arsenic and not to alcohol; and, thirdly, that alcohol and arsenic were both separately able to produce all the symptoms of the disease, but that their action was intensified when they were both acting together. At present we should feel disposed to favour the third proposition. All modern text-books describe peripheral neuritis arising from the consumption of alcohol and of arsenic, and without stronger evidence than has already been brought forward we should not feel justified in entirely eliminating alcohol as a cause of that disease.

Another discussion of considerable interest was that opened by Mr. A. G. R. FOULERTON on the Pathology of Pneumococcic Infection. Considered solely from the point of view of a pathogenic organism the pneumococcus is in some respects disappointing, as it is frequently found in healthy individuals without giving rise to any morbid symptoms; but this only serves to accentuate the fact that a disease caused by a pathogenic microbe requires a second causal agent in the shape of a suitable pabulum upon which the micro-organism can grow and so produce its pathological effects. There is another parasite which exists under very similar circumstances—namely, the bacillus coli communis. This organism, although a universal and, according to BIENSTOCK, a useful parasite of the intestinal tract, becomes, nevertheless, like the pneumococcus, actively pathogenic when it finds the opportunity of penetrating below the mucous membrane. Mr. FOULERTON adopted a practical method of treating his subject, laying stress on three points—(1) the general results of blood infection and those of the toxæmia produced by the absorption and circulation of toxins formed in the local foci of infection in the tissues or produced by cocci which had infected the circulating blood itself; (2) the direct action of the parasite in the various tissues in which it became located in the course of an infection; and (3) what might be termed the secondary results of the infection—that is to say, those results due not to any direct action of the infecting organism but arising from the new morbid conditions brought about by the infection. Clinical experience shows that in the case of pneumococcic infection these secondary effects are often of the greatest importance and not infrequently active treatment is mainly directed to combating them. Thus there are the effects on the right heart of the obstruction to the flow of blood through the infected area of the lung, the serious results of sudden diminution of the surface available for the oxygenation of the blood, and the effects of interference with cerebral function in cases of meningitis. Mr. FOULERTON further pointed out that with regard to the exact nature of the toxic substances produced in the course of a pneumococcic infection very little is known and it is uncertain whether such are actually secreted by the cocci themselves or whether they are formed from the infected tissues by the action of the cocci. He then referred to the work of Professor KLEMPERER who had isolated a toxic albumose, pneumotoxin, from broth cultures of the coccus, and also mentioned that Dr. A. G. AULD had isolated an albumose from the infected tissues. Dr. J. W. WASHBOURN, the president of the section, who took part in the discussion, expressed himself as not satisfied as to the isolation of toxic substances from cultures of the pneumococcus, he himself having failed to isolate any toxic albumin.

Another point to which Mr. FOULERTON drew attention was in respect to the alterations in the tissues brought about by the action of the pneumococcus. Various changes had been described in the cardiac and voluntary muscles, and he also said that there was a certain amount of evidence that changes in the motor ganglion cells might result. Dr. CAMPBELL THOMSON and himself, when investigating the action of various bacterial toxins on the motor-cells of the cerebral cortex, found some indications of structural alteration in these cells in pneumococcic infection. Although the knowledge yet attained in these matters is evidently rudimentary, yet such discussions as the above serve admirably to take stock of the amount of work which has already been accomplished—an opportunity is given for various investigators to compare their results and to give an impetus to others to continue their researches. When the action of toxins has been thoroughly investigated the path will be more open for a study of natural and artificial immunity, and for the discovery of measures which will be effectual in the destruction of the toxins and in combating their deleterious action.

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The Pathology and Treatment of Fibroid Tumours of the Uterus.

THERE is no subject which is of greater interest to the obstetrician or the gynæcologist than the pathology and treatment of fibroid tumours of the uterus and none in which, by a gradual evolution, there has been a more marked change of opinion and of practice. While in former times fibroid tumours, the most common uterine growths met with among women, were looked upon as by no means dangerous and as rarely needing surgical treatment, now the great advances in abdominal surgery, the more careful examination (post-operative and post-mortem) of these tumours, and the present more accurate clinical observation, have shown that they are by no means so simple as was formerly thought and that women, the subjects of them, demand the most careful watching. When a fibroid tumour is discovered, if it is doing no harm clearly it should be left alone; but it is as unscientific to say that no fibroids should be interfered with as that all should be removed. Putting aside such cases as fibroids taking the form of polypi, which, of course, should be removed, what are the indications for surgical interference in fibroids? We think all will agree that in the presence of (1) severe hæmorrhage, (2) pressure symptoms, and (3) signs of degeneration in the tumour operative treatment is needed. The question of the occurrence of degeneration in fibroid tumours is of the greatest import, and we believe the trend of opinion is that it is more common than was formerly suspected, and this view is supported by the results of the more careful examination of these tumours which is now being every day made by competent pathologists The forms of degeneration are numerous, such as sloughing, myxomatous or cystic degeneration, calcareous infiltration, and vascular changes It is common with some to speak of malignant or sarcomatous degeneration in fibroids, but we think that any malignant condition noticed in such growths should be regarded as of independent origin; however, we must not forget that PROCHOWNICK[1] has shown that degeneration may occur in a fibroid which on microscopic examination is innocent, and yet in its effect on the patient the degeneration may really be almost of a malignant nature. We owe much to the observations of PROCHOWNICK, which he brought before the Hamburg Medical Society in March, 1901, as well as to the paper read on July 11th at the British Gynæcological Society by Dr. CHARLES NOBLE[2] of Philadelphia, in which he gave details of 218 cases of uterine fibroids upon which he had operated. While one thing is established clearly—viz., that degeneration taking place *after* the menopause is much more serious in its import for the patient—we are quite ignorant as to what cases will or will not undergo degeneration The clinical symptoms which indicate the occurrence of degeneration in a fibroid are: (1) sudden enlargement of the tumour; (2) abdominal pains due to increased tension, or it may be to peritoneal inflammation; (3) increased menstrual loss; (4) reflex (cardiac and renal) irritation; and (5) the presence of ascites. Another curious fact which all gynæcologists must have observed is the frequent presence of adnexal or broad ligament complications with fibroids Finally, we must draw attention to conditions of the general system of serious import often present in patients with fibroids due to the continued hæmorrhage and pressure effects, such as anæmia, fatty heart, or signs of interference with the bladder or kidney

Apart from these accepted indications for operation, may not the mere size of a fibroid call for its removal (1) if it constitutes a deformity; (2) if it prevents a woman (a governess or servant) from obtaining a situation; and (3) if by its size and shape it exposes a woman to adverse criticism? One thing is clear, we can lay down no rules applicable to all cases of fibroids, each one must be judged on its own merits; but we must never forget that fibroids, owing to their tendency to degeneration, are at all times "tricky" tumours, and especially is this true after the menopause. Indeed, the old belief that they tend to disappear after the cessation of menstruation is one which in the light of modern observation must be received *cum grano salis*. They do disappear in some, but by no means in all, cases after the menopause. As to treatment, the electrical method and the plan of removing both ovaries (with the idea of starving the tumour) are procedures of the past. Morcellement and myomectomy suit some cases, but in the main retroperitoneal hysterectomy is the method which for the present holds the field In its technique (the Trendelenburg position is an enormous gain) the principal points are to make the peritoneal flaps as small as possible (so as to leave no space where fluid may decompose), just sufficient to cover the stump (which should not be sutured). The stump and all the ligatures should be covered with peritoneum and the vessels should be tied on ordinary surgical principles; that is, rather than ligature them *en masse* with some of the broad ligament, it is wiser to amputate the uterus and to tie the vessels as they spout. A pedicle needle tends to wound the veins. There are two drugs which are useful accessories in the surgical treatment of fibroids, strychnine and spartein. Dr. W. DUNCAN,[3] to avert shock and heart failure, gives liquor strychninæ in three-minim doses thrice daily for a week before and a week after hysterectomy, while Mr. ALBAN DORAN[4] says that he has found spartein useful, especially in the cases of middle-aged women with unhealthy kidneys. Early feeding of the patients after hysterectomy is now found to be more advantageous than the long starvation which was Mr. LAWSON TAIT's plan; and another point in these cases to be most carefully looked after is distension of the bowel, for which early and thorough purgation, combined, if necessary, with turpentine enemata, is indicated.

The Lunacy Problem and Official Statistics.

THE total number of lunatics England and Wales under the official cognisance of the Commissioners in Lunacy on Jan 12th, 1901, was 107,944, being an increase of 1333 over the corresponding number for Jan. 1st, 1900 This increase compares with an increase of 1525 in 1899 and one of 3114 in 1898. It would thus appear that there has been "a diminishing rate of increase of lunatics in the last two years," on the basis of census returns of all lunatics on Jan. 1st of the three years 1889 to 1901. This conclusion is likely to be misleading, for the choice of any date assumes that the number of the insane under official cognisance on a given date is fairly regular even in its variations This, however, is not the case, for in one year there may be a host of cases above the average on a given date, in January for instance, and next year there may not be a fourth of the excess. The only fair estimate of the increase or diminution of insanity available from the Commissioners' returns is the daily average number of lunatics resident in all institutions for each year. In Table IV. of the annual report of the Commissioners in Lunacy the daily average number resident "in asylums, registered hospitals, &c," but exclusive of lunatics in workhouses and "out-door" pauper lunatics, in each of the years 1891 to 1900 inclusive is recorded, the figures being 75,200 for 1896, 77,645 for 1897, 80,408 for 1898, 82,666 for 1899, and 83,954 for 1900 In idiot establishments the average numbers resident during the four years 1897 to 1900 have been almost entirely unchanged, so that the increase solely affects county and borough asylums and other institutions exclusive of idiot establishments The total numbers of patients admitted yearly (exclusive of transfers) to all institutions except idiot establishments are given in Table III and are as follows There were 18,632 admissions in 1896, 18,848 in 1897, 19,314 in 1898, 19,289 in 1899, and 19,837 in 1900 Limiting ourselves to "first admissions" the only figures available at present refer to the past three years and are as follows. In 1898 the first admissions amounted to 15,514, in 1899 to 15,752, and in 1900 to 16,192 It is thus clearly established on the basis of Tables III and IV —viz, average numbers resident, total admissions, and "first" admissions—that the increase of lunacy is real and not apparent, and, moreover, that this rate of increase is slightly greater than the rate of increase of the general population.

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[1] Münchener Medicinische Wochenschrift, 1901, No. 19.
[2] THE LANCET, July 27th, 1900, p. 210.
[3] THE LANCET, August 17th, 1901, p. 467.
[4] THE LANCET, August 17th, 1901, p. 467.

A survey of the returns published regarding the recoveries and deaths during each year will serve to emphasise the same conclusion The general recovery-rate in 1896 was 9 78 per cent of the average number resident in all institutions, and the death-rate was slightly lower—viz, 9 05 per cent—as calculated on the same basis. During the quinquennium 1896 to 1900 the recovery-rate has slowly fallen and the death-rate has slowly risen, as will be seen from the following table taken from Table VIII. —

	Recovery rate on average number resident.	Death rate on average number resident
1896	9 78 per cent	9·05 per cent.
1897	9 53 ,,	9·43 ,,
1898	9·06 ,,	9·45 ,,
1899	9 37 ,,	9·87 ,,
1900	9 27 ,,	10·14 ,,

This fall of the recovery-rate affects both sexes, and a tabulation of the returns for the period 1873 to 1900 into quinquennial groups brings out the facts more plainly :—

Quinquennial periods	Proportion of recoveries to daily average numbers resident	
	Males.	Females.
377	11 03 per cent	11·99 per cent.
82	10 63 ,,	11·41 ,,
7	9 70 ,,	10 61 ,,
	9 78 ,,	10 52 ,,
	9 71 ,,	10 22 ,,
	9 06 ,,	9 37 ,,

* Three years.

n Lunacy advert to these figures as decline" in the recovery-rate and no doubt, from the great id incurable cases." Some support is lent to this view by the fact that a considerable proportion of patients are senile cases. Thus the number of patients in the institutions at the end of December, 1899, who were aged 65 years and upwards was 10,092, or 12 18 per cent. of the total patients—a slightly lower proportion than at the end of December, 1898, which was 12·37 per cent. An increasing and continued influx into pauper asylums of non-recoverable cases other than senile cases is probably the main factor in the lowering of the recovery-rate In this connexion it is interesting to note that of the total admissions in the years 1895 to 1899 inclusive 7·3 per cent. were cases of general paralysis and 7 7 per cent. were due to epilepsy.

The deaths during the year amounted to 8356 and the causes of deaths are given in Table XIV. Of the deaths 1344 (1031 males and 313 females) were due to general paralysis of the insane, 433 to epilepsy, 1185 to pulmonary tuberculosis and 104 to other forms of tuberculosis, 689 to pneumonia, 773 to various forms of cardiac disease, 752 to senile decay, 179 to colitis, and the rest to other causes. Amongst the latter, however, are included such vague terms as "congestion of the brain," "toxic paralysis," "disease of spleen," and "atrophy," which convey no definite information.

The Commissioners draw special attention to the need for classification of patients and for the provision of cheaper institutions for the chronic and incurable classes of patients The ordinary modern county and borough asylum, being essentially and primarily a hospital for the treatment of disease, is necessarily costly in construction and equipment What is needed is the differentiation of asylum buildings at the present day in such a manner that there shall be mental hospitals for the recoverable and the acutely insane, and simple, inexpensive buildings for the accommodation and care of chronic and incurable lunatics. In this way it would be possible to limit excessive expenditure and yet to afford due provision to both classes of patients without imposing an undue burden upon the public With this view, and to secure these ends, the Commissioners had already addressed a circular to the county councils and other authorities concerned, in which the latter were advised that the Commissioners would regard it as their duty "to advise the Secretary of State to refuse his approval of all [asylum] plans in which there is an obvious departure from this principle"

The study of the present report of the Commissioners in Lunacy leaves on the whole a feeling of uneasiness. With a slow but steady increase of the average lunacy population year by year, a decreasing recovery-rate, an increasing death-rate, and a continued and increasing influx of incurable and refractory cases of mental disease into our public asylums, the conviction is slowly being strengthened that with all our boasted scientific and medical progress in the past decades the cure of the insanities as a whole has fallen behind expectations, and that the only hope of progress in the future lies in devoting more attention and study to the prevention of insanity on the lines advocated by many of our leading alienists and referred to in these columns a year ago.[1]

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[1] THE LANCET, August 11th, 1900, p 411, leading article on The Prevention of Insanity at its Sources.

Annotations.

"Ne quid nimis."

THE ERADICATION OF RABIES FROM ENGLAND.

"DURING the whole of 1900 no case of rabies was confirmed in England or Scotland and it may be stated with some confidence that in these two countries the disease which has been present there for so many centuries, has been entirely eradicated." These are the opening words of the paragraph on rabies in the recently issued "Annual Report of Proceedings Under the Diseases of Animals Acts" for 1900. This report is the official one of the Veterinary and Animals' Department of the Board of Agriculture and is the combined work of the chief veterinary officer (Mr. A. C. Cope) and the assistant secretary of the Animals' Division (Major Tennant, C.B.). As a result of the action of the Board during the last four years rabies has been confined to the counties of Brecon, Carmarthen, and Glamorgan in Wales in 1900, in which counties six cases in dogs, four in cattle, and one in a horse were confirmed by the Board's veterinary officers. In addition, 15 dogs which had been exposed to infection were slaughtered in Carmarthenshire. In Lancashire, where rabies used to be very prevalent, 15 inoculative tests were carried out at the University of Liverpool during the year, but all with negative results. In fact, with the exception of one case in an imported dog, which occurred in the North Riding in 1899, the whole of Lancashire and the three Ridings of Yorkshire have been free from rabies for upwards of two years. In the metropolis and surrounding counties no case has been detected since July, 1898. In numerous instances dogs have been killed but in no instance has the existence of rabies been demonstrated by inoculation. The inoculation test was applied during the year in seven instances at the Brown Institution and in nine at the Royal Veterinary College. All gave negative results. One inoculation was also carried out with portions of the brain of a bullock which had been bitten by one of the rabid dogs discovered in Wales, and the result confirmed the opinion which had already been expressed by the officers of the Board—viz., that the dog which had bitten the bullock was affected with rabies. The only really dangerous centre of the disease in Great Britain at the end of 1900 was South Wales, a part of the country where rabies has often been more or less prevalent, and a district which, by reason of its mountainous nature, renders it extremely difficult to enforce a muzzling regulation. With such results as the above the Board of Agriculture and the able Minister, Mr. Walter Long (who enforced the muzzling order in the face of so much opposition), have every reason to congratulate themselves. When we read that 'France still reports from 2000 to 3000 cases in a year, that in Italy nearly five times as many cases were declared in 1900 as in 1899, that in Belgium the disease is on the increase, and that in India and America rabies is still prevalent,' we in England must feel that we owe a deep debt of gratitude to Mr. Long and to his veterinary and administrative advisers. For the first time during 51 years not a single human being died in the year 1899 from hydrophobia in England and Wales, and the returns for 1900 show a similar result. The good work is the more readily realised when we read that in 1877 no fewer than 79 persons were registered as having died from this terrible disease. Much abuse has been poured upon Mr. Long and his advisers during the past five years, but, fortunately, they have stood firmly by their convictions, and even their most fanatical persecutor must now own that the end has more than justified the means. No other European country can show such a clean sheet with regard to the rabies question, and it now only remains to watch the ports to see that the disease is not re-introduced. No relaxation must be permitted in the quarantine regulations, and it is to be hoped that when the next report is issued there will be as clean a bill of health for Ireland and Wales as for England and Scotland.

GONORRHŒAL PERITONITIS IN LITTLE GIRLS.

AT the meeting of the Société Médicale des Hôpitaux of Paris on May 24th Dr. M. J. Comby and Dr. Gadaud called attention to a complication of the vulvo-vaginitis of children—gonococcic peritonitis. In consequence of the rarity of this complication its connexion with the vulvo-vaginitis, which may be trivial or overlooked, may not be noticed and the peritonitis may be regarded as the result of perforation or appendicitis. Dr. Comby and Dr. Gadaud related three cases in which the latter condition was regarded as the cause of the peritonitis. Case 1. A girl, aged 12 years, was admitted to hospital on Sept. 25th, 1900, for typhoid fever. The attack was severe and lasted for 36 days. The temperature became normal on Oct. 13th and convalescence began. On Nov. 14th pyrexia (102·8° F.), headache, and vomiting suddenly appeared, and the child complained of acute abdominal pain. On the 15th the pain was still violent and the abdomen was exquisitely tender and tympanitic. She lay immobile in the dorsal decubitus position with the thighs flexed on the abdomen. The face was pale and anxious, the lips were blue, and the extremities were cold and cyanosed. The temperature was 100·4° and the pulse was 145. There were vomiting and diarrhœa. No special signs were found at McBurney's point and rectal examination was negative. General peritonitis was diagnosed. The period—the thirty-second day of convalescence—seemed too late for typhoid perforation. A symptom previously unnoticed then attracted attention: there was a greenish vulvo-vaginal discharge. The vulva was red and the labia majora were covered with dried pus. The gonococcus could not be found. The child's condition was so serious that laparotomy was proposed, but recovery took place under medical treatment. Case 2. A girl, aged six and a half years, was admitted to hospital on Nov. 27th, 1900, suffering from pains in the abdomen which began eight days previously with vomiting. There were prostration, algidity, cyanosed extremities, and pale and pinched face. The pulse was 140 and small, and the temperature was 99·5° F. There was an abundant vaginal discharge which had existed for some time and lately had become recrudescent. The gonococcus could not be found. Ice applications to the abdomen, hypodermic injections of morphine, and saline injections were prescribed. In five days recovery was assured. On Jan. 7th, 1901, a relapse occurred. After seven days recovery began. Case 3. A girl, aged six and a half years, entered hospital on Oct. 16th, 1900, with purulent pleurisy secondary to pneumonia. She had recovered by Nov. 15th without other operation than exploratory puncture. On Jan. 8th, 1901, there were acute abdominal pain and diarrhœa. The thighs were flexed on the abdomen which was tense and tympanitic. The temperature was 102·3° F. and the pulse was 180. On the 10th the general state was much graver, the eyes were sunken, the nose was pinched, and the lips were blue. Perforative appendicitis and pneumococcic peritonitis suggested themselves, but a greenish purulent vaginal discharge which contained gonococci was observed. The patient appeared to have contracted the vulvo-vaginitis in hospital, perhaps from a thermometer or a basin. Recovery was complete on Jan. 16th. These three cases were observed almost at the same time in the Hôpital des Enfants Malades, Paris. In the first two cases the vulvo-vaginitis was old or unrecognised and the gonococcus was not found, in the third case the vulvo-vaginitis was recent and the gonococcus was found.

This form of peritonitis is not very rare; a number of cases have been published of which some were fatal. In a case described by Huber of New York appendicitis was diagnosed and the abdomen was opened. At the necropsy salpingitis and a healthy appendix were found. In a case under the care of Baginsky there were salpingo-ovaritis and pus in the pelvis which contained gonococci. The peritonitis of vulvo-vaginitis, in spite of the acuteness and severity of the symptoms, generally terminates quickly in recovery. Hence intervention should not be precipitate. In this form of peritonitis vulvo-vaginitis is generally the last thing to be thought of and the appendix is incriminated. When a little girl suffers from peritonitis the external genitals should always be examined. If vulvo-vaginitis is present the possibility of gonococcic peritonitis should be borne in mind. Its diagnosis indicates abstention from operation.

"THE NEW POOR-LAW INFIRMARY AT HALIFAX."[1]

At the fortnightly meeting of the Halifax Board of Guardians, held on August 21st, Father Russell, who had given notice that he would move, "That Dr. Dolan be appointed medical officer of the Halifax Union Poor-law Hospital, Salterhebble, at a salary of 100 guineas per annum, this sum not to be included in the superannuation allowance," modified his notice of motion and simply proposed that Dr. T. M. Dolan should be appointed at a salary of 100 guineas per annum. Mr. J. W. Tillotson, the chairman, said that Dr. Dolan had written to the Local Government Board applying to be superannuated then and there, but that the Board had replied that such a course was impossible. Father Russell's motion was rejected by 20 votes to three. So there the matter stands at present. Dr. Dolan keeps his post as medical officer of the workhouse and the board of guardians are trying to get three medical officers for the new infirmary. The senior medical officer is to be the responsible officer of the three and is to have a salary of £105 per annum, while he is to take the appointment subject to the duties being hereafter defined. We await further developments with interest.

THE SYMPTOMS OF POISONING BY FUSEL OIL.

Dr. Thomas B. Futcher of Johns Hopkins University records in the *New York Medical Journal* of August 3rd two cases from the clinic of Professor Osler of the somewhat rare condition of poisoning by "fusel oil," an ingredient of crude spirits. The cases recorded in medical literature are very few. Dr. W. M. Ord reported a case at St. Thomas's Hospital in 1889,[2] and Dr. J. Swain[3] recorded a fatal case at the Bristol Royal Infirmary in 1891. Fusel oil is the common name for primary amyl alcohol ($C_5H_{11}OH$) mixed with primary and secondary propyl alcohols. In England it goes by the name of "faints," and can be obtained gratis from some distilleries. Fusel oil is popularly used as an external application for rheumatism. It is obtained from fermented grain or potatoes by continuing the process of distillation after the ordinary "spirit" has ceased to distil over, and forms an oily liquid with a burning acrid taste and an odour said to resemble jargonelle pear. It has intoxicating and poisonous properties superior to those of ordinary spirits, and is said to be known in some of the northern counties of Europe to the consumers of corn brandy who frequently ask to be served with a "glass of good fusel." The two cases recorded by Dr. Futcher are as follows:—Case 1 was that of a woman, aged 28 years, who was admitted to the Johns Hopkins Hospital at about midnight, complaining of general weakness. It was found that in company with a male (Case 2 *infra*) she had been drinking out of a six-ounce bottle of fusel oil during a debauch and was lying unconscious on the floor. At 9 A.M. next morning she had a headache, coated tongue, and a bad taste in the mouth, and suffered from general weakness. Her forehead was red from rubbing it, as she stated, with fusel oil a day earlier. There was a slight bronchitis. The pupils were normal in reaction and an estimation of the blood showed 4,500,000 of red corpuscles and 7000 leucocytes per cubic centimetre. The urine was of a pale yellow colour and slightly hazy, with a white precipitate, and exhaled "a peculiar odour resembling violets." There was a faint trace of albumin, and on testing with Fehling's solution sugar was found to be present. Tests with phenylhydrazine and with yeast confirmed the presence of sugar, but the polariscope showed that it was not glucose (dextrose) as the solution was lævo-rotatory. Next day the urine was free from sugar, but a trace of albumin persisted for a day or two longer. She was discharged as recovered after four days. Case 2 was that of a man, aged 28 years, who was admitted into the hospital at the same time and under the same conditions as the above patient. His temperature was 100° F., the pulse was 120, and the respirations were 48 per minute. The right arm showed impairment of sensation and the right leg showed loss of power and an excessive knee-jerk. He gradually improved in hospital, though the muscular and sensory impairment persisted for four or five days. He was discharged on the sixth day. His urine had a dark brown "smoky" appearance with a "peculiar aromatic fruity odour." It gave the same chemical reaction for sugar as did the urine in the previous case, but was inactive to polarised light. Methæmoglobin was also present in the urine with a few broken-down red corpuscles. The sugar disappeared from the urine during the second day. The presence of sugar in both these cases was a peculiar and very rare feature.

VERMINOUS HOLLOWAY GAOL.

Complaints have recently been heard from unfortunate prisoners of the filthily verminous condition of Holloway Gaol, and the forcible remarks of Alderman Sir Joseph Renals, sitting at the Mansion House Police-court, led recently to an interview between his worship and the chairman of the visiting justices of the prison. Correspondence on the subject is also said to be proceeding between the visiting justices and the Prison Commissioners. The case which particularly called attention to what constitutes a serious scandal was that of a man remanded under a charge of obtaining goods by false pretences—that is to say, of a man neither convicted of a crime nor temporarily imprisoned in a cell constantly used by many different occupants brought in at random from the streets, as is the case with cells at London police-stations. The condition of this prisoner's face was such that Sir Joseph Renals, on his attention being called to it, remarked that he had noticed it and had thought that the prisoner must have had small-pox. Whatever remedies may be suggested and whatever means of prevention may be adopted in future it will hardly, we hope, be suggested that the state of things apparently existing in one of our principal metropolitan prisons—an establishment which ought to serve as a model for the imitation of similar institutions in this country—is either inevitable or anything short of disgraceful. Many prisoners no doubt come into Holloway Gaol with vermin upon them. We are not aware of the precise arrangements as to the cleansing of the persons and clothing of the unconvicted, but it is, we believe, possible to deal to some extent with those who are obviously in need of purification, while even if we grant that insect life must often be found where dirty people have been, we are still a long way from admitting that insects need be left to breed and to multiply undisturbed in a place where there is almost unlimited labour at the disposal of the gaol governor. Sir Joseph Renals spoke of the plank beds at Holloway as harbouring vermin. No doubt they do, but insects of the kind referred to do not burrow into solid wood or stone; they take shelter in chinks and crevices, which need not be there for their benefit, and multiply their species if left to do so undisturbed by soap-and-water and other agents obnoxious to insect life—a second condition which, like the chinks and crevices, may exist at Holloway Gaol, but one which is hardly necessary or unavoidable. In the local prisons on the continent, particularly in some countries, we might expect to hear of prisoners suffering as they do in Holloway, while a prisoner in a Boer camp may have much to endure inseparable from his circumstances; when, however, we meet with such a state of affairs in London we wonder whether the institution in question may not in other respects also be behind the sanitary standards of the age, while we are inclined to inquire the name of the person who is to be held responsible. Visiting justices and prison commissioners may deal where necessary with questions of construction of buildings and apparatus, but matters of administration are best presided over by an official endowed with full powers and the knowledge that his continuance in office depends on the proper performance of his duties.

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[1] See The Lancet, August 17th (p. 462) and 24th (p. 540), 1901.

[2] The Lancet, Dec. 14th, 1889, p. 1225.

[3] Brit. Med. Jour., 1891, vol. i., p. 903.

DEATH UNDER AN ANÆSTHETIC.

IT is a great error to imagine that all cases in which death occurs while a patient is under the influence of an anæsthetic are of the same nature. In some cases the anæsthetic is at fault, in some the method of administration; but there are also cases, and they are by no means few in number, in which the condition of the patient is such as to make the administration of an anæsthetic an exceedingly dangerous proceeding. Of course, when possible, the use of a general anæsthetic is avoided. Of all conditions which render difficult the administration of an anæsthetic there are probably few more serious than an empyema. We have been favoured by Dr. W. H. Cooke with notes of a death under an anæsthetic which occurred in the Royal United Hospital, Bath. A man, aged 39 years, but looking at least 55 years of age, was admitted to hospital on April 24th suffering from an empyema of the right side. He had had double pleurisy for a month, and when admitted to the hospital he looked seriously ill. It was decided to operate and the anæsthetic was given four hours after admission. A.C.E. mixture was administered on a Schimmelbusch's mask, the man being on his back. At first he took the anæsthetic well, but after seven or eight minutes he commenced to struggle, and Dr. Cooke remarked that he hoped the operation would not be long as the man was very ill. As the struggling became more violent the anæsthetic was stopped. At this time the heart was beating, the respirations had not ceased, and there was no marked cyanosis; the pupils were not widely dilated, the conjunctival reflexes were present, and he had only had four and a half drachms of A.C.E. Then, quite suddenly, whilst struggling, he fell back dead, both the heart and respiration at once ceasing. Artificial respiration, strychnine, and ether were tried but in vain. At the post-mortem examination it was discovered that the right pleural cavity contained at least two pints of curdy, non-smelling pus, and there were many pleuritic adhesions and the right lung was much collapsed. The left lung was adherent all over and contained much bronchial secretion. There was a little turbid fluid at the left base, but no pneumonic consolidation in either lung. The heart, which was slightly displaced to the left, was large, flabby, and in a state of fatty degeneration; there was no valvular disease. The thorax only was examined. This case is of interest from the fact that the man died whilst taking an anæsthetic, though the death was not due to an over-dose of the anæsthetic. Four and a half drachms of A.C.E. (containing one and a half drachms of chloroform) were administered for about 10 minutes by the open method and the reflexes were never lost. The sudden death was probably due to syncope caused by the struggling in a patient with an empyema and a heart with fatty degeneration. In cases of empyema patients occasionally die suddenly on change of position, especially when under the influence of an anæsthetic, and irrigation of the pleural cavity in empyema is sometimes followed by sudden death. In some of these cases it would be safer to aspirate as a preliminary to a further operation a day or so later, when the patient might be the better able to take an anæsthetic, the heart and lung having to some extent regained their normal positions.

"MEDICALLY UNFIT."

To say that Lord Kitchener must find the variety and amount of work and responsibility inseparable from his position in South Africa as the directing head of an enormous army sufficiently onerous and overwhelming is to state an obvious platitude. But we find that Lord Kitchener has felt himself called upon amid the distractions of warfare to forward a despatch to this country protesting against the great and needless trouble that has arisen from two causes—first, that large numbers of men of the new Imperial Yeomanry have been sent for service in the field who were practically untrained and therefore unfit for it, and secondly that hundreds of these recruits have been sent out suffering from complaints and physical disabilities that the most cursory medical examination would have detected, who are filling the hospitals and are afflicted with such diseases as varicocele, affections of the heart, deafness, lameness, and defective vision, there being even one case of partial paralysis—all diseases totally unfitting the sufferers for service in the field, and in every case of such long standing that the men must have been so afflicted before passing the medical examination. There was only one thing to be done with them—namely, to discharge them as "medically unfit" and promptly to send them home again as invalids. To some extent the same neglect seems also to have characterised the raising of the first drafts of the South African Constabulary. Lord Kitchener is quite right in saying that such occurrences could not have happened if a methodical medical examination such as is laid down in the regulations had been carried out. We understand that an official inquiry into the matter will be instituted by the Commander-in-Chief and that as regards the South African Constabulary the Colonial Office will deal with it; and we are very glad to hear it. With regard to the complaint about men having been sent out who were untrained and unprepared for field service we have nothing to do; it concerns the military authorities and the purely military branch of the service. But with those found medically unfit on their arrival in South Africa the case is different. While making every allowance for occasional mistakes and oversights where reinforcements are urgently needed and men are hurriedly enlisted and the medical examinations have to be quickly, and consequently in some cases perfunctorily, performed, we cannot admit that there was any excuse for men being passed in a medical inspection as fit where such physical disabilities and complaints existed as are in the present instance alleged to have been present. Assuming the correctness of these allegations—and provided that substitutes were not used to personate recruits—there must, we think, have been manifest blundering or gross carelessness somewhere—indeed, as we cannot understand how such physical defects and disabilities could have escaped notice we are inclined to think that there must be some explanation forthcoming, because we hesitate to believe that some of the cases could, as a matter of fact, have been medically examined at all. As all these medical inspections must have been conducted, and the lists of them signed, by military medical officers or by members of the civil profession who passed the men, there should presumably be no difficulty in tracing those who are responsible, and in our opinion this course should be at once adopted. It would be interesting to know whether any special orders were issued to the examining surgeons not to be too particular but to pass as many men as possible.

SPRAYING POTATOES WITH SULPHATE OF COPPER.

IN our correspondence from Ireland an account is given, of great interest to agriculturists as well as to medical men, of a hitherto unrecorded risk of poisoning by sulphate of copper through the spraying of potatoes. In Ireland, as, indeed, is the case now in most temperate climates, the potato is a staple article of food and is cultivated with the greatest care; but, unfortunately, it is liable to be attacked by a most destructive disease caused by the parasitic fungus "phytophthora infestans," which, like the potato itself, was introduced from America but at a later date—1840. The fungus attacks the stem and leaves as well as the tubers; it appears first on the stem and leaves, as a rule about the end of July or the month of August. When confined to the stem and leaves it causes them to turn brown and eventually black, totally destroying their tissues, hence from their withered aspect the disease has been termed the "potato blight." Finally, the tubers are attacked and decay with dry or wet rot. As a result anyone driving through the country at this time of year can, if the disease is prevalent, detect its presence by smell and so by some it is called the "potato rot." The disease prevails especially when the weather is both warm and wet. It was the total failure of the crop in 1849 through this blight that contributed largely to the Irish famine of that period. To prevent its occurrence new seed has from time to time been introduced. The seventh Duke of Marlborough (grandfather of the present peer), when Lord Lieutenant of Ireland, took a warm interest in this question and his gifted son—the late Lord Randolph Churchill—made one of his earliest and most brilliant speeches in the House of Commons in the "seventies" on the question of seed potatoes. In more recent years, however, attempts have been made, with the greatest success, to prevent the potato disease by spraying the stems and leaves of the plant, generally about July, with a fluid which is destructive to the fungus. The material used is, as a rule, sulphate of copper, but it is evident from the occurrence near Ballymena of a fatal case in a person employed in spraying that in carrying out this preventive measure precautions must be used. These are (1) that persons using the spray should not have wounds or sores on their hands; (2) that they should always wash their hands after spraying or should wear long-armed gloves; (3) that they should try not to breathe or inhale the vapour, or should wear a respirator; and, finally, (4) that they should not blow down he tube of the sprayer. This is the first case of the *kind* rec

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AUTHORITIES AND THE FEEDING OF INFANTS.

authorities of Norwich, as well as their of health, Dr. H. Cooper Pattin, are to be on their initiative in circulating for the of mothers a most comprehensive and practical subjects of infant feeding and the prevention of The ignorance which prevails among the majority of the lower orders on these subjects is absolutely appalling, and we as a profession cannot entirely absolve ourselves from blame for this most regrettable condition of affairs, for to a very large extent we have allowed the control of infant dietetics to pass from our hands into those of the vendors of proprietary foods whose chief object has been to sell the products of their manufacture and not to consider the ultimate welfare of the individuals for whom they cater. The leaflet which Dr. Pattin has drawn up for the instruction of mothers is thoroughly practical and to the point. He rightly insists that the best food for an infant is healthy mother's milk, but that when this supply is not available the only proper and reliable substitute is modified cow's milk. He also supplies full directions for preparing the same in accordance with an infant's requirements during the different periods of its life, and further, he warns parents against attempting to supply any other kind of food without express direction from the medical attendant. The question of infant feeding is undoubtedly one of national importance, because it is during the first year of life that the constitution of an individual is largely determined, and because, apart from hereditary influences, the method of feeding adopted during these early months of life is the chief contributory factor in the determination of a constitution which is sound or the reverse. Until such time as the nation realises its responsibilities with regard to this question it is only by the independent energy of our medical officers of health that any direct pressure can be brought to bear upon mothers or other individuals who are entrusted with the care of infants. That success can follow so simple and in an expedient as the distribution of a leaflet tions for the feeding of infants has been clearly proved in the case of Darwen; in th the medical officer of health, Dr. F. G. Hawort years ago drew up a series of regulations somewhat to those now adopted in the case of Norwich and took to see that at the time of registration of birth the pare each child were provided with a copy of his most worded directions. The result has been in e satisfactory. We hope that ere long this most san precedent on the part of Norwich and Darwen followed by all municipal authorities througho country.

A YEAR'S RAILROAD CASUALTIES IN T UNITED STATES.

FROM the annual report of the United States Commission we learn that the total number of ca to persons on account of railway accidents during the ending June 30th, 1900, was 58,185; the aggregate persons killed was 7865, and the number injured was Of railway employés, 2550 were killed and 39 injured. With respect to the three classes of these casualties were distributed thus: trainm 1396; injured, 17,571; switchmen, flagmen, and w killed, 292; injured, 3060; other employés—k injured, 5229. The corresponding figures for th year were: killed, 260; injured, 6765. The acci coupling and uncoupling cars are divided as follow men—killed, 188; injured, 3803; switchmen, flag watchmen—killed, 77; injured, 1264. In other e killed, 17; injured, 162. The casualties caused by from trains are classified as follows: trainmen, kil injured, 3359; switchmen, flagmen, and watchme 45; injured, 501; other employés—killed, 72; in The casualties among the same three classes of emp collisions and derailments were as follows: trainm 380; injured, 1867; switchmen, flagmen, and wat killed, 11; injured, 141; other employés—kill injured, 445. The number of passengers killed the year was 249, injured 4128; the corresponding for the preceding year were—killed, 239; injured, 3442. Collisions and derailments caused 88 deaths and the injury of 1743 passengers. The total number of persons other than passengers and employés was—killed, 5066; injured, 6594; these figures include casualties to those called trespassers, of whom 4346 were killed and 4680 injured. The total number of persons killed at highway crossings was 750, the injured numbered 1350, as follows: employés—killed, 20; injured, 53; passengers—killed, 1; injured, 3; other persons trespassing—171 killed; 204 injured; not trespassing—killed, 558; injured, 1090. To summarise, the figures show that out of every 399 employés one was killed and one was injured out of every 26. With reference to trainmen—including in that term enginemen, firemen, conductors, and other trainmen—it is shown that one was killed out of every 137 employed and one injured out of every 11 in service. One passenger was killed out of every 2,316,684 carried and one injured in every 139,740 carried. The summary shows that in the course of 13 years ending June 30th, 1900, in consequence of railway accidents 86,277 persons were killed and 469,027 persons were injured. The injuries reported varied from comparatively trivial injuries to those of a fatal character.

"OZONE IN THE RAILWAY CARRIAGE."

OUR remarks in an annotation under the above heading in THE LANCET of August 24th, p. 439, upon the probable advantages which would be gained by the ozonisation of the air of railway carriages have been subjected to considerable comment in the lay press. Some writers have considered the scheme impracticable on account of the enormous cost of oxygen and have estimated that this alone on the Underground Railway would be close upon a million sterling. We never suggested pure oxygen for the purpose, and, indeed, it is not necessary, the oxygen of the air would be ample. Others state that if air were used for the production of ozone, nitrous and nitric acids would be formed. Where strong ozonisation is proceeding it is true that a very small amount of nitrogen oxides is produced, just as when a flash of lightning discharges through the air, but this amount is quite insignificant in a small apparatus automatically deriving its current from the dynamo attached to the carriage wheels. We have further seen it stated that so efficient is the ventilation of the "tube" and other underground electric railways that the ozonisation of the air of the carriages would be a perfectly superfluous step. Travellers by these railways know perfectly well that the air in these subterranean places has not grown pleasanter as the popularity of the system has increased. It is sickly and a sense of relief is experienced on gaining the outside air. This should not be so if ventilation is efficient. A curious objection has been raised in one contemporary to ozone on account of its *sub-acid* smell. We have never noticed it but then we have never yet recognised a smell of this description.

DEATH OF PROFESSOR ADOLF FICK.

THE announcement of the death of the well-known physiologist, Dr. Adolf Fick, the late professor of physiology at the University of Würzburg, will be received with regret. Professor Fick was born at Cassel on Sept. 3rd, 1829, and died rather unexpectedly at Blankenberg on August 21st. He pursued his studies in Marburg and in Berlin and graduated at Marburg in 1851. In 1856 he accepted the post of professor of physiology at Zürich and in 1868 was offered and accepted the chair of physiology at Würzburg, which he held [illegible] his superannuation a few months ago. He was the author of many works, the chief of which will be found mentioned below. He was best known in this country for his "Medical Physics," which was originally published in 1856 in Brunswick as a supplement to the "Lehrbuch der Physik" of Müller-Pouillet, the third edition of which was published in 1885; by his treatise on the "Anatomy and Physiology of the Organs of Sense," published at Lahr in 1864; and by his numerous essays on muscle, one of which, recording his ascent of the Faulhorn in company with Dr. Wislicenus, is quoted in many works on physiology. In that important experiment he supplied strong evidence to show that violent and protracted muscular effort is not attended with any marked increase in the quantity of urea eliminated from the system, and hence that the muscles themselves do not suffer wear and tear but, like the mechanism of a steam-engine, are only the agents enabling the energy generated by the oxidation of the fuel, which in the body consists of the carbohydrates and fatty compounds, to be advantageously applied. Professor Fick was a man of high cultivation and greatly esteemed by the large circle of friends whom the prominent position that he held in the University of Würzburg for so many years had gathered around him. Amongst his numerous works may be mentioned his Researches on the Electrical Stimulation of Nerves, Brunswick, 1864; Researches made in the Physiological Laboratory of the University of Zürich, Vienna, 1869; The Circulation of the Blood, Berlin, 1872; Researches made in the Physiological Laboratory of Würzburg, Würzburg, 1872-1878; articles in Professor Hermann's "Handbuch der Physiologie," including one on Special Movements, others on Dioptrics, on the Accessory Apparatus of the Eye, and on the Phenomena of the Sensation of Light. He also wrote essays on Mechanical Work and the Production of Heat during Muscular Action; on Cause and Effect; and on Probabilities. He was, lastly, a frequent contributor to the leading scientific reviews.

A MUDDLING MEASURE OF BEER.

IT is one of the curious inconsistencies of English ways that the comparatively heavy beers, such as stout and ale, are sold by a liberal standard, while the lighter beers, such as lager beers, are commonly sold in accordance with a much smaller standard. Thus the "small" lager is much less than a half-pint of ale, and the "large" lager is much less than a pint of beer. Considered from an alcoholic, and therefore temperance and health, standpoint, it is a pity that this custom cannot be exactly reversed—that the light beer cannot be sold in pints and half-pints and the heavy beers as "large" or "small" on the same system as lager beer is now sold. As it is, however, a "small" or "large" bitter is never called for any more than is a half-pint or pint of lager. It would "inconvenience" the trade, we should probably be told, to adopt this order. Again, the usual price demanded for a "small" lager is 3*d*, while for a half-pint of beer it is 2*d*. (or three-halfpence, according to the class of counter over which it is sold). The amount of alcohol in the former case would be about one-seventh of an ounce, while in the English beer it would be about half an ounce, and yet 50 per cent. more money is demanded for the lager beer. A "small" lager commonly measures not more than one-third of a pint and a "large" lager not more than three-quarters of a pint, these figures corresponding to about 0·20 litre and 0 50 litre respectively. The introduction of lager beer on draught into this country brought with it the adoption of metric measures of capacity, vessels of a capacity of 0 50 and 0·20 litre being officially approved. Unauthorised measures have, however, been in use for some time as follows:—0·25, 0·30, 0·35, and 0·40 litre A proposal arose eventually that these measures should be discontinued and that 0 20 and 0 50 litre should be alone recognised as lawful. Some objection, however, was raised against this proposal by the trade, with the result that it was required that when lager beer was sold in quantities less than half a pint the vessels need not be stamped unless they were marked. Unmarked vessels containing less than half a pint need no official verification. When the capacity exceeds half a pint the vessel is bound to be stamped in accordance with the standard imperial or metric measures. The representation of the trade, therefore, met with success. But the plan anyhow is muddling which allows vessels to be graduated officially by two systems of measure, the imperial and the metric. We may be confident that for lager beer the latter system will be generally retained since it is least understood. It cannot be imagined for a moment that the sale of lager beer in half-pint and pint measures will be adopted—it would "inconvenience" the trade. We cannot understand in the least why it should be considered necessary that the metric system should be recognised for the sale of one kind of beer and not for another. And it just happens that the light beers are sold at a high price by a small standard of capacity and the comparatively heavy beers at a low price by a large standard of capacity—a system which is just exactly the reverse of the requirements of common sense and one that is directly opposed to the growth of temperate habits.

THE TREATMENT OF ANEURYSM BY INJECTIONS OF GELATINE.

THE recent deaths of two patients in Guy's Hospital from tetanus occurring while they were undergoing a course of treatment by injections of a solution of gelatine formed the subject of inquiries held by Dr. F. J. Waldo on August 26th. For some unexplained reason some of the daily papers reported these inquests under a heading or sub-heading which included the word "experiment" or "experimental." Without wishing in any way to minimise the unhappy result we must point out that there was nothing experimental—except in the sense in which all and every treatment is experimental as being tried upon a new patient—about the method. It was introduced some three years ago by Professor Lancereaux of Paris[1] and has been successful in a good many cases, while of the three patients treated in Guy's Hospital one has apparently recovered completely, and the two patients who so unfortunately died did so from an accidental circumstance, though none the less lamentable. The tetanus bacillus may infect any wound. Every precaution was taken in the sterilizing of the injections and the instruments used, and the jury, after a patient hearing, decided that the medical officer in charge of the case was exonerated from all blame. Inoperable thoracic aneurysm is a disease so distressing to the patient and so uniformly fatal that it would be a thousand pities if a treatment which has already given good results should be looked at askance because of the unforeseen having happened.

TUBERCULOSIS, BOVINE AND HUMAN.

THE most sensational episode at the recent Congress on Tuberculosis was undoubtedly the statement made by Professor Koch in which he threw doubt upon the communicability of tuberculosis from animals to man. The challenge thus thrown down has been eagerly taken up by various observers, and the controversy will continue to rage until further and numerous investigations have shown whether or no the human species can be infected with tuberculosis from the flesh and milk of tuberculous cattle. We print this week an important communication by Professor Hueppe, a perusal of which we recommend to our readers. He commences by drawing attention to Professor Koch's announcement, to which we have just referred, as being in direct opposition to his previous teaching, and argues that if Professor Koch is correct the measures hitherto taken against bovine tuberculosis must therefore be in the first place too severe and in the second place of no avail for the suppression of human tuberculosis. Professor Hueppe then proceeds to review the investigations which he himself has made on the subject and the results obtained which oppose those of Professor Koch. There are many points in this paper which will attract attention. Professor Hueppe ascribes the histological differences which exist between miliary tubercles in the human subject and the tubercles of perlsucht in the ox to a dissimilarity in the inherent quality of the tissue, and further maintains, as Professor Virchow discovered long ago, that the distinctions which Koch has now found to exist are concerned with quite different things—the one with the inherent quality of the structure, the other with the remote or ultimate developments dependent thereon; and the facts, he says, ascertained with regard to one of those do not necessarily serve for the elucidation of the other. One other remark is worthy of note, namely, that whilst the minutest difference in the organisms in cholera and now also in tuberculosis are enlarged upon by many bacteriologists in order to build up on them a theory of differences in species, in diphtheria the same investigators completely ignore constant and much greater differences in the bacteria. Professor Hueppe provisionally considers that the only thing that is certain is that the "so-called tubercle bacillus" adapts itself to the particular member of the animal kingdom which happens to be its host, and that when it has so adapted itself and has, for instance, become pathogenic for man, in that case it is not quite pathogenic for another kind of host, such as the ox; but, he adds, this limitation cannot be practically defined. He therefore urges, and we consider very rightly so, that the struggle against bovine tuberculosis should be carried on unremittingly, both on account of the economic danger and also because he still believes that the danger of bovine tuberculosis to mankind has not been disproved.

THE PUBLIC CONTROL DEPARTMENT OF THE LONDON COUNTY COUNCIL.

IN spite of, or possibly because of, Parliament, the London County Council, the metropolitan boroughs, and the lighting and water companies, London is possibly the most inconvenient and most untidy city of Europe. The streets are either muddy, slushy, or dusty; they are littered with straw, cabbage-leaves, newspaper posters, and omnibus tickets; they are constantly being grubbed up for some reason or other; barrels of beer, coals, and other goods are delivered across the footways at all hours of the day; omnibuses are allowed to block the streets pretty much as they please, and chimneys are allowed to make the air filthy because they "cannot get Welsh coal." And yet the annual return of the chief officer of the Public Control Department of the London County Council for 1900-1901 shows a gigantic amount of work. A glance at the contents page shows such subjects as lamp accidents, boiler explosions, the sale of bread, coal, and coke, inquests, diseases of animals, gas-testing, infant-life protection, petroleum Acts, weights and measures, rabies, and the smoke nuisance, to mention only a few. As regards rabies no case has occurred in London since 1898 and the last case of hydrophobia returned (of course, this means in a human being) was in 1896. The section of the report dealing with smoke nuisances is interesting. It points out that the Acts under which prosecutions may be taken practically only deal with black smoke, and also that the County Council can only deal with cases where a sanitary authority is in default. Any person, however, may make a complaint. With regard to smoke from railway engines we notice that the South-Eastern and Chatham Company were reported no less than 148 times during the year ended March 31st, 1901, the next most prominent offender being the London and Brighton Company which was reported 82 times. During the period under consideration there were 25 fatal accidents from petroleum lamps, involving a loss of 26 lives. In the coroners' courts there were held in all, during the year 1900, inquiries to the number of 8027 and there were held post-mortem examinations, exclusive of those held in hospitals, to the number of 4138. The hospital cases, in which presumably a post-mortem examination was carried out in every instance, numbered 977. The report is of great interest, but so long as London is governed by, or rather is dependent for its due regulation upon, a number of bodies all independent of each other, so long will nuisances of various kinds continue. We make no suggestion as to who should be the governing body, but that there should be one is certain.

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[1] THE LANCET, vol. ii., 1898, pp. 1092, 1299, 1369.

THE DISTRIBUTION OF PLAGUE.

A TELEGRAM from the Governor of the Cape of Good Hope, received at the Colonial Office on August 22nd, states that, for the week ending August 17th, the new cases of plague in the Cape Peninsula number 0; at Port Elizabeth, coloured persons 2, natives 1, all other places 0; there were no deaths. At Port Elizabeth the deaths were as follows: coloured persons 1, natives 1, total 2; all other places 0. The total cases of plague up to August 17th were as follows: Cape Peninsula 735, Port Elizabeth 43; all other places 10. The total deaths from plague up to August 17th were as follows: Cape Peninsula 357, Port Elizabeth 18; all other places 2. The area of infection remains unchanged. The cases of plague in persons under naval and military control number 1—viz., that of a male native from the Remount Camp at Port Elizabeth. With regard to Hong-Kong, a telegram from the Governor received at the Colonial Office on August 23rd, is worded as follows: "Bubonic plague in Hong-Kong not epidemic; clean bills of health issued." In Egypt for the week ending August 18th 6 cases of plague and 3 deaths from the disease have been reported. One case, a fatal one, occurred at Port Said in a native, the other 5 cases were all European.

WE regret to announce the death from malignant disease in his seventieth year of Surgeon-General v. Coler, head of the Prussian Army Medical Corps, which took place at Berlin on Monday last, August 26th.

THE CHEMISTS' EXHIBITION.—The seventh annual Chemists' Exhibition, organised by the *British and Colonial Druggist*, was held at Covent Garden Theatre from August 26th to 30th. In addition to the usual display of drugs, perfumes, special foods, and other appliances incidental to the druggist's calling, there were some interesting novelties on this occasion. Perhaps the most striking was the enormous soda fountain, the ingenious invention of an American firm, which bids fair to become universally installed in hotels, restaurants, and other places in this country. It practically provides an unlimited supply of highly-charged soda-water, which, at the same time, may be kept cool by contact with ice. A number of various effervescing beverages may obviously be prepared by this means. Another striking exhibit consisted of a great number and variety of sponges representing a value of over £10,000. The floor of the great theatre presented a curious spectacle not unlike that of an Oriental bazaar. There was a good deal to see of interest to medical men, the members of hospital staffs, nurses, and so on. The attendance, however, did not appear to be very large, which is not surprising since the holiday season is just now in very full evidence. It might be thought that the organisers would have deemed it expedient to arrange another and a more suitable time for the exhibition which possesses interest for a wide *clientèle*.

TUBERCULOSIS, BOVINE AND HUMAN.[1]

BY FERDINAND HUEPPE.

(*Translated for* THE LANCET.)

ACCORDING to the published reports describing the International Congress on Tuberculosis held in London Robert Koch made a communication on the subject of bovine tuberculosis which fell on the meeting like a bomb-shell. From his recent researches it appears, in direct opposition to his previous teachings, that the tubercle bacillus of the human subject is not communicable to cattle and similarly that bovine tuberculosis is not dangerous to man. The measures hitherto taken against bovine tuberculosis must therefore be in the first place too severe and in the second place of no avail for the repression of human tuberculosis. Therefore, at one time the public peace of mind is disturbed by a display of the heaviest scientific artillery, backed by conclusive laboratory experiments, and then all at once the public peace of mind is again disturbed by still more conclusive laboratory experiments proving the very opposite.

For the general public most encouragement has for years been obtainable from the recognition of the important bearing which a tendency to the disease has on the development of the disease after inoculation with it has occurred. This most important side of the whole question was strangely left out of the discussions at the Berlin Congress on Tuberculosis, being only occasionally touched upon by a few speakers. This side of the question was also completely neglected by Koch in London and sufficient importance was not given to it by the speakers who were unable to follow Koch's views. Koch found, as had been ascertained beyond a doubt by American observers some years ago, that the human tubercle bacillus did not affect the ox and he probably tried to make out that conversely the tubercle bacillus of the ox is not infectious for man—that, in fact, the two organisms are not of the same species but are specifically different. The question is therefore only a bacteriological one and is not concerned with a scientific etiological interpretation of the experiments. But it cannot be known even whether this inference was not premature because the experiments were not carried far enough. The breed of the cattle which the human tubercle bacilli did not affect has still to be precisely ascertained. Even in this one must proceed cautiously. When it was proved by the researches of Bollinger, Kitt, and myself that what had been previously regarded as splenic fever of swine was a different scepticæmia and produced by quite a different species of bacterium the opinion was entertained that splenic fever did not affect the pig, and yet some breeds may be successfully inoculated with the disease. Is it therefore surprising if I ask that this point of view should be considered in the case of the cattle and pigs which serve for the experiment with tubercle bacilli? Unfortunately, I cannot do more than draw attention to this, for the arrangements and resources of my laboratory do not permit me at present to take part in these costly experiments. The accounts that have hitherto been made public lead me to believe that Koch's experiments have not been carried far enough to justify his conclusions and I must expressly keep open the possibility that the human tubercle bacillus may perhaps be able to affect some breeds of cattle, especially as before the discovery of the tubercle bacillus Bollinger had once with tuberculous material from the human subject produced true bovine tuberculosis in the calf.

But is it possible from such negative experiments on the transmission of disease to form a perfectly definite opinion as to the identity or non-identity of the exciting causes? Certainly not. For in the interpretation of the results cause and effect move in a circle according to the position which bacteriological orthodoxy happens to take up and that which has to be proved is regarded in advance as a certainty. Only the "Exposition" is taken into account, the meaning of this being that care is taken to render infection possible. This, however, is always the case in experimenting with the injection of living virulent bacilli in considerable quantity. In consequence of this Koch once more draws all the fallacious inferences which arise from regarding an inoculated disease as a natural infection. And yet these things have very little to do with one another, as we know in a laborious work of 40 years.

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[1] [illegible]

The tubercle bacillus of man has no hold on the ox, consequently the tubercle bacillus of man and of the ox are different species! It is the same fallacious inference as Mafucci and Koch arrived at in connexion with the difference of the bacteria of mammalian tuberculosis and avian tuberculosis. These bacteria really show in their cultures distinct differences such as are not found in bacilli of different species occurring in mammals. Nevertheless, they belong to one species as obvious modifications dependent on differences of nutrition or situation. F. Fischel and myself have by purely cultural methods changed the one modification into the other and have so altered them that mammalian tuberculosis took effect on fowls and the bacteria of avian tuberculosis took effect on mammals. We have also ascertained that true mammalian tuberculosis occasionally occurs in birds (pheasants), and that true avian tuberculosis occasionally occurs in mammals (monkeys; Nocard also observed it in the horse).

And now Koch wishes us to make an intellectual sacrifice and asks us to believe that the bacteria of human and bovine tuberculosis which culturally stand near together, or, rather, are not to be distinguished, must be regarded as wholly and entirely distinct because they did not act reciprocally in his experiments on animals.

I might perhaps allude to this, that with the bacilli of bovine tuberculosis Koch produced in cattle only tuberculosis, but not the tuberculosis of the pleura peculiar to the ox—the so-called Perlsucht; his experiments, therefore, in the sense of his special interpretation, did not even prove that bovine tuberculosis affects the ox. The tubercles of Perlsucht are something so exceptional that Virchow over and over again enlarged upon their peculiarities; at one time he even did not consider them to be tuberculosis at all.

The histological differences between miliary tubercles in the human subject and the tubercles of Perlsucht in the ox, which differences, however, the majority of pathological anatomists do not deem of such importance as Virchow does, indicate a dissimilarity in the inherent quality of the tissue; but whether this inherent quality will attain its remote or ultimate developments by easy processes or by difficult ones, by the operation of pathogenic agencies of like kind or of unlike kind,—on these points the histological appearances supply no data for the formation of an opinion. Only bacteriological experiment can throw light upon the question of communicability and can explain whether in the course of inoculated disease or natural infection a biological or morphological modification and adaptation of a parasite of like kind takes place or whether only parasites of unlike kind have to be reckoned with. The differences which Virchow discovered long ago and the distinctions which Koch has now found to exist are concerned with quite different things—the one with the inherent quality of the structure and the other with the remote or ultimate developments dependent thereon—and the facts ascertained with regard to one of those do not necessarily serve for the elucidation of the other.

Many years ago I was the first to point out that with identical staining the tubercle bacilli of Perlsucht had a somewhat different form from those of human tubercle and had a certain amount of resemblance to the lepra bacilli of the human subject. Other observers also came upon this fact unintentionally, but on account of the opinions held by Koch at that time it was not recognised or not attended to, as, to give an instance, is shown by old photographs taken by O. Fränkel and Pfeiffer in Koch's laboratory. I have, of course, explained this slight variation of form as an effect of the parasite adapting itself to the special kind of nutriment which the ox supplies.

The pathological anatomist and the bacteriologist have, therefore, known for a long time that there were peculiarities in bovine tuberculosis, so that it did not surprise us when some years ago American observers announced the additional fact that bacilli from the human subject did not in general act upon the ox, as Koch has just now ascertained.

Experiments were also performed long ago which gave us more information than Koch has done. If specific differences or long and thorough adaptations to varying conditions occur they generally take a firm hold, and it is therefore, for instance, culturally or by experimental communication to animals a difficult matter to eliminate the differences between mammalian tuberculosis and avian tuberculosis. The case is, however, quite otherwise with respect to the tuberculosis of different mammals. In cultures they behave similarly. There are no difficulties whatever in the experimental transfer of such cultures from quite different mammals to appropriate animals—for instance, to guinea-pigs or rabbits; they all take immediately and to all appearance equally well, the only thing is that different quantities are often used. But in this respect the distinction between cultures from different genera of our domestic animals is not greater than between different cultures from the same genus. The cultures show varying degrees of virulence and in this particular almost no difference is recognisable between the tubercle bacilli of different mammals. Moreover, a method employed by Weleminsky may put us into a position to make quantitative work with tubercle bacilli more precise and thereby to improve the measurement of virulence with respect to rabbits and guinea-pigs. But that which we now know permits us already to conclude with certainty that as in cultures so also in the bodies of our small animals used for experimental purposes a complete elimination of whatever original differences there may be immediately takes place. But this is only possible if the exciting causes of mammalian tuberculosis, and especially the exciting causes of human and bovine tuberculosis, are identical in kind.

Strangely enough, the minutest differences in cholera and now also in tuberculosis are enlarged upon by many bacteriologists in order to build up on them a theory of differences in species, while in diphtheria the same investigators completely ignore constant and much greater differences in the bacteria.

This being established it naturally follows that the facts once more brought into prominence by Koch and his misinterpretation of the phenomena are understood, and the practical advice is given to the authorities that they should persevere with approved measures for the repression of tuberculosis in the lower animals.

As experiment immediately shows, the organism of the rabbit and guinea-pig eliminates possibly existing differences and to some extent transforms bacilli derived from the human subject or from cattle with their special features into rabbit bacilli or guinea-pig bacilli respectively, and after a few passages through the animals only the last and nothing whatever of the first are any longer to be found. The case is similar if the bacteria are continuously inoculated only upon man or upon the ox. They must adapt themselves to the media on which they grow, and if this happens they then take a firmer hold and show those peculiarities chiefly or predominantly, but these are not specific properties. The specific identity of the organism which excites mammalian tuberculosis is not abolished by virtue of these peculiarities connected with nutrition to which the parasite adapts itself physiologically and morphologically.

In tuberculosis the prospects of artificial immunisation and the preparation of antitoxins are very unpromising, but the small amount which has been collected on the subject, especially some experiments by Behring, show that even in the sense of mutual antitoxic influence the organism which excites bovine tuberculosis must be specifically identical with that of the other forms of mammalian tuberculosis.

A natural infection supposes that the infecting parasite meets a susceptible individual belonging to a susceptible species under favourable conditions. Otherwise there is no illness. In our case the infecting parasite is the tubercle bacillus, which, according to facts verified by me, is not a bacillus at all, but the parasitic growth-form of a pleomorphous fungus. As far as the protection of human beings is concerned it might seem to us to be a matter of little consequence that the bacillus pathogenic to man does not affect the ox, even if this were positively proved for all breeds of cattle and every kind of infection, but conversely it is a more serious thing, and the possibility of it is an undoubted fact, that the cattle bacillus affects man. Moreover, the cattle bacillus affects other domestic animals, and from an economic point of view it is in some localities already an anxious question to what an extent tuberculosis has increased among pigs in consequence of their consuming waste portions of milk. And who will give us a guarantee that the cattle bacillus in passing through the pig does not become a more direct danger to man?

I purposely refrain from saying more virulent. In the transmission of a bacterial poison prepared in a state of purity only its quantity per unit is to be considered, if the poison acts at all; but in estimating the virulence of a living parasite the whole of the tissue change together with the poison must be taken into account. Thereon depends its [illegible] position, its varying behaviour [illegible] nature of its host. It would, [illegible] that one parasite might be more dangerous for one particular kind of host than for another, although it forms a smaller quantity of specific poison, if only it has an increased power of attack. No one can say at present that the bacillus, pathogenic to cattle is more poisonous or more virulent, or conversely, than the bacillus which is pathogenic to man or to the pig or to the rabbit. That is only one of the contingencies in which an agreement must be come to as regards the third term of the comparison, for instance, rabbit as the animal used for the experiment, number of germs, and method of imparting the infection. The mere number of germs is not the effective part. Provisionally the only thing that is certain is that the so-called tubercle bacillus adapts itself to the particular member of the animal kingdom which happens to be its host, and that when it has so adapted itself and has, for instance, become pathogenic for man, in that case it is not quite so pathogenic for another kind of host, such as the ox.

But this limit cannot be practically defined and is to be counted so much the more for this reason, that when the bacillus gains access to a susceptible individual of a different genus, as, for instance, when the bacillus pathogenic to cattle gains access to a child, it establishes itself in the child anew and henceforth for other individuals of this genus —i.e., for mankind—there is an increased danger of more widespread infection.

The cattle bacillus certainly affects the human subject. We are in fear that it will be communicated to us from cattle by means of milk containing the tubercle bacillus. The milk is taken as food by the mouth, so that infection produced in that way ought to manifest itself as primary tuberculosis of the abdominal viscera. That is at least the general opinion at present. I consider it to be not altogether correct. Induced by certain observed phenomena, according to which in a primary outbreak of tuberculosis in the region of the upper air-passages there was extreme probability that the infection spread from the mouth (carious teeth, tonsils), Weleminsky experimented by infecting animals in like manner, and he even experimented on himself by drinking milk infected with micrococcus prodigiosus; some time after taking the milk the infective organism could be found in his tonsils It therefore appears possible that when fluids containing pathogenic organisms are drunk these organisms make their way into the system from the upper passages—as, for instance, from the tonsils—and then the primary focus of the disease is in the region of the air-passages; it is under these circumstances a mistake to suppose that there is an infection of the lung through the respiration For this reason I have a suspicion that many forms of tuberculosis are at present erroneously ascribed to respiration, whereas they ought to be attributed to infection from food, especially milk.

In a given case it is difficult to prove this post mortem, but it will be sufficient to demonstrate that the cases of primary tuberculosis of the bowel certainly represent only a minimum portion of the cases in which infection has been conveyed by way of the mouth with food. The number of these cases occurring in children is by no means so small as Koch alleged. The number of the cases may be fairly reckoned as between 25 and 35 per cent. of all the deaths of children from tuberculosis. All cases of tabes mesenterica belong to this class, and according to Heller tuberculosis of the mesenteric glands is present in almost a half of all the cases of tuberculosis affecting children. In adults primary tuberculosis of the intestine is rarer, but it has been recognised with certainty even in them. The question, however, is one for public measures to be taken with regard to it. If cattle bacilli establish themselves in even only a few cases they may open the way for a further extension of pathogenic organisms which will now more easily attach themselves to the human subject.

As a general rule tubercle bacilli occur in milk only if tubercle is already present in the udder of the cow; occasionally, of course, some other infection of the milk may be possible in consequence of want of cleanliness on the part of the herdsmen and milkers or from general want of cleanliness in the cow-house. Although tuberculosis of the udder amounts to only 2 or 3 per cent. of the cases of bovine tuberculosis, this danger is not so small if it is borne in mind that the diffusion of tuberculosis among cattle in many districts is very considerable; as a rule it affects from 20 to 30 per cent., but sometimes even more than 50 per cent. of all the cattle. Koch has therefore very greatly understated the danger of tuberculous milk and has not estimated this danger from all the points of view that require to be taken into account.

Where success has attended endeavours that have been made to reduce the mortality from tuberculosis by means of hygienic measures, as in factories, the question has only been one concerning the inhalation tuberculosis of adults. These measures have remained without effect on tuberculosis as it occurs in childhood, and this shows that the sources of the latter will have to be closed in some other way. Koch, however, would have us avoid interference with these sources and would have us concede to dairymen and milk-sellers the right of infecting children with tuberculous milk.

In places where cattle are allowed to graze at liberty, in our Alps and in marshes, uncooked milk will often be drunk with impunity; adults may do this as a rule, they being but little predisposed to intestinal tuberculosis, and even children may do it. But in the low country and in towns where the dairy cattle are always crowded together in damp cow-houses and infection spreads from animal to animal, Koch's assertion that there is no cause for uneasiness would be an invitation to carelessness which would undo all that has been accomplished.

If, as is alleged, there is no danger to human beings, who would have the courage to ask for systematic inoculation of herds of cattle with tuberculin for the purpose of freeing them from tuberculosis? As it does no harm all kinds of meat would soon be sold without more ado, and there must therefore be buyers. Of course, bovine tuberculosis does us [illegible] ones [illegible] ulous [illegible] a loss for ways and means to snap their fingers at æsthetics.'

We ought to carry on the struggle against bovine tuberculosis unremittingly, both on account of the economic danger and also because bovine tuberculosis forms an immediate danger to mankind. The question is not whether this danger is great or small, whether it has been overestimated formerly or is under-estimated by Koch now, but what has to be considered is that this danger comes upon us in a form which requires the most energetic measures of public hygiene, because the inhabitants of towns, especially the workers in manufacturing towns, are quite unable individually to protect themselves sufficiently against it.

In struggling against tuberculosis we must carefully keep in mind that not only tubercle bacilli but also human beings with their predisposition have to be taken into account. A campaign merely against the bacilli does not practically go far enough, inasmuch as the etiology of tuberculosis does not become comprehensible solely by studying the biology of the bacilli.

But the struggle against the tendency to disease is so rich in excellent promise, and in early life, especially among the children of the working-classes in towns, it offers such satisfactory prospects, that the sanitary authorities of civilised countries will do well to offer it a helping hand in the spirit of positive constructive hygiene for the bringing up of robust generations and for the carrying on of the struggle against tuberculosis assiduously all along the line.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 33 of the largest English towns 6525 births and 4750 deaths were registered during the week ending August 24th. The annual rate of mortality in these towns, which had been 22·4, 22·1, and 21·3 per 1000 in the three preceding weeks, further declined last week to 21 6 per 1000. In London the death-rate was 19·2 per 1000, while it averaged 23 2 in the 32 large provincial towns. The lowest death-rates in these towns were 14·3 in Huddersfield, 14 4 in Bristol, 14 8 in Cardiff, and 16·3 in Croydon; the highest rates were 27·2 in Birkenhead, 27·5 in Salford, 28 5 in Newcastle, 29·1 in Sunderland, and 30·2 in Gateshead. The 4750 deaths in these towns last week included 1639 which were referred to the principal zymotic diseases, against 1725 and 1620 in the two preceding weeks; of these 1356 resulted from diarrhoeal diseases, 87 from measles, 61 from "fever" (principally enteric), 58 from diphtheria, 49 from whooping-cough, and 28 from scarlet fever. The lowest death-rates from these diseases were recorded last week in Bristol, Cardiff, Swansea, and Huddersfield; and the highest rates in Leicester, Manchester, Salford, Hull, Sunderland, and Gateshead. The greatest mortality from measles occurred in West Ham, Birkenhead, and Salford; from scarlet fever in Wolverhampton and Blackburn; from whooping-cough in Swansea; and from diarrhœal diseases in Manchester, Salford, Hull, Sunderland, Gateshead, and Newcastle. The mortality from "fever" showed no marked excess in any of the large towns. The 58 deaths from diphtheria included 27 in London, six in Leicester, four in Salford, and three in Leeds. No fatal case of small-pox was registered last week in any of the 33 large towns. There were 41 small-pox patients under treatment in the Metropolitan Asylums hospitals on Saturday, August 24th, against 13, 11, and 13 on the three preceding Saturdays; 30 new cases were admitted during the week, against four, three, and eight in the three preceding weeks. The number of scarlet fever patients in these hospitals and in the London Fever Hospital, which had been 3148 and 3101 at the end of the two preceding weeks, had further declined to 3040 on Saturday last; 273 new cases were admitted during the week, against 391, 306, and 300 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 126 and 103 in the two preceding weeks, rose again last week to 126, but were 27 below the corrected average. The causes of 45, or 1·0 per cent., of the deaths in the 33 towns last week were not certified, either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Portsmouth, Nottingham, Bolton, Bradford, and in 11 other smaller towns; the largest proportions of uncertified deaths were registered in Birmingham, Liverpool, Sheffield, and Gateshead.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 19·8, 19·2, and 19·0 per 1000 in the three preceding weeks, further declined to 17·8 per 1000 during the week ending August 24th, and was 3·8 per 1000 less than the mean rate during the same period in the 33 large English towns. The rates in the eight Scotch towns ranged from 14·4 in Paisley and 14·5 in Aberdeen to 18·4 in Glasgow and 20·6 in Dundee. The 566 deaths in these towns included 92 from diarrhœa, 12 from measles, nine from "fever," eight from whooping-cough, and three from scarlet fever. In all 124 deaths resulted from these principal zymotic diseases last week, against 174, 168, and 150 in the three preceding weeks. These 124 deaths were equal to an annual rate of 3·9 per 1000, which was 3·6 below the zymotic death-rate during the same period in the 33 large English towns. The fatal cases of diarrhœa, which had been 129 and 111 in the two preceding weeks, further declined last week to 92, of which 45 occurred in Glasgow, 20 in Dundee, 11 in Edinburgh, five in Aberdeen, five in Leith, four in Greenock, and two in Perth. The deaths from measles, which had decreased from 24 to 11 in the five preceding weeks, rose again to 12 last week, and included eight in Glasgow and two in Edinburgh. The deaths referred to different forms of "fever," which had been six and five in the two preceding weeks, increased last week to nine, of which four were registered in Glasgow and two in Edinburgh. The fatal cases of whooping-cough, which had been 28, 12, and 18 in the three preceding weeks, declined again to eight last week, and included six in Glasgow. The three deaths from scarlet fever corresponded with the number recorded in each of the two preceding weeks. The deaths referred to diseases of the respiratory organs in these towns, which had been 44 and 53 in the two preceding weeks, declined last week to 51, and were 31 below the number in the corresponding period of last year. The causes of 21, or nearly 4 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin. which had been 22·4 and 19·9 per 1000 in the two preceding weeks, rose again to 24·5 per 1000 during the week ending August 24th. During the past four weeks the death-rate has averaged 21·9 per 1000, the rates during the same period being 19·4 in London and 17·7 in Edinburgh. The 176 deaths of persons belonging to Dublin registered during the week under notice were 33 in excess of the number in the preceding week, and included 34 which were referred to the principal zymotic diseases, against numbers increasing from five to 34 in the eight preceding weeks; of these 32 resulted from diarrhœa, one from scarlet fever, and one from whooping cough. These 34 deaths were equal to an annual rate of 4·7 per 1000, the zymotic death-rates during the same period being 4·6 in London and 2·6 in Edinburgh. The fatal cases of diarrhœa, which had been 23, 33, and 30 in the three preceding weeks, rose again last week to 32. The mortality from whooping-cough showed a decline from that registered in the preceding week. The 176 deaths in Dublin last week included 54 of children under one year of age and 40 of persons aged upwards of 60 years; the deaths both of infants and of elderly persons were considerably in excess of the number recorded in the preceding week. Two inquest cases and three deaths from violence were registered; and 53, or nearly one-third, of the deaths occurred in public institutions. The causes of 14, or about 8 per cent., of the deaths in Dublin last week were not certified.

THE SERVICES.

Royal Navy Medical Service.

The undermentioned qualified candidates for the Naval Medical Service have been appointed to be Surgeons in His Majesty's Fleet:—Thomas Brown Shaw, Percival Thomas Nicholls, Alfred Thomas Gailleton, and George Sandys Davidge.

Imperial Yeomanry.

Glamorganshire: Richard Michael Moynan to be Surgeon-Lieutenant. Lieutenant-Colonel F. W. Trevor, Royal Army Medical Corps, is granted the local rank of Colonel in South Africa whilst Principal Medical Officer of a Division. Dated 7th April, 1901.

Royal Army Medical Corps.

Colonel Richard H. Carew, D.S.O., is placed on retired pay. Dated August 10th, 1901.

The undermentioned Civil Surgeons to be Lieutenants:—James Waddell (dated June 19th, 1901), Patrick George Hyde (dated June 22nd, 1901), Andrew McMunn (dated June 25th, 1901), Alfred W. A. Irwin (dated July 1st, 1901), and George H. Usmar (dated July 5th, 1901).

The undermentioned officers are granted the local rank of Colonel in South Africa whilst Principal Medical Officers of General Hospitals:—Lieutenant-Colonel J. L. Hall (dated May 7th, 1901), Lieutenant-Colonel G. H. Sylvester (dated Feb. 12th, 1901), Lieutenant-Colonel G. E. Twiss (dated Feb. 5th, 1901), and Lieutenant-Colonel F. A. B. Daly (dated Feb. 5th, 1901).

The grant of the local rank of Colonel in South Africa made to the undermentioned officers of the Royal Army Medical Corps is continued to them whilst holding the appointments stated against their names:—Lieutenant-Colonel J. D. Edge, Principal Medical Officer, Johannesburg District and Lines of Communication, Klerksdorp-Sandspruit; Lieutenant-Colonel J. A. Gormley, whilst Principal Medical Officer of a General Hospital; Lieutenant-Colonel J. C. Dorman, whilst Principal Medical Officer, Eastern Line, Transvaal; and Lieutenant-Colonel A. T. Sloggett, C.M.G., whilst Principal Medical Officer of a General Hospital.

Army Medical Reserve of Officers.

Surgeon-Captain S. Clark, having retired from the Volunteers, ceases to belong to the Army Medical Reserve of Officers. Surgeon-Captain C. Graham Grant, 24th Middlesex Volunteer Rifle Corps, to be Surgeon-Major.

Indian Medical Service.

The following promotions have been approved by the King:—*Madras Establishment:* To be Colonel: Lieutenant-Colonel Andrew Francis Dobson. Dated May 4th, 1901. *Bombay Establishment:* To be Lieutenant-Colonel: Major Henry Wickham Stevenson. Dated April 2nd, 1901. The King has also approved of the retirement from the service of the undermentioned officers: Colonel Terence Joseph McGann, Madras Establishment (dated May 4th, 1901), Lieutenant-Colonel George Waters Bombay Establishment (dated April 23rd, 1901), Lieutenant Colonel Edward Lawrie, Bengal Establishment (dated May 17th, 1901), and Major George Herbert Fink, Bengal Establishment (dated July 13th, 1901)

VOLUNTEER CORPS.

Rifle 1st Volunteer Battalion the Buffs (East Kent Regiment) Surgeon Lieutenant H S Oliver to be Surgeon Captain

VOLUNTEER MEDICAL STAFF CORPS

The Glasgow Companies —Surgeon Captain W F Somerville to be Surgeon Major

SOUTH AFRICAN WAR NOTES

The following have been discharged from hospital to duty —Major S Hickson R.A.M C, and Captain H W Vaughan Williams R.A.M C

Major B L Mills, R A.M C, and Civil Surgeons Turton Jones and Wade are on passage home in the *Wal ool* which left Cape Town on August 21st.

Civil Surgeons Verley, Hunter and Brock are on passage home in the *Dilwara* which left Cape Town on August 24th

Princess Henry of Battenburg invited a number of invalids from South Africa to a short trip in her yacht *Sheila* recently

AFFAIRS IN SOUTH AFRICA

Whatever effect Lord Kitchener's proclamation may have had upon the burghers in inducing them to submit to the inevitable and to put an end to further bloodshed and futile suffering on the part of their countrymen it has had none on the Boer leaders and generals who have now little or nothing to lose or to gain by it As might have been confidently expected, they announce their intention of holding out to the end, although they cannot possibly deceive themselves into believing that they can ever hope to accomplish the design with which they started—namely that of uniting South Africa under an Afrikander flag The Boer generals not without reason think they can at any rate succeed in eluding capture and it is apparently hopeless to expect that anything short of that will suffice to put an end to their hostile activity Be this as it may the cold season at the Cape will soon be coming to an end and with the advent of hot weather we may expect that there will be a recrudescence of enteric fever and of other diseases among the forces in the field although probably not to anything like the extent that has taken place in the past The troops forming the army of occupation although they may expect to be harassed by fitful attacks and desultory fighting and marches in pursuit of small marauding bodies will not be generally called upon to undertake the same hard and fatiguing marches or exposed to the same extent to the heat—conditions which had previously rendered them so vulnerable to disease causes—and they will also have become more acclimatised and hardened by field service Still there has been a good deal of enteric fever during the past winter and every effort should be made to provide for the cleanliness and sanitary condition of camps and railway stations and for the provision of a good water supply together with proper means for the boiling and storage of the water As we have again and again insisted upon the soil in and around camps soon becomes fouled by occupation rendering a frequent change of site essential The long continued elimination by the kidneys of typhoid bacilli their vitality in organically polluted soil and the facility with which this source of dissemination is overlooked in camps make this obvious The sanitary work of the army in the field is always of the highest importance and to be of any use it must be systematically undertaken and thoroughly carried out Never was a greater mistake made than that of the abolition of the special post of sanitary officer with an army in the field Instead of one sanitary officer there should really be a properly organised sanitary department composed of a [illegible] ing o [illegible] tal [illegible] are located and it should be the duty of an officer of the [illegible] l to inspect the work of the latter [illegible] imes to consult with the local officers and to furnish the officer [illegible] h a summary result of his recom[illegible] to the chief of the staff at head quarters to whom and to the principal medical officer of the army he should be empowered to telegraph in case of need

DEATHS IN THE SERVICES

Fleet Surgeon William Brown R.N (retired), at Southsea on August 16th, aged 55 years He entered the service as Surgeon in 1871 became Staff Surgeon in 1882, Fleet Surgeon in 1890 and retired in 1891 He was at the bombardment of Alexandria (promoted Staff Surgeon) and served during the Egyptian War of 1882 (medal with clasp and Khedive's bronze star)

Correspondence.

'Audi alteram partem

THE CELEBRATION OF ST LUKE'S DAY

To the Editors of THE LANCET

SIRS —On or about St Luke's Day the members of the Guild of St. Luke hold their annual meeting and have an anniversary service at St Paul's Cathedral. I beg to suggest that a similar service be held in every town in the kingdom on that day or the following Sunday and that a collection be taken at each of which one fifth be given to the British Medical Benevolent Fund one fifth to the Royal Medical Benevolent College, Epsom one fifth to the Society for the Relief of Widows and Orphans of Medical Men one fifth to THE LANCET Relief Fund and one fifth to Church expenses, these most deserving charities would benefit greatly by these collections St Luke's Day Oct 18th, will this year fall on a Friday

I am Sirs, yours faithfully,

Bedford August 26th 1901 HORACE F HAYNES

"WAS LUIGI CORNARO RIGHT?"

To the Editors of THE LANCET

SIRS —I do not find that Mr T B Sellors in THE LANCET of August 24th, p 565 advances any cogent argument against my views regarding the evils of pap feeding [1] His argument founded on the relative frequency of adenoids in the poor and well to-do is valueless as we have no exact data to go upon Mr Sellors says, 'It is recognised that the disease more generally affects the children of the poor But is it? Adenoids are certainly painfully common in the well to do

Mr Sellors writes "It must be apparent to those who have had much to do with babies that it is wrong to attribute the presence of adenoids to an imperfect use of the jaws' Well Sirs to me it is by no means apparent He goes on to say During the first year of life the jaws and tongue are in almost perpetual movement, when not taking the breast or bottle the child sucks its fingers or comforter' or champs so vigorously that its bib is quickly saturated with saliva I would remind Mr Sellors that my indictment against the too exclusive feeding of children on pap did not specifically refer to the first year of life but to the period between weaning and the end of the second year though as a matter of fact I am prepared to extend this period in both directions Is it not apparent to Mr Sellors that we have conclusive evidence as to the inadequate use of the jaws during early life in the fact of their defective growth and the consequent overcrowding of the teeth to which that defective growth so frequently leads?

Mr Sellors has a tender solicitude for the baby's gums, he fears lest they may be torn by hard food Has this physician in his long experience of babies ever chanced to put his fingers into the mouth of a lusty baby at its weaning time? If not, a valuable object lesson in infantile dietetics awaits him he will find the interior of the baby's mandibular apparatus better adapted for lacerating than being lacerated

But Sirs what is the use of arguing as to the practicability of giving the weaned baby food that requires substantial chewing when the question can only be decided by experience? My experience has shown me that the theory is practicable Acting on the assumption that the teeth of the young human are not for ornament merely, but for use I have long recommended mothers to give their children's teeth an opportunity of exercising their function which is to bite and chew food The result has been eminently satisfactory I believe, indeed—though I do not at present press this point—that children should be afforded an occasional opportunity of biting hard foods before the weaning time—directly, in fact, the teeth begin to appear. What is the meaning of the champing and profuse salivation to which Mr. Sellors refers—phenomena which attend the eruption of the teeth and the awakening into *functional activity* of the salivary glands? May we not regard them as the play of a normal function craving for satisfaction—as, in fact, the ineffectual chewing and insalivation of phantom morsels of food? And how is this mute but eloquent appeal met? By confining the diet to liquids and pap which slip down before the mouth has had an opportunity of exercising its newly acquired functions.

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[1] THE LANCET August 17th 1901, p. 487

Mr. Sellors complains that I have not given any explicit directions as to the kinds of food I would give to the child. The reason is simple. I could not within the narrow limits of a letter deal with the subject in more than a general way. I hope, however, on an early occasion to enter into particulars, and to bring forward evidence which I believe will convince the most sceptical that the modern system of feeding the young human on liquid and pap, while denying him a fair proportion of food that needs abundant mastication, interferes with the proper development of the jaws and their appendages, and of the accessory cavities (the pharynx, nasopharynx, and nasal passages) and their appendages; that it is an abundant source of indigestion; that it has much to do with the causation of adenoids; and that it is largely responsible for the ever-increasing prevalence of dental caries and other affections of the teeth. When we reflect upon the many evils which follow in the wake of these diseases—deafness, semi-idiocy, pulmonary disorders, to mention only a few—it must be admitted that my indictment against the system of pap feeding is a serious one. And such I intend it to be. I am, Sirs, yours faithfully,

Wimpole-street, W., August 25th, 1901. HARRY CAMPBELL.

"HARVEST BUGS."

To the Editors of THE LANCET.

SIRS,—In his interesting letter on the above parasites in THE LANCET of August 24th, p. 562, Mr. A. Maude states that he can find no reference to them in any text-book of medicine or dermatology. If he will turn to p. 864 of Dr. H. Radcliffe Crocker's "Diseases of the Skin" (second edition, 1893) he will there find a short account of the parasite and of its effects on the skin. It is indexed under "harvest bug." M. Mégnin, whose researches are well known, calls it in "Les Acariens Parasites" "*le Trombidion soyeux.*" Dr. Crocker also refers to the two American species of harvest ticks described by Professor Ritz of St. Louis. I have seen severe pustular and crusted lesions about the legs in two cases, both young women, who had received the attentions of the harvest bug.—I am, Sirs, yours faithfully,

Upper Gloucester place, N.W., August 27th. GEORGE PERNET.

THE USE OF A LINEN BAG IN ETHER ANÆSTHESIA.

To the Editors of THE LANCET.

SIRS,—The apparatus invented by Clover and variously modified since for the administration of ether is such an admirable one that I do not know that we need ask for a better as a medium for ether-giving save in one particular and that a most important one—viz, the rubber bag. Although obviously possessed of some objectionable features the rubber bag has been accepted as part and parcel of the necessity of things and remains as an unclean but indispensable despot in the administration of ether in this country. Without doubt the open method of giving ether on a mask or cone is too slow in its effect to be of real practical use, and it is this slowness which has necessitated the use of the bag in question. The argument is that to produce and to maintain ether anæsthesia you must have the asphyxial element present; to this end you must exclude air and thus the rubber bag. I believe this to be a wrong and mistaken conclusion, as I shall afterwards show. The objections I would make to the rubber bag are—first, that it is apt to produce more of the asphyxial element than is desirable—viz., cyanosis; and, secondly, that it is unclean.

As regards the first, considering that the *raison d'être* of the rubber bag is to introduce the asphyxial element, it is not quite fair to charge it with producing a lividity which is so far intended, but it often does more; even in the best of hands it occasionally produces cyanosis to a degree that cannot be otherwise than a strain on the right ventricle, and certainly begets a frothy condition which is undesirable even if it does not lead to further trouble. If it were possible to remove this reproach of cyanosis and its consequent troubles from ether anæsthesia nearly all the objections to it would be groundless, and this can be done by using instead of the rubber bag one made of linen which I have devised and describe below. The second objection, that of uncleanliness, has doubtless presented itself to every anæsthetist who ever thought of the condition of his rubber bag and yet I know of no way of avoiding it. It is no mere sentimental objection that the last patient who breathed into the bag was the subject of intestinal obstruction and had a foul fæcal odour in his breath or was a sufferer from carcinoma of the œsophagus or tonsils. For the last two or three years I have been in the habit of meeting these objections by rinsing out the bag well with water, some antiseptic occasionally being added, after each operation, thus ensuring as much cleanliness as possible, and so far as the avoiding of cyanosis is concerned I have dispensed with the bag when I could, allowing the patient to breathe through the open inhaler, resorting only to it when this proved insufficient. On the whole these means met the case fairly well, but while modifying the objections they did not entirely remove them.

In America where ether is the anæsthetic mostly in use a towel folded cone-shape and covered or not by a thin waterproof is employed and apparently does well, although it finds little favour in this country. Mr. Mayo Robson who was recently in the United States came back much impressed with this mode of administration and urged me to try it. It did not, however, appeal to me; it seemed lacking in precision after having been used to measuring the ether given through a Clover apparatus. It occurred to me, however, to substitute a linen bag for the rubber one and this has proved itself to be so well adapted for the purpose and so completely meets the objections to the ordinary rubber bag that I should like to call the attention of the profession to it. I have tried it now in a sufficient number and variety of cases to enable me to pronounce it a success. The bag is made of a fine linen known as "holland" and is shaped somewhat like the ordinary bag. The body of the bag I have had made of three pieces accurately sewn together, a collar of the same material with a tape attached to be slipped over the ordinary Clover bag-mount and tied there completes it. As may be guessed this bag does not fill and empty, as does the rubber one, to the breathing of the patient, it is simply put on in a "bunched out" condition and only a slight rise and fall tells of the expiration and inspiration. My experience with it is that the patient goes under very quietly, I may say with almost suspicious quietness; there is none of the usual noisy breathing, almost no salivation, and absolutely no lividity. Abdominal heaving is also absent, the anæsthesia is as quiet as with chloroform. The time occupied to produce anæsthesia is, of course, longer than with the rubber bag, varying from seven to 12 minutes. The corneal reflex seems to be lost disproportionately soon. The amount of ether consumed is also considerably more, during the first 15 minutes about twice as much being used, but in a prolonged anæsthesia the disproportion is not so great, as will been seen in a note of the appended cases. There is another very great advantage in the use of the linen bag in that the anæsthetist holds a trump card, so to speak, in the shape of his chloroform drop-bottle. Should the patient prove hard to anæsthetise or threaten to come round he can sprinkle a little chloroform on the bag, selecting by preference the place where the linen shows the most marked rise and fall of the breathing. A fresh bag or freshly-washed bag is used for each case; it can be slipped on to the ordinary Clover mount and tied in position in half a minute. In practice I turn the Clover gradually, but compared to the old mode rapidly, on to full and keep it there or thereabout till sufficient anæsthesia is produced. Later a less concentrated vapour will be found enough. Perhaps one is usually inclined to over-value one's own discovery, but in this case I do not think that I make too much of it in saying that it ought to supersede the rubber bag completely. A fresh, clean, aseptic bag for each patient is a thing to be desired when it can be had at the cost of washing. The entire absence of even lividity will commend it to every anæsthetist and the possible resort to chloroform in addition, without change, is a happy incident. I may say that the bag has been used by several other men here with the same good results. The bags can be had from Messrs. Reynolds and Branson and Mr. R Rauschke of this city. I might add that for further asepsis the Clover chamber can be boiled or immersed previously to operation in a 1 in 20 hot carbolic solution. The mask I am having made of thin brass, nickelled, with a detachable red rubber face-pad so that the whole can be rendered as sterile as the operator's instruments.

Note of Cases.

Date.		Operation.	Amount of ether.	Time of administration.	Average time per ounce.
July	1st.	Choledochotomy, &c.	11 oz.	1 hr. 40 min.	1 oz. in 9 min.
,,	2nd.	Nephrectomy.	5 ,,	1 ,, 45 ,,	1 ,, ,, 9 ,,
,,	2nd.	Appendectomy.	4 ,,	1 ,, 40 ,,	1 ,, ,, 10 ,,
,,	3rd.	Ovariotomy.	7 ,,	1 ,, 48 ,,	1 ,, ,, 7 ,,
,,	6th.	*Gastro-enterostomy.*	4 ,,	1 ,, 40 ,,	1 ,, ,, 10 ,,
,,	10th.	Exploratory and colotomy.	4 ,,	1 ,, 35 ,,	1 ,, ,, 8 ,,
,,	10th.	Breast amputation	4 ,,	1 ,, 45 ,,	1 ,, ,, 11 ,,

In all, I have had some 50 cases similar to the above; average time to procure anæsthesia being 10 *minutes*; average amount of ether being one ounce per eight minutes.

I am, Sirs, yours faithfully,

W. McGREGOR YOUNG, M.A., M.D. Glasg

Leeds, August 27th, 1901.

"THE TREATMENT OF PHTHISIS BY MEANS OF ELECTRICAL CURRENTS OF HIGH FREQUENCY AND POTENTIAL."

To the Editors of THE LANCET.

SIRS,—In your excellent report of my paper on the above subject, which I read before the Medicine Section of the British Medical Association at Cheltenham, I am reported to have said: "He did not think the bacilli were killed by the current." The bacilli are not killed but are stimulated to *very excessive overgrowth which affects them adversely by* attenuation. The bacilli act in the following manner. Within a few days they begin to *increase* and after a week or two become greatly increased in numbers; they soon form clumps and later get misshapen, *short and stumpy*, and generally curved, and stain far more readily than before. After a time they decrease, and later, when the patient is obviously better in every respect, they may cease entirely, but a few may reappear from time to time. At a stage of the treatment large numbers of leucocytes, &c., are generally found. The temperature naturally follows the increase in numbers of the attenuated bacilli and increase in body weight follows the decrease of bacilli.

I am, Sirs, yours faithfully,

CHISHOLM WILLIAMS.

Bedford-square, W.C., August 24th, 1901.

MASSAGE IN JOINT INJURIES.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of Feb. 2nd, 1898, p. 465, I explained and advocated a treatment for certain recent injuries of joints by *massage and movement.* I have now the pleasure of noting that some of the more prominent members of the medical profession have adopted and are endorsing the views which I then put forward—views which I had not seen had been previously advocated. Last year Mr. (now Sir William H.) Bennett spoke favourably of the treatment and this month at the meeting of the British Medical Association held at Cheltenham Mr. Howard Marsh has been giving it his general approval, so that we may fairly anticipate that it will come, with more or less modification, to be generally adopted by the profession. Mr. Marsh says, "The after-treatment of dislocations has of late years undergone a great and very advantageous change. In the case, e.g., of the shoulder-joint the arm is no longer bandaged to the side for a fortnight or three weeks, but passive movements and massage are regularly used after the second or third day." This is a line of treatment which very nearly corresponds with the principle I advocated nearly three and a half years ago. I hold that a welcome result of the adoption of this line of treatment will be a great lessening of the bone-setting industry, the annoyance of which to the profession is well known and whose operations have often been attended with a certain measure of success, in my opinion chiefly owing to the former faulty treatment of these injuries.

One of the most interesting and successful cases which I have treated on the above principles was the case of a volunteer who dislocated his right elbow. *His forearm was at right* angles to its proper position and the bones of the forearm were *so much displaced that there was great danger of the* skin rupturing. The ligaments must have been very much injured. Although there was a good deal of inflammation and swelling afterwards I persevered in the treatment, so *that within a* comparatively *short time he was at work,* and now his joint is as good as it ever was.

I am, Sirs, yours faithfully,

Galashiels, August 26th, 1901. WILLIAM DOIG, M.D. Edin.

THE TEMPERATURE OF INGESTA AND ITS INFLUENCE.

To the Editors of THE LANCET.

SIRS,—I have never met with any observations on the temperature of food and drink as taken into the body under ordinary circumstances. It may be of some interest to call attention to the matter now that the hot weather is upon us and one's efforts are directed towards keeping cool. Temperatures which cannot be borne by the external *skin* are easily tolerated by the mucous membrane of the alimentary tract to an extent which may surprise *many.* For example, taking an ordinary typical meal, I found that the following temperatures were registered (Fahrenheit): meat, 115°; *beans,* 132°; *potatoes,* 150°; and fruit pie, 130°. Any of these were well borne by the mouth, even the potatoes. I found that the average temperature of hot tea was 135°, above this the tea could be sipped up to 142° but could not be drunk with comfort. It was impossible to keep the finger in contact with any of these articles for more than a moment. These few figures will suffice to emphasise the lesson which I wish to draw, that if we want to keep cool hot meals should be avoided. They also help one to realise that the stomach may be seriously affected by taking our food at such high temperature, as witness the frequency of gastric ulcer in cooks supposed by many to be due to the tasting of hot dishes.

I am, Sirs, yours faithfully,

JAMES ROOTH, M.R.C.S., L.R.C.P.

Oxford, August 25th, 1900.

"HAY FEVER: ITS REMEDY."

To the Editors of THE LANCET.

SIRS,—In answer to Mr Lennox Browne's suggestion in THE LANCET of August 24th, p. 565, of tabloids of suprarenal extract for use in hay fever, I may say that I gave them a fair trial about 18 months ago but ceased using them owing to the great difficulty in dissolving them in water. I have for the past 12 months used the *mixture* of chloretone and suprarenal, a preparation which I find does not decompose for a long time; if the mixture is diluted more chloretone *should be added to insure* preservation. Dr. Clement Dukes does not state what class of cases of hay fever are benefited by the use of adrenalin chloride; my experience teaches me that only those cases with some intra-nasal abnormality—e.g., hypertrophic rhinitis, spurs, &c.—are improved by the use of extract of suprarenal capsule and a large majority of these patients can be permanently relieved by suitable intra-nasal treatment

I am, Sirs, yours faithfully,

Lincoln. A. STANLEY GREEN, M.B., B.S. Lond.

RE "BLUE URINE."

To the Editors of THE LANCET.

SIRS,—I have just learned that the cause of "blue urine" in a case reported in THE LANCET of June 1st, 1901, p. 1535, was due, after all, to a pill of methylene blue given my patient for the pains in his back by a friend who takes them "for his kidneys." My patient had not the least recollection of the incident and was much alarmed at the consequence Hence his persistence in awaiting my return from visiting. My patient's statements were quite *bonâ fide* and I consider my diagnosis, though erratic, quite justifiable.

I am, Sirs, yours faithfully,
JOHN GOOD.
Stockport, August 23rd, 1901.

"THE TIMES ARE TROUBLOUS."

To the Editors of THE LANCET.

SIRS,—Under the above heading "G. P." in THE LANCET of July 27th, p. 229, mildly describes the lessening income of the profession. I think his letter is admirable on all points but that of describing how hospitals diminish our incomes in manufacturing districts which he has omitted. England's population, I may say, is a working-class one and it is with working people we have largely to deal and all look to the cheapest and easiest way to procure medical aid; hence employers of labour find that the cheapest and readiest means of cheapening the employer's liability is to subscribe to the local hospital if there is one, and if not, to found one, so in that way their pockets do not suffer by the Act. Again, the working man objects to approach the medical man's well-painted hall-door, and in preference to bringing his minor ailment there he finds a shilling lotion or a bottle of physic from the chemist does all he requires. Minor ailments the chemist prescribes for and thrives on, hence he lives; and the medical man who paid for his profession becomes a squire at the expense of his wife's fortune or industry. Quite satisfied with this state of affairs the medical man of to-day has little thought for his poorer brethren whom apparently he detests and will persecute, whereas the chemist who is his enemy oftentimes he befriends and publicly approves of his prescribing qualities rather than help his brother who loves and lives by his profession.—I am, Sirs, yours faithfully,

August 21st, 1901. COLCHESTER SHILLING.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The Continued Rise in the Plague Mortality.—Enormous Expenditure on Famine Relief Works.—Medical Officers remaining in China.—"Sutti."—The Report of Plague in Calcutta.

THE plague mortality for India continues to rise. For the week ending August 3rd 2003 deaths were reported compared with 1912 for the previous seven days. In the corresponding week last year the deaths were only 259. The Bombay Presidency is the chief sufferer and returns 1730 deaths with in addition 136 deaths for Bombay city. There has been a gradual increase in this city for some weeks past. The Mysore State (especially Mysore city) has been also severely attacked and reported 109 deaths for the past week. Dropping cases continue in Karachi, and the general mortality in Poona is ominously rising, although up to the present only a few cases have been discovered. Calcutta continues to return between 10 and 20 cases each week, but the general mortality has been exceptionally low for more than a month.

The magnitude of the relief works undertaken during the late famine is shown in the expenditure on relief works controlled by the Public Works Department, which amounted to Rs. 22,297,856 (equal to nearly a million and a half sterling). Of this amount 97 lakhs were incurred in Bombay, 91 lakhs in the Central Provinces, 21 lakhs in the Punjab, and 12 lakhs in Rajputana. There were 29 lakhs spent on irrigation works and nearly 131 lakhs spent on "communications," 29 lakhs on railway construction, and 55 lakhs on "miscellaneous public improvements."

The following is a list of the medical officers remaining in China with the winter garrison. Principal medical officer: Colonel O'Connor, I.M.S. No. 15 British Field Hospital: Captain Browning, R.A.M.C., Captain Hayes, R.A.M.C., Captain Mitchell, R.A.M.C., and Captain J. E. Brogden, R.A.M.C. No. 3 Native General Field Hospital: Lieutenant-Colonel J. A. Burton, Captain F. D. Browne, Lieutenant V. H. Roberts, Lieutenant D. N. Anderson, and Lieutenant A. E. Walter. No. 51 Native Field Hospital: Major Moore, Captain Sargent, Captain Hunt, and Lieutenant G. C. Beamish. No. 57 Native Field Hospital: Major W. White, Major J. T. Ozzard, Captain H. R. Cleveland, and Lieutenant G. R. Stewart. No. 63 Native Field Hospital: Major H. Greany, Major Ricketts, Captain H. Wall, and Lieutenant W. E. McKechnie. Base Medical Store Depôt: Major J. T. Daly. 14th Sikhs: Captain E. H. Sharman. Hong-Kong Regiment: Lieutenant McGaw. 1st Batt. 4th Gurkhas: Captain Lindesey. 6th Burma Battalion: Captain R. G. Turner. 2nd Rajputs: Captain C. Hudson. 30th Bombay Infantry: Captain G. McPherson. On special service: Major C. C. Manifold All the above, with the exception of the British field hospital, belong to the Indian Medical Service.

The census returns show that the European population within the limits of the Calcutta municipality was 8152, of of whom 2203 were females. There are 1098 more in Howrah and some 250 more in the suburbs. These figures are exclusive of British soldiers who numbered 1450.

The practice of "sutti," or the burning of a widow on the general pyre of her husband, having been made a crime for over 70 years by the Indian Penal Code, is now seldom heard of. A recent case, in which the act of suicide by the widow was aided and abetted by caste-fellows of the widow, shows that the desire to revive this terrible practice is not yet extinct. The husband had died from plague.

The report on plague in Calcutta during the past year has been supplied to the press. The outbreak this year seems to have coincided in season and duration with that of last year, and the mortality has been very similar. There were 7016 deaths and the case-mortality was 90·5 per cent. This is much the same as before and indicates that a large number of living cases fail to come to the notice of the authorities. Subsidiary reports by the district plague officers form a special feature of this issue There is, perhaps, nothing new recorded, yet the information collected is interesting. The course of the outbreak is clearly recorded by charts, and although the report is much shorter than that of last year it is condensed by the avoidance of repetition. One fault, however, lies in the selection of arbitrary dates for the commencement and ending of the recent outbreak, so that it is with difficulty figures for corresponding periods in previous years can be compared. The evidence as to the value of disinfection is very meagre and it would almost seem that the disinfection as practised had been a failure. It is also certainly unfortunate that only 107 persons were inoculated during the entire outbreak.

Calcutta, August 5th.

THE WAR IN SOUTH AFRICA.

(BY A SPECIAL CORRESPONDENT.)

THE Imperial Yeomanry Hospital has during the past month been very full and it has sometimes been difficult to find room for the different convoys as they arrived, and to do this beds vacated in the morning have been filled in the afternoon. The majority of the cases are of slight ailments Enteric fever is dying down again after the winter months, and although fresh cases are continually cropping up they are comparatively few in aggregate numbers.

On July 31st Surgeon-General Wilson, A.M.S., inspected the Imperial Yeomanry Hospital and expressed himself as delighted with the arrangements of the hospital. Together with Lieutenant-Colonel Kilkelly, R.A.M.C. (Grenadier Guards), and Dr. H. D. Rolleston and the members of the medical and surgical staff he visited the different sections of the camp. Whilst passing through the enteric fever division he came across an officer who some months before had passed through a previous attack at Deelfontein and he remarked that he had seen several patients who had had two or three attacks of enteric fever, in some cases ending fatally. He went on to say that this was a very strong argument against any system of preventive inoculation ever being of any service.

Passing on to the medical section, giving a kindly word of encouragement to the different patients as he passed, he arrived at the ward set apart for dysentery cases, where Dr.

G. E. Richmond, by the kind permission of Lieutenant Colonel Kilkelly and Dr Rolleston, had been enabled to test the efficacy of the new treatment of this terrible complaint by sulphur Several patients were pointed out to him who had been admitted passing from 20 to 30 motions a day consisting of nothing but blood and mucus, who had been practically cured in two or three days by the administration of 20 grains of sulphur combined with five grains of Dover's powder The fact that after treatment with sulphur relapses and chronic diarrhœa were less likely to occur was considered to be a valuable factor in favour of the new treatment. Several cases of chronic diarrhœa following dysentery were shown which had greatly benefited by a course of sulphur

After visiting the general offices, kitchens x ray room surgical divisions, and sanatorium for the reception of phthisical patients, Surgeon General Wilson expressed his entire approval with the arrangements and hoped that he would be able to keep on the hospital as a Royal Army Medical Corps Hospital when the Imperial Yeomanry Committee gave it up There are rumours that the Imperial Yeomanry Hospital at Pretoria is to close on Sept. 30th, and that the hospital at Elandsfontein, which is now being enlarged to 100 beds will carry on the work of the Imperial Yeomanry Hospital in South Africa until the war is at last finished

Eastwood Arcadia August 2nd

MANCHESTER

(FROM OUR OWN CORRESPONDENT)

Guardians and Vaccination Prosecutions

AT a meeting of the Burnley Board of Guardians held on August 21st a resolution was passed by 21 votes to nine, four members not voting directing the vaccination officer to abstain from prosecutions until the guardians authorise him specially to do so " It is possible, perhaps, to see what the mover of the resolution meant to say in spite of the confusion as to grammar under which he was suffering, for he said "the vaccination committee instructed their officer last June not to take any further proceedings and yet he had recently summoned a number of parents in defiance of those instructions" Mr Jenner Fust who was present, pointed out that the resolution would be without any power and would leave the vaccination officer in exactly the same position as before, and read an extract of a circular of the Local Government Board which stated that "having regard to the decision of Mr Justice Wright in the leading case on the subject, and the opinion given by the law officers of the Crown, the duty of instituting and conducting proceedings was imposed on the vaccination officer," under the Vaccination Acts passed before the Act of 1898 He also explained to the guardians that it was the duty of the vaccination officer to take proceedings without any order from them, but that it was their duty "to see that he did so, and if he did not to report it to the Local Government Board." In spite, however, of the opinion of Mr Justice Wright and the law officers of the Crown and of the clear exposition of Mr Jenner Fust these sapient but ungrammatical guardians passed the resolution from which the essential part has been quoted In order to stultify themselves still further a second resolution was passed "requiring the vaccination officer to request leave of the magistrates to withdraw the summonses against six parents which have already been before the court and adjourned " The serious part of the matter is the open defiance of the law by the Burnley Board of Guardians and the unpleasant position of the vaccination officer who is thus incited and indeed required, by his board to break the law

The Water supply of Manchester

The continuation of dry weather keeps the water supply of Manchester too low to be quite satisfactory and it is still thought advisable to stop the supply at night. There is no doubt plenty of water in Thirlmere but only one pipe is available and it will be some time before more can be obtained from that source The old reservoirs at Woodhead have therefore as yet lost none of their importance. It was stated the other day that altogether there was only enough water for 38 days The weather seems now to be breaking and there promises to be abundance of rain, so that it seems unlikely that the present restrictions will have to be increased. The dry weather has affected the milk-supply, and the other day a man who was fined 40*s* and costs at the City Police Court pleaded that he was losing customers from inability to supply them and that the water added to the milk "was not put in for fraud, it was only to prevent ruination " The scarcity of water has led to a second appeal from the chairman of the Bury and District Joint Water Board for the exercise of caution in its use It is stated that the ground is so dry that recent rains have not reached the reservoirs A wide area is affected, including Bury, Radcliffe, Whitefield, Haslingden, and Rawtenstall In the last named 120 houses on one estate supplied from a local reservoir which is now completely dry are it is said, "completely without water "

Mid Cheshire Isolation Hospital

Mid Cheshire has long been dallying with the question of providing an isolation hospital for infectious diseases and has succeeded almost as well as a Chinese or Turkish diplomatist could have done in postponing the establishment of one for several years Last November, however, the Cheshire County Council made an order that the Northwich Rural Council and the Northwich Winsford, and Middlewich Urban Councils should be formed into a joint hospital district and should erect a hospital This was to have come into force last January but nothing has been done On August 22nd a communication was received by the clerks of the various councils confirming the order made by the Cheshire County Council, producing, it is said something like consternation in Mid Cheshire The order comes into force on Sept. 1st and will necessitate the expenditure of £15,000, or, as some say, £20 000 Should a hospital satisfactory to the county council not be erected within a year the present hospital committee of 14 will be replaced by one of 18 members, 10 to be elected by the county council and eight by the four local councils interested The committee thus constituted would no doubt be strong enough to overcome the hitherto successful *vis inertiæ*

Anthrax in Cheshire

An outbreak of anthrax has occurred at a farm in Cheshire where 100 cows are kept and from which large quantities of milk are sent to Manchester Three cows and a pony are stated to have died from the disease Every precaution as to isolation has been taken "and American food stuffs are being analysed " So far the cause of the outbreak has not been discovered

August 27th

WALES AND WESTERN COUNTIES

(FROM OUR OWN CORRESPONDENTS.)

Diphtheria in Bristol in 1900

IN his recently issued annual report to the council of the city of Bristol the medical officer of health, Dr D S Davies deals at some length with the outbreak of diphtheria which prevailed in Bristol during 1900 There were notified during the year 512 cases, and 103 terminated fatally, the case mortality being 21 per cent. and the death rate 0·3 per 1000 of the total population. In the whole of England and Wales the death rate during 1900 from diphtheria was 0·29 per 1000 In addition to the 512 notified cases material from 318 other suspicious cases were examined with negative results The economic value of this bacteriological examination is thus very markedly demonstrated for without such examination the city authorities would have been put to the expense of keeping these 318 cases under observation carrying out disinfection and possibly removing a certain proportion to hospital Mr J C Heaven first drew prominent attention[1] to the persistent presence of the Klebs Löffler bacilli in the nasal cavities and Dr Davies in endorsing this view considers that the bacilli may exist and often do exist, in almost pure growth in the nasal cavities of school children who have been exposed to the infection without affecting the throat and without producing any constitutional symptoms or any obvious signs of illness but capable of spreading the disease to other susceptible persons Dr Davies deplores the lack of isolation accommodation in the city and considers that if it had been possible to secure isolation at an earlier period of the outbreak many lives might have been saved. Antitoxin was supplied gratuitously by the corporation to those persons unable to pay for it. Only 70 of the 512 cases were removed to the Ham Green Fever Hospital, and of these 12, or 17 per cent., terminated fatally.

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[1] Public Health vol viii, p 211

The New Dietary at Cardiff Workhouse.

At the meeting of the Cardiff Board of Guardians held on August 24th the master of the workhouse reported upon the cost of the new dietary and stated that, based upon the experience of the three months during which the dietary had been in operation the additional cost of its adoption would amount to £145 per annum. He further said that there was a much more varied diet, almost a free table so far as the supply of bread was concerned, scarcely any waste of bread, no complaints from the inmates, but some extra work for the officials. At Bristol the estimated saving amounts to over £500 yearly.[2]

Death of Mr. John Griffith Lock.

By the death of Mr. J. G. Lock, M.A. Cantab., L.R C.P. Edin., M R.C.S. Eng., L.S.A., J.P., at Tenby on August 18th the medical profession is South Wales loses one of its most prominent members. For two years he had borne with patient courage an illness resulting from malignant disease of the tongue and which he himself was well aware could terminate only fatally. Mr. Lock was born in the year 1840 in Tenby where his father acted for many years as town clerk. He was educated at Harrow and at Trinity College, Cambridge, taking his degree as Master of Arts in 1866. He received his medical education at Addenbrooke's Hospital and at St. Bartholomew's Hospital where he was resident obstetric officer in 1867 and house physician in 1868. In the latter year he began to practise in Tenby and in 1873 was appointed by the corporation as the first medical officer of health to the borough, a position which he resigned early in the present year. To him is no doubt due in a great measure the admirable system of drainage and the plentiful supply of water which have been provided for Tenby. The Tenby Cottage Hospital was established in the year 1871 almost entirely through Mr. Lock's instrumentality and he always took the greatest interest in the welfare of the institution. He had an extensive practice among the residents and visitors of Tenby and of the surrounding district, and was one of the poor-law medical officers for the Pembroke Board of Guardians. Mr. Lock was an ex-president of the Monmouthshire and South Wales Branch of the British Medical Association, and a justice of the peace for the county of Pembroke. In 1882 he was W M. of the Tenby Lodge of Freemasons, and also held office in the Five Arches Lodge of Mark Master Masons and as P.P.G.R. of the Province of the Western Division of South Wales. Many of his colleagues who have from time to time visited Tenby have reason to remember with gratitude the manner in which Mr. Lock looked after their welfare during their sojourn in the town. He had a charming personality and a most unselfish thoughtfulness for the comfort of others. He was twice married, and his second wife survives him. The funeral, which took place on August 20th, was of a public character and is said to be the largest ever witnessed in Tenby.

August 26th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

Sanitary Association of Scotland.

THE twenty-seventh annual congress of the Sanitary Association of Scotland is to be held at Paisley on Sept. 5th, 6th, and 7th. The President will be Dr. R. Farquharson, M.P., of Finzean, and Professor John Glaister (Glasgow) and Mr. K. Cameron, chief sanitary inspector, Aberdeen, will be vice-presidents. The presidential address will deal with the subject of Domestic and Official Sanitation. Professor M. Hay, M.D. Edin., medical officer of health of Aberdeen, was to have opened a discussion on the Value of Hospital Isolation in the Case of Scarlet Fever, but he will be prevented from attending. The annual dinner will be held in the Grosvenor Restaurant, Glasgow International Exhibition, on Sept. 5th.

Aberdeen Medical Practitioners and the Drug Trade.

Those medical men in Aberdeen who have drug shops in addition to their professional business are, it is understood, to take no notice of the deprecation of such practices published in THE LANCET by the senatus of Aberdeen University. With the absence of epidemics trade in all drug shops in the city is at present very dull.

Common Lodging-houses in Aberdeen.

Aberdeen Town Council has resolved to apply to the Local Government Board for Scotland for authority to raise the minimum charge from 4*d.* to 6*d.* per night, so as to include more premises in the category of "common lodging-houses" as defined in the Scotch Public Health Act. This new departure may lead to some increase of business at the corporation lodging-house—which, in fact, is financially a white elephant—but has been anticipated by several individual proprietors of lodging-houses for the nomade or poor class having previously raised their charges to 7*d.* per night.

The British Association at Glasgow.

The arrangements for the meeting of the British Association which will commence at Glasgow on Sept. 11th are now in a forward condition. The university authorities have placed all the buildings at Gilmorehill at the disposal of the Association and there will in this way be provided ample accommodation for the various sections as well as for those charged with organising and executive duties. The municipality have taken an active share in the necessary arrangements and many of the distinguished scientific visitors will be entertained by private citizens. The new President, Professor A. W. Rücker, will deliver his address on the evening of the 11th and this, of course, will be the first official meeting of the Association. On the afternoon of the 12th Professor and Mrs. Cleland will give an "At home" on the occasion of the opening of the new anatomical class-room, laboratory, and museum at the university and in the evening the Lord Provost will officially receive the members of the Association at a conversazione to be given in the municipal buildings. Among the social functions of the meeting there will also be garden-parties by Lord Blythswood at the Botanic Garden, and by Lord Overtoun at his country seat at Overtoun. The attractions of the exhibition, which can now count upwards of 6,000,000 of visitors, will doubtless also receive some share of attention, more especially as the authorities propose to hold a conversazione in the new art galleries which are included within the exhibition grounds. As already stated, the sections are to meet at the University, but the President's address and the public lectures will be given in St. Andrew's Hall. The lectures already announced include one by Professor William Ramsay, F.R.S., on "Inert Constituents of the Atmosphere," and one by Mr. Francis Darwin, F.R.S. on "The Movements of Plants." Professor Mackinder of the Oxford School of Geography will give a special lecture to working men. The excursions are to be numerous, and several of them are to have a definite scientific object; the geological section, indeed, has organised a tour which is to extend over a week and is to include a visit to the famous geological formation at Assynt. Handbooks dealing with the scientific, industrial. and other features of Glasgow and the valley of the Clyde have been prepared and will be placed in the hands of members. All the omens suggest a highly successful meeting.

Report on Scottish Local Government.

The sixth annual report of the Local Government Board of Scotland contains a reference to the late outbreak of plague in Glasgow. Attention is drawn to the fact that the city local authority on the discovery of the first case of plague at once directed all their resources to prevent the extension of the disease, and with the gratifying result that the epidemic was confined to a single district of the city, with the exception of two cases which occurred in the neighbouring borough of Govan. Excluding three fatal cases of probable plague, but including the Govan cases, it is found that there were in all 29 patients attacked by the disease, of whom nine died, the first on August 27th and the last on Oct. 6th. On Nov. 5th the medical officer of Glasgow was able to report that the last case had been dismissed from the hospital, and an order by the Board declaring the port free from plague infection was issued on the 14th. In transmitting this order to the local authority at Glasgow the Board recorded their high sense of the skill and energy with which the outbreak had been met, and expressed the opinion that Great Britain was under a heavy obligation to Glasgow for the promptitude and efficiency of the sanitary measures taken in the presence of a national emergency.

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[2] THE LANCET, August 24th, 1901, p. 567.

The late Dr. Adam Lawson Kelly, Glasgow.

By the painfully sudden death of Adam Lawson Kelly, M.D. and L.F.P.S. Glasg., on August 18th there has been removed from the profession one of the most experienced practitioners of the generation now gradually disappearing from view. For nearly 40 years Dr. Kelly conducted an extensive practice among patients of all ranks and classes, and by his skill no less than by his genuine kindliness of heart won the affection and confidence of a larger circle than it is given to most men to command. His busy life did not exclude a practical part in the general interests of the profession, as is shown by the fact that Dr. Kelly was elected by his brethren to offices of honour and trust in the Faculty of Physicians and Surgeons and to a seat at the board of Anderson's College Medical School. The tribute of regard and respect which is paid to his memory must needs include a word of admiration for the courage with which some 20 years ago he faced a serious financial position due to a disastrous bank failure. But this, indeed, was the man—gentleness with strength.

August 28th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Prison Statistics in Ireland.

THE twenty-third annual report of the General Prisons Board in Ireland, which is dated July, 1901, has just been issued in the form of a blue-book. The number of criminal prisoners committed to the local prisons during the year with which the report deals was 32,924, the daily average number in custody being 2393. Compared with the previous year these figures show a reduction of 3198 in the number of committals and of 221 in the daily average in custody. There were also 58 committals to local prisons under civil process. As in past years the sentences on local prisoners have for the most part been for very short terms, those of one week or less amounting to 42 per cent. of the total number of committals. Under the heading of juveniles, which include all prisoners below the age of 16 years, 309 committals are mentioned, this number being a small increase over any of the totals for the past five years. The report shows a considerable increase in the number of naval and military prisoners, a state of things which is no doubt due to an increase in the number of miscellaneous troops under arms and the extensive scale on which the naval manœuvres were carried out. Under the Inebriates Act of 1898 a State reformatory was opened at Ennis in June, 1899, part of the county Clare prison having been altered for this purpose. The board's report on the institution shows that during the year which ended on March 31st, 1901, six male and 10 female habitual drunkards were admitted to the reformatory under the care of Dr. George Faris, the medical officer, whose interest in the work is specially noticed. Of this number one male patient has been discharged in consequence of ill-health, one female has been certified insane, and one female has terminated her period of detention.

The Meat Traders on Tuberculosis.

Under the somewhat novel heading, "Decrease of Tuberculosis," the *Irish Times* of August 27th conta[illegible] ing communication f[illegible] of his contention a[illegible] British Congress on [illegible] decreasing although the consumption of meat was increasing. In reference to the decrease of tuberculous disease in man he quotes Dr. Arthur Ransome's "Researches on Tuberculosis," 1867-1895: "Grouping all forms of tuberculosis together it may be concluded that an enormous decrease in the disease has taken place; a decrease that means the saving of at least 75,000 lives every year in the present population of England and Wales—three-quarters of a million persons within the last decade." As to the increase in the consumption of meat, he quotes from the Board of Agriculture returns, 1898: "That the consumption of meat per head of population in the period 1876-80 averaged 112 pounds." From the same official returns for 1897 it appears that the consumption of meat per head of population had increased to 131 pounds. Mr. Field states that the meat traders—of whom he is a representative one—desire scientific inquiry, believing that it will prove their contention that localised animal tuberculosis is not communicable to man through the medium of cooked meat. He states, moreover, that they earnestly protest against the confiscation and destruction of sound food and the enormous injury caused to the animal industry of the three kingdoms by measures which are really unnecessary to the preservation of the public health.

Nurses at the Belfast Workhouse.

A long discussion took place at the weekly meeting of the Belfast Board of Guardians on August 20th on the subject of the nurses in the workhouse. It came out in the debate that among the probationers resignations were numerous and it was suggested that it was due either to the fact that everything was not made as comfortable for the nurses as might be, or that nurses after being trained left for more remunerative engagements. It was decided that the infirmary committee should be asked to inquire into the whole matter. It was stated that eight of the nurses were suffering from typhoid fever.

The Belfast Lunatic Asylum.

From the annual report of Dr. W. Graham, resident medical superintendent of the Belfast Lunatic Asylum, for the year ended Dec. 31st, 1900, it appears that there were in the asylum on Dec 31st, 1899, 499 males and 408 females, making a total of 907, while during the year 1900 there were admitted 198 males and 181 females, making a total of 379 admitted. As a result 697 males and 589 females, a total of 1286, were under treatment. 124 persons were discharged and 71 died. The unusual number of admissions (379) is due, to a considerable extent, to the transference of 188 cases from the Belfast Workhouse, the largest number ever received from that institution. There is no doubt that 379 admissions show that insanity is not on the decline as it is an increase of 50 per annum out of a population of 350,000. Dr. Graham wisely combats the view that it should in a pessimistic vein be said that nothing can be done as all this increase is due to heredity; he shows that heredity only means that men are born with a tendency to this or that disorder, and that, under proper conditions, in many instances such tendencies may remain only such and never become actualities. It is from a study of the "proper conditions" that the most fruitful results in the reduction of lunacy may be fairly anticipated. Our duty is to let the people know what are the physiological laws which govern and regulate health so that those with a predisposition to insanity may so order their lives that their nervous system may be better fitted to resist the invasions from without, or the development from within, of those toxins which frequently give rise to mental aberration. It is in this connexion worth noting that the increase in the number of insane persons obtains not among the upper and upper half of the middle classes, but mainly in the ranks of the poorest and most uneducated of the people; hence, Dr. Graham thinks it may be assumed that the bulk of mental derangement is due to neglect or violation of fundamental hygienic laws. He is afraid that among the working classes higher wages and shorter hours mean only increased facilities for self-indulgence, as there is not the slightest proof that the improvement in the prospects of the lower classes has led to a greater degree of self-control. Reference is also made in the report to the great event in the history of the asylum of the past year—the acceptance by the committee of the principles of the villa colony system, which is a great step in advance. The gross expenditure for the financial year was £23,371 5*s.* 6*d.*, being a capitation cost of £24 18*s.* 5*d.*, or an increase of 15*s.* 1*d.* on the preceding year; this slightly increased cost being due to the higher prices paid for fuel and provisions.

The Royal Victoria Hospital, Belfast.

At a meeting of the construction committee of this hospital, held on August 23rd, the architect made the gratifying announcement that the builder was making such satisfactory progress, and was so far ahead of his time-limit—a most unusual circumstance—that it was probable that in another year the new hospital might be ready. It is now quite possible to get a fair idea—the building having proceeded so far—of the anatomy and proportions of the new hospital, and those who have taken a deep interest in the matter feel that the Royal Victoria Hospital, in its structure as well as in the manner of its heating, lighting, and ventilation, will be unique, and will exercise a marked influence in the future construction of such institutions. It is rumoured that the King will come over early next year to fulfil his previous engagement in connexion with the hospital which was abandoned owing to the lamented death of Queen Victoria, to whom the present building is being erected as a memorial.

Poisoning by Sulphate of Copper.

Toxicologists will have to note that there is another risk of poisoning by sulphate of copper than those hitherto commonly recognised, and that is through the spraying of potatoes to prevent "potato blight." It appears from the evidence given at an inquest held in Ballymena on August 23rd that a farm-labourer, named James Gordon, was working on the farm of Mr. G. T. Graham, J.P., Ballee, Ballymena, on August 19th and 20th. He had a spraying machine strapped on his back and was spraying potatoes. On the 19th he complained before dinner of being sick; on the 20th he went home, partook of some supper (potatoes) at 7 o'clock, and retired to rest between 9 and 10 o'clock. In the early morning he was taken severely ill and Mr. Alexander Duncan of Ballymena, who saw him at 4.30 A.M. on the morning of the 21st, found him suffering from severe cramps all through his limbs and body, his heart failing, and his body covered with free perspiration. He died at about two o'clock in the afternoon of the 21st. He had a fresh wound on his hand which was perfectly blue with the "bluestone" which was chiefly sulphate of copper. Mr. Duncan said that if there were scratches on the hands of the person engaged in spraying potatoes, or if the person inhaled the spray, it might possibly produce the collapse. His evidence was that deceased had died from collapse following irritant poisoning. Dr. A. McN. D'Evelyn of Ballymena, who also saw the deceased, agreed with Mr. Duncan as to the cause of death, and said that to take food without washing the hands after being engaged with a spraying machine was extremely dangerous, and he believed, as it was a hot day, that in breathing in the fine vapour of the spray a considerable quantity of poison might have been absorbed. The jury, after recording that the deceased died "from collapse following upon irritant poison," possibly through the absorption of the mixture, sulphate of copper, used in the spraying machine which he carried and used on August 19th and 21st, added a rider that the evidence brought out by Mr. Duncan and Dr. D'Evelyn ought to be a warning to farmers and farm-servants not to engage in spraying potatoes with lacerated hands, or to blow down the pipe of a sprayer, or to take food without washing their hands thoroughly, as any of these practices is extremely dangerous, the bluestone used being an irritant poison. It is possible that the wearing of gloves or long gauntlets and a respirator might be a useful preventive.

Public Baths for Cork.

Owing to the sewage of the city being conveyed into the river lovers of swimming in Cork have been at a distinct disadvantage, being obliged to travel long distances when they desired to indulge in their healthful recreation. The municipality recently decided to rectify this state of affairs, and last week the Mayor officially opened very commodious baths in the centre of the city. One of the baths is free to the public and for use of the other a small fee is charged. All persons, preparatory to entering the swimming baths, are obliged to have a thorough wash in smaller baths specially set aside for the purpose. On the opening day swimming contests were organised by the officials of the corporation. Prizes were offered and there were several competitors. With a view to encouraging large numbers to use the baths it is proposed to hold similar contests periodically. It is pleasant to be able to record that on the second day as many as 2000 swimmers actually availed themselves of the opportunity and the attendants were kept unremittingly busy from early morning till night. A row of coloured tiles is arranged at the bottom of each bath to serve as a guide to divers, and, indeed, the city fathers are to be congratulated on having spared no expense in making the baths complete in every detail. The Mayor has made the very satisfactory statement that the fees received will not only cover all establishment charges, but will also pay the interest on the capital expended, while he points out that above all considerations of the kind are the immense advantages that must accrue to the health of the citizens at large.

August 27th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Dr. Calmette Bitten by One of his Snakes.

DR. CALMETTE, the director of the Pasteur Institute at Lille, has, as everyone knows, discovered a curative serum for the effects of snake-bite. This serum he prepares with his own hands in his own laboratory by immunising animals with successive doses of snake-venom. He was only the other day severely bitten by a trigonocephalus. This, however, was not due to any carelessness upon his part, for he takes every precaution in collecting the venom and has invented a kind of forceps which he introduces into the cage and with which he seizes the head of the snake so that it cannot escape. The cage is then opened and the snake being forced to open its mouth the venom, which appears in drops at the points of the fangs, is collected in a Pravaz syringe. Despite all precaution the forceps must have slipped, for Dr. Calmette was severely bitten on the right hand, and the venom of the trigonocephalus is extraordinarily rapid in its action. Dr. Calmette without delay gave himself an injection of his anti-venomous serum, but nevertheless the hand swelled up and acute fever set in; but by the afternoon of the same day Dr. Calmette was sufficiently recovered to attend a sitting of the Conseil-Général of the Department, at which he argued in favour of a grant in aid of the sanatorium which he has undertaken to found at Lille. On the following day he was perfectly well, having thus afforded in his own person, albeit unwillingly, a convincing proof of the efficacy of his excellent remedy.

A New Microbe Discovered in Dysenteric Patients.

Dr. Lesage of the Pasteur Institute has just announced that he has noted the presence of a new microbe in the blood of patients suffering from dysentery, a large number of whom he has had the opportunity of observing at the Saint-Mandrier Hospital at Toulon. The patients examined were cases of dysentery from China, Cochin China, Algeria, and a local form of the disease. The micro-organism appeared with great regularity, its number increasing as the disease progressed and diminishing with the return to convalescence. Without actually calling the microbe specific, it can at least be said that its development has a definite relation to that of dysentery and to that alone. It is very polymorphic, sometimes appearing as a micrococcus, sometimes as a streptococcus, but more often as a diplococcus, of which one portion is much smaller than the other. Dr. Lesage compares its appearance to that of a balloon with the car attached. The diplococcus is motile, shining, and surrounded by a white capsule which often contains many diplococci. It stains badly, is decolourised by Gram's method, and grows well in liquid culture media. On gelose it forms indefinite cultures having the aspect of a granular veil. It does not coagulate milk. In the living body it is found plentifully in the various intestinal discharges of dysentery, such as the mucous débris of the stools, and also in dysenteric sputum. On post-mortem examination it is found in all organs but most of all in pure cultures of the mesenteric nervous system and in the swollen mesenteric glands. It is also found in the ulcerated intestinal mesentery. Cultures injected under the skin of a rabbit or of a guinea-pig bring about fatal septicæmia without, however, any intestinal localisation. In the cat there is not only septicæmia but a definite localisation in the large intestine which shows exactly the same clinical appearances as occur in man, such as congestion of the mucous membrane. Dr. Lesage is about to publish a further communication containing more details. This should be of great importance considering how competent is the observer and the special knowledge which he possesses of the bacterial flora of the intestine.

Medical Heroism.

The announcement recently made by Professor Koch at the British Congress on Tuberculosis that bovine tuberculosis is not transmissible to man has not only been the means of evoking much surprise, but has also been the cause of sundry medical men offering themselves as subjects for an experiment with regard to a question which affects in the most marked manner the social hygiene of the whole human race. From Paris Dr. Garnault has written a letter placing himself at the disposition of Professor Koch for the purpose of experiment. At present Dr. Garnault has received no answer. In his letter he stated that he was 41 years of age, that he weighed over 100 kilogrammes, that his height was one metre 81 centimetres, and that his health was perfect. He added that he had no children and that he was anxious to submit himself for a tuberculosis experiment. In his opinion it was only natural that medical men should be willing to sacrifice themselves in such a cause for in wars men of far inferior education and mental capacity offer themselves by thousands in a much less noble cause. Although the lay press has nothing but praise for Dr. Garnault's heroic offer the medical press is more sceptical. Putting aside the fact that Professor Koch is not in the least likely to accept the responsibility of such a risky experiment—one moreover, which anyone has the right to make for himself without involving the German professor in the matter—the medical press in general points out that the sacrifice would be useless and would prove nothing. Dr. Garnault or any other person who tried the experiment might be refractory to tubercle, a reason which would be sure to be given if the subject of the experiment survived, while if he were to succumb plenty of people would say that he had contracted tubercle in some other method than by the inoculation. Some of the papers have revived the old idea of making the experiment upon criminals condemned to death, as did Ambroise Paré for his first operation of cutting into the bladder. That such an idea should have been formulated has, in my opinion, one good point—namely, that it will impress the public in a forcible manner, far more than any conference or pamphlet, with the importance of hygienic measures as a method for the prevention of tuberculosis.

August 27th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Serum Treatment of Tetanus.

AT a recent meeting of the Verein für Innere Medicin Professor Leyden showed a patient who had suffered from tetanus but who had been successfully treated by injections of Behring's antitoxin. The case was remarkable from the fact that the antitoxin was injected into the subarachnoid cavity of the spine. The patient was a stableman, 22 years of age, who had shown symptoms of trismus and tetanus for three days. Immediately after his admission into the Charité Hospital his spinal canal was punctured, 10 cubic centimetres of fluid were withdrawn and five cubic centimetres of antitoxin were injected. A similar amount was injected three days subsequently. After the injection the patient's temperature which had been 41° C. (105·8° F.) decreased on the same day to 38·5° C. and on the next day to 37·4° C. (99·4° F.). Previously to the administration of the antitoxin a subcutaneous injection of morphia was given and hydrate of chloral was administered afterwards. Professor Leyden said that according to his experience cases of tetanus in which the temperature rose to 41° C. were always fatal and that the rapid decrease of the temperature after the injection and the ultimate recovery of the patient were therefore due to the antitoxin. Another remarkable feature of the case was that there was no trace of a wound by which the infection might have been introduced. It is known however that horsedung contains tetanus bacilli and the patient being a stableman might possibly have contracted the disease by inhalation. The sputum was therefore examined microscopically, but the result was negative. Mice inoculated with the sputum showed no ill effects but after inoculation with the patient's spinal fluid they suffered from tetanus.

The "Practical Year" of the Medical Curriculum.

The new regulations relative to the State examination qualifying for medical practice provide that candidates after having passed the examination shall spend a year in practical work at a hospital or similar institution as a "practicant" and that diplomas shall not be granted until the "practical year" has been completed. The Minister of Public Instruction has recently ordered that only hospitals with at least 50 beds shall be privileged to receive practicants so that each practicant may have 25 beds. They will have to work not only in general hospitals but also in lying-in hospitals, in lunatic asylums, in hospitals for diseases and injuries of the eye, in children's hospitals, and in sanatoria for phthisical patients but not in hospitals or asylums for incurables. A portion of the practical year may be spent not in an hospital but in an institution where some department of medical science can be studied, such as in an anatomical or physiological laboratory, or in the dissecting room of a university or public hospital. The hospitals and institutions which receive practicants will be registered by the Government and a list of them will be published for the information of candidates.

Gonorrhœa in a Children's Hospital.

A sad state of matters has recently formed the subject of an article in a Berlin daily newspaper. It appears that in the Elizabeth Hospital for Children some of the patients are infected with gonorrhœa and that new cases have occurred within the last few days. The infection is said to have been introduced a year ago by three children suffering from internal complaints in whom the presence of gonorrhœa was not recognised at the time of admission. The disease spread notwithstanding the prophylactic measures adopted by the medical staff and within a year more than 40 children became infected. The announcement of these facts has created a sensation and in the newspapers the nurses, who belong to a religious corporation, are accused of inattention to cleanliness. The matron in an interview with a reporter said that the conditions which exist in some working-class families must be held responsible for the calamity which has taken place. She added that a good many children suffering from diseases of that description were admitted but that until now no case of infection of other children within the hospital had happened during the 27 previous years of its existence. The medical officer of health has inquired into the circumstances but it does not appear that he has found any responsible person to be at fault.

August 26th.

CANADA.

(FROM OUR OWN CORRESPONDENT.)

Annual Meeting of the Executive Health Officers of Ontario.

THE annual meeting of the Executive Health Officers of Ontario was held on June 25th and 26th in the city of Brantford, Ontario, under the presidency of Dr. W. T. Connell, pathologist of Queen's University, Kingston. An important discussion took place on small-pox and a number of representative physicians from different parts of the province united in testifying from their experience and observation that thousands of cases of so-called vaccination were utterly worthless as protection against the disease. The causes which can be ascribed to this are careless handling and administration by medical men, careless transportation by railways, but chiefly the desire of the manufacturers to carry the refining too far and, as one delegate put it, to sacrifice the practical for the scientific or commercial side of it. After a lengthy discussion the meeting appointed a special committee to look into the question and to report at the next annual meeting. In his annual address the president referred to the question of unsuccessful vaccination, stating that after investigating 5000 cases in and around Kingston, where the vaccine was supplied by practically only two firms, the results produced were exceedingly anomalous. Dr. Connell argued for the establishment of county laboratories and county medical health officers. Another important question which was fully discussed was the establishment of county sanatoria for the treatment of consumptives and an influential committee was appointed, one member from each county in the province, to look after the question of having by-laws submitted to the people for the establishment of these institutions. Dr. J. I. Kitchen of St. George was elected President and Mr. Thomas Macfarlane, chief dominion analyst, Ottawa, vice-president, Dr. P. H. Bryce being re-elected secretary.

Barbers' Association of the Province of Quebec.

In 1899 an Act was passed by the local legislature incorporating the Barbers' Association of the Province of Quebec which stipulated that every practising barber should become a member of the association and should submit to medical inspection of their shops and person with a view to prevent the spread of certain diseases and also to promote cleanliness and other sanitary conditions. At first the proposal was cordially received but now there seems to be no end of trouble over the interpretation of the association

Finally, after a trial of three years, a petition has been circulated requesting the Lieutenant-Governor to revoke certain sections of the Act which are said to bear heavily upon the journeymen barbers. The reformers declare that the so-called hygienic precautions are unnecessary, as cleanliness constitutes the only one to which the barbers can be restricted, and that the pretended medical examination has been a mere farce and was only designed for the purpose of extracting another $2 fee from the barber so examined. They consider that the barber so examined by a medical man may become contaminated from one moment to another, and to make such examination really useful and serious it would be necessary to examine the barber after each operation, which they deem utterly impracticable.

Anthrax in Eastern Ontario.

Recent reports received by the Department of Agriculture at Ottawa show that anthrax has broken out at several points in the province of Ontario. The disease is at yet confined to cattle and some horses, many of the former and some few of the latter having died from the disease, but fears are entertained that it may spread to human beings on account of the foolhardiness of a farmer who, contrary to the warnings of the local veterinary surgeon, sent hides from the dead cattle to a tannery near by, the employés of which are now under strict surveillance. Considerable difficulty has also been experienced in obtaining anthrax vaccine from the Pasteur Institute in Chicago, but that difficulty has at last been overcome and the Department of Agriculture is now in possession of a plentiful supply to cope with the outbreak.

Sanitary Regulations for Ontario Lumber Camps.

After the experience with which the provincial board of health of Ontario has had to contend for the past eight months in the northern portions of the province in checking an unusual epidemic of small-pox, the Ontario Government has deemed it prudent to adopt special regulations of a sanitary character, with a view to safeguarding the health of employés of such places as lumber camps, saw-mills, mining camps, railway construction camps, smelting works, &c. There are over 400 unorganised townships in the northern part of Ontario, stretching from the Ottawa river on the east to the province of Manitoba on the west, a distance of 1200 miles, a section which contains over 100,000 people; and it is especially for the safety of the health of these people that the Government has thought fit to provide for outbreaks of contagious diseases and for the hygienic conditions of camps, works, &c. The regulations will seek to hold the owners, managers, or foremen responsible, and these or the medical officer present will have to report direct to Toronto should small-pox or any other contagious disease appear in their midst.

Ottawa Contagious Diseases Hospital.

For some years now Ottawa has been struggling to establish a proper hospital for the reception of persons who are the subjects of contagious or infectious diseases, but up to the present time these efforts have proved ineffectual. A cottage hospital was erected in the Rideau river several years ago, but on account of there being a liability to inundation from spring freshets, the site was condemned by the provincial health authorities and ever since Ottawa has been seeking a new and more appropriate site. A site was chosen adjoining the residence of Lord Minto, the Governor-General, but his lordship would not hear of such a thing, so a new site was selected on the high sandy banks of the Rideau, in the rear of the Protestant General Hospital; and the city council is said to have agreed to pay $31,000 for it, although the price is double the assessed value of the property. The mayor of the city has ordered an investigation. An important judgment has just been given by Judge McTavish which establishes the 150-yard limit from any residence. In the meantime the city has more than its share of contagious diseases and an inadequate means of providing isolation.

Deaths in Maternity Homes in Toronto.

A mortality of 50 per cent. in a maternity home just beyond the northern outskirts of Toronto has recently been causing considerable comment. It is not under the jurisdiction of the civic health department, but the death-rate has been deemed so excessive as to merit an investigation into the causes thereof. In the city proper there are 15 maternity homes, which for the past two or three years have been directly placed under the special supervision of a medical man who reports to the medical health officer. There are also 35 baby farms which are all subjected to very close inspection and a careful record is kept. The infants born in the maternity homes of Toronto last year numbered 130. Of these 14 died, 13 were adopted into good homes, three were reclaimed by, and the same number were forsaken by, the mothers, and the rest remained in the homes.

August 19th.

Obituary.

JULIUS ST. THOMAS CLARKE, M.D., M.S. Lond., F.R.C.S. Eng.,

SENIOR SURGEON TO THE LEICESTER INFIRMARY.

By the death of Dr. Clarke Leicester loses one of its oldest medical practitioners, he having been in practice there for nearly 40 years. He started his medical education at Guy's Hospital, where he had a very brilliant record, taking the exhibition and gold medal in anatomy and the gold medal in physiology at the University of London in 1861, and also the treasurer's gold medal of Guy's Hospital in clinical surgery. He started practice in Leicester and in the earlier years was medical officer to the workhouse, but on a vacancy occurring on the infirmary staff he abandoned this work for the post of surgeon to that institution, which he held up to the time of his death, then being senior surgeon. Besides his connexion with the infirmary Dr. Clarke was honorary medical officer to the Institution for the Blind, and was most warmly interested in the work. He was a keen advocate and worker for the temperance cause and had been himself a total abstainer for the greater part of his life; in fact, his whole life was one of great asceticism, luxury of any sort being completely foreign to his nature, while those who knew him best knew also that a single-minded devotion to duty was the keystone of his life. He was also much interested in, and successful with, treatment of patients suffering from the effects of abuse of drugs and was medical officer to Tower House, Leicester, for 27 years. All through his life his great desire was to keep well abreast of the medical knowledge of the day, and as a proof of his energy and indomitable will power it may be mentioned that he took both parts of the Fellowship of the Royal College of Surgeons of England while engaged in a very arduous practice and also that he took the degree of M.D. London only nine years ago at the age of 55 years, and that of M.S. two years later. Although with advancing years his health was not so good as formerly, the outrage which befel him last October—that of being shot through the sacrum by a former patient who had been confined in an asylum on account of homicidal tendencies—rendered his physical condition much weakened, but nevertheless his will-power carried him through eight months' work, when he took a holiday in Scotland but only to return at the end of 10 days on account of attacks of syncope. He was able to go out till the day before his death which occurred during his sleep on August 2nd at the age of 64 years. The only wish ever expressed, and that at the time of his accident, was that he should be taken once again to the infirmary he loved so well, and this was able to be fulfilled as the first part of the funeral service was held in the chapel of that institution, the interment taking place in the Leicester Cemetery on August 6th. The motto of his life, often quoted and always acted up to, was:—

"When I sought Happiness she fled
Before me constantly;
Weary, I turned to Duty's path
And Happiness sought me."

DAVID FRANCIS SITWELL CAHILL, M.D., L.R.C.S. Edin.

By the death of Dr. Cahill Berwick-on-Tweed loses one of its oldest and most respected practitioners. He was the son of the late Surgeon-Major Cahill of the 25th Regiment of Foot and received his medical education at Edinburgh and Paris. In 1845 he obtained the degree of Doctor of Medicine of the Edinburgh University, and in the following year became a Licentiate of the Royal College of Surgeons of Edinburgh. For 50 years he carried on an extensive practice in the

Border districts and in May, 1896 celebrated his jubilee as a practitioner He then retired from active medical work. Dr Cahill was a member of the Berwick Naturalist Club and was first senior physician and surgeon and subsequently consulting physician to the Berwick Dispensary The deceased gentleman, it is alleged was assaulted some time ago and he was recovering from the injuries he then received when an attack of influenza brought about his death on August 18th He leaves a widow and grown up son and daughter

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DEATHS OF EMINENT FOREIGN MEDICAL MEN —The deaths of the following eminent foreign medical men are announced —Dr Nath of Königsberg, an active hygienist who took great interest in the training of midwives , Dr Hermann von Widerhofer, professor of Children's Diseases in the University of Vienna and Body Physician to the Imperial Family His most notable published papers dealt with abdominal and glandular diseases in childhood and with questions in heredity —Dr Ernst Braun, formerly director of the Lower Austrian Foundling and Lying in Hospitals —Dr Hameau, vice president of the Medical Association of France —Dr Tordeus professor *agrégé* in the medical faculty of the University of Brussels —Dr Maisch formerly professor of materia medica in the Medico Chirurgical College, Philadelphia

Medical News.

SOCIETY OF APOTHECARIES OF LONDON —In August 1901 the following candidates passed in the subjects indicated —

Surgery —J C Baggs (Section II) St Thomas's and Westminster Hospitals P C Burgess (Section II) Middlesex Hospital D Fletcher St Bartholomew's Hospital, F I M Jupe Cambridge G J W Kelgwin (Sections I and II) London Hospital E R Risien (Section II) St Batholomew's Hospital W B Skelton, Guy's Hospital and M J Williams St Bartholomew's Hospital

Medicine —J W W Adamson (Section I) St G[illegible] J H Beasley (Section [illegible] University College Hos[illegible] St Mary's Hospital [illegible] D J Morgan (Section [illegible] [illegible] J T Longhurst St [illegible] Hospital; E Osborne [illegible] A W D Thomson St George's Hospital, P P Tollit King's College Hospital and S C Wilkinson Leeds [illegible] T S Davies [illegible] E S Perkins [illegible] and St Mary's [illegible] Young, Leeds

The diploma of the Society [illegible]

FOREIGN UNIVERSITY INTELLIGENCE —*Berlin* An institute of state medicine is about to be established.—*Bologna* Dr Novi, Extraordinary Professor of Experimental Pharmacology, has been promoted to the Ordinary Professorship —*Heidelberg* Dr Gaupp has been recognised as *privat docent* of Gynæcology The Senate has directed that foreigners can only be admitted as medical students when they can show that they have passed an examination in general knowledge equivalent to the German *Abiturienten Examen* —*Leipsic* Dr H Füth has been recognised as *privat docent* of Gynæcology —*Rostock* Dr W Müller of Aix la Chapelle formerly assistant to Professor König in Berlin, has been appointed to the chair of Surgery vacated by Dr Graser who is migrating to Erlangen.—*Tubingen* Dr A. Dietrich has been recognised as *privat docent* of Pathological Anatomy

BEQUESTS TO HOSPITALS — The late Mr R Bowerman West of Exeter has bequeathed £4000 each to the Royal Devon and Exeter Hospital and West of England Eye Infirmary Exeter , £1000 each to the Exeter Dental Hospital Exeter Dispensary, Ockenton Convalescent Home, Western Counties Idiot Asylum and the Taunton and Somerset Hospital , and £500 each to the Ottery St Mary Cottage Hospital and the Axminster Cottage Hospital

NATIONAL SOCIETY FOR THE PREVENTION OF CRUELTY TO CHILDREN —Mr Peregrine Purvis has given a donation of £1000 to this institution

ADDED WATER IN BUTTER —At the Cheltenham Police court on August 22nd certain butter merchants were fined £20 for selling butter containing 6·2 per cent of added water It was stated that this firm had been previously convicted six times within a few months, the fines being either £50 or £20

POOR-LAW PATIENTS AT THE SEASIDE —At the meeting of the Merthyr Tydvil Board of Guardians held on August 17th it was mentioned that the guardians proposed to send convalescent patients from the workhouse to the seaside, the Local Government Board having written stating that if the medical officer of the workhouse was of opinion that a visit to the country or seaside was necessary for the health of any individual inmate, and if he certified accordingly the assent of the Local Government Board to the expenditure would not be required.

NORTH DEVON INFIRMARY, BARNSTAPLE —The seventy fifth annual meeting of the friends of, and subscribers to, this institution was held on August 20th The report stated that during 1900 there were 640 in-patients admitted and 2756 out patients treated, as compared with 651 in patients and 2710 out-patients in 1899 The financial statement showed that the expenditure amounted to £2779 and the income to £2405 The committee allude to the good work of the convalescent home at Morthoe which is in connexion with the infirmary

KENT BENEVOLENT MEDICAL SOCIETY.—The annual meeting of the members of the above society was held on July 17th at Maidstone, under the presidency of Dr C E Hoar The accounts for the year ending July 5th last were laid before the meeting after being duly audited, and as it appeared that a balance of £415 might probably be anticipated for the coming year it was resolved that a sum of £100 should be added to the invested capital of the society and that the sum of £255 should be distributed amongst the several applicants for assistance whose names were then before the meeting The society, which was instituted in the year 1787, has been the means of benefiting the widows and orphans of its members (and in some cases the members themselves) and thus has relieved distress in the families of those who had long and honourably laboured in the medical profession For several years past the society has been enabled to distribute annually a sum of about £300 towards the relief of deserving cases, and the fact that the society now has an invested capital of £9500 is a guarantee that the good work which has been carried out in the past will be continued The secretaries of the society are Dr C E Hoar of Maidstone Mr H G Sadler of Canterbury, and Dr H C Burton of Lee and the assistant secretary is Mr James Wiltshire of the Bank Canterbury, and they will be pleased to furnish any further particulars which may be desired.

THE LATE MR W H F RAMSDEN —In memory of the late Mr Ramsden the inhabitants of Saddleworth have subscribed for the erection of a handsome public monument and drinking fountain at Dobcross. The members of the district council and a large gathering, amongst whom were three sons of the late Mr Ramsden, themselves medical men witnessed the unveiling ceremony, which was performed by Miss Brierley of Denshaw on August 24th In formally handing the monument over to the care of the district council the Rev H P Edwards said that they were met together on a unique occasion The memorial was the result of a spontaneous outburst of feeling in Saddleworth when the news came of the sudden decease of Mr Ramsden and was a testimony of the great affection in which he was held The Rev Charles Ramsden said that it was a matter of great pride and gratification to the family that the people of Saddleworth had been so determined that his father's memory should not be allowed to die out from amongst their hills and valleys The Rev W T John said that gratitude was not dead and that those of the present generation needed no memorial to remind them that Mr Ramsden had lived amongst them. Future generations would however be reminded of one whose determination was to do his duty and would be encouraged to go and do likewise. The monument is of polished Aberdeen granite, bears a gas lamp and is by the kindness of the corporations of Ashton Stalybridge, and Dukinfield, provided with water for man and beast free and for ever. On the column is the inscription: "W. H. F. Ramsden, Physician and Surgeon, for 24 years Medical Officer of Health to the District. Born 1833. Died 1900. Erected 1901 by public subscription to commemorate his devoted services to the people of Saddleworth. 'Write me as one that loves his fellowmen'"

BOOKS, ETC., RECEIVED.

Baillière, Tindall and Cox, Henrietta-street, Strand.

Diseases of the Stomach and their Surgical Treatment. By A. W. M. Robson, F.R.C.S., and G. A. Moynihan, M.S. Lond., F.R.C.S. Price 15*s.*

Lessons on Massage. By Margaret D. Palmer. Price 7*s.* 6*d.*

Baillière, J. B., et Fils, Paris.

Traité de Médecine et de Thérapeutique. By P. Brouardel and A. Gilbert. Price 12 francs.

Buncle, T. and Co., Arbroath.

With the Scottish Yeomanry. By T. F. Dewar, M.D., B.Sc. Price not stated.

Churchill, J. and A., Great Marlborough-street, W.

Dissection Outline and Index for Students. By W. A. Campbell, B.S., M.D. Second edition, revised. Price 3*s.*

Guy's Hospital Reports. Edited by J. H. Bryant, M.D., and F. J. Steward, M.S. Vol. lv., being Vol. xl. of the Third Series. Price to subscribers, 6*s.* non-subscribers, 10*s.* 6*d.*

Hilton and Co., Calcutta.

A Treatise on Materia Medica and Therapeutics. By Rakhaldas Ghosh, L.M.S. Cal. Univ. Vol. i. Cloth, price 1·14, or 2*s.* 6*d.*

Karger, S., Karlstrasse 15, Berlin, N.W.

Atlas der Krankheiten der Nase. By Privatdocent Dr. P. H. Gerber. Fourth Part. Price 6 marks.

Kimpton, Henry, Furnival street, Holborn.

A Practical Treatise on Diseases of the Skin. By J. N. Hyde, A.M., M.D., and F. H. Montgomery, M.D. Price 25*s.*

A Treatise on Surgery by American Authors. Edited by Roswell Park, A.M., M.D. Price 25*s.*

Lajouane, Félix, Buenos Aires.

La Peste Bubonique dans la République Argentine et au Paraguay. Epidémies de 1899–1900. Rapport par Dr. Luis Agote and Dr. A. J. Medina. Price not stated.

Lane, J., London and New York.

The Book of Asparagus. By C. Ilott, F.R.H.S. Price 2*s.* 6*d.*

Layton, C. and E., Farringdon-street, E.C.

Handy Newspaper List, 1901. Price 6*d.*

Lehmann, J. F., Munich.

Unterleibsbrüche. By Dr. G. Sultan. Price 10 marks.

Longmans, Green, and Co., Paternoster-row, London.

Practical Text-book of Plant Physiology. By D. T. Macdougal, Ph.D. Price 7*s.* 6*d.*

Masson et Cie, Paris.

La Lutte Sociale contre La Tuberculose. By Dr. R. Romme. Price 2 francs 50 cents.

Section de Médecine Legale, XIIIe. Congrès International de Médecine, Paris, 1900. Published by M. Motet, Secretary of the Section. Price 5 francs.

Maud, C., Paris.

Matière Medicale Zoologique. By H. Beauregard. Price 12 francs.

Niccolai, L., Florence.

Osservazioni Cliniche sulla Peste Bubbonica. By Dr. G. Polverini. Price, lire 2.50.

Oliver and Boyd, Edinburgh.

Report of the Edinburgh and East of Scotland South African Hospital. By D. Wallace, C.M.G., F.R.C.S. Edin., and F. D. Boyd, M.D., F.R.C.P. Edin. Price not stated.

Puttkammer and Muhlbrecht, Berlin.

Die Sterblichkeit der Haupt-und Residenstadt Budapest, 1891–1895, und deren Ursachen. By Dr. Josef von Korosy. Price 6 marks.

Rebman, Limited, 125, Shaftesbury-avenue, W.C.

The Theory and Practice of Medicine. By H. W. Syers, M.A., M.D. Cantab., &c. In two vols. Vol. i. Price 15*s.*

Guide to the Microscopic Examination of the Eye. By Professor R. Greef. Translation from the Second German edition by H. Walker, M.A., M.B., C.M. Price 5*s.*

The Sanitation of British Troops in India. By E. C. Freeman, Major R.A.M.C. Second edition. Price 2*s.* 6*d.*

Richards, G., Henrietta-street, Covent-garden.

How to Nurse the Sick. By Florence White. No. 1 of the Home Series. Price 2*d.*

Saunders, W. B. and Co., Philadelphia and London.

The Pathology and Treatment of Sexual Impotence. By Victor G. Vecki, M.D. Third edition. Price not stated.

Rhinology, Laryngology and Otology, and their Significance in General Medicine. By Professor E. P. Friedrich, M.D. Authorised translation from the German. Edited by H. H. Curtis, M.D. Price 10*s.*

Bacteriology and Surgical Technique for Nurses. By Emily M. A. Stoney. Price 5*s.*

Atlas and Epitome of Ophthalmoscopy and Opthalmoscopic Diagnosis. By Professor Dr. O. Haab. Translation from Third German edition. Edited by G. E. de Schweinitz, A.M., M.D. Price 13*s.*

Practical Surgery for the General Practitioner. By Nicholas Senn, M.D., Ph.D., LL.D. Price 26*s.*

The Illustrated Medical Dictionary. By W. A. Newman Dorland, A.M., M.D. Second edition. Price 19*s.*

Modern Obstetrics, General and Operative. By W. A. Newman Dorland, A.M., M.D. Second edition. Price 16*s.*

Société d'Éditions Scientifiques, Paris.

Appendicité, sa Pathogénie. By Dr. L. Vibort. Price 3 francs.

De l'Echinococcose Secondaire. By Dr. Félix Dévé. Price not stated.

Unwin, T. Fisher, Paternoster-square, E.C.

De Omnibus. By the Conductor (Barry Pain). Price, 1*s.* paper; 2*s.* cloth.

Urban and Schwarzenberg, Berlin and Vienna.

Diagnostik der Geisteskrankheiten. By Professor Robert Sommer. Price not stated.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing [illegible] for this column, are invited to forward it t[illegible] directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.

Eminson, L., L.F.P.S. Glasg., L.S.A., has been appointed District Medical Officer of Cosford Union.

Mr. H. Hine has been appointed District Medical Officer of Guildford Union.

Forbes, N. Hay, F.R.C.S. Edin., J.P., has [illegible] Consulting Surgeon to the Black Rock [illegible] Consulting Surgeon to the Rother Valley [illegible]

Laing, C. F., M.B., C.M. Glasg., has been [illegible] intendent to the Somerset and Bath Asylum, vice Arthur Law Wade, M.D., deceased.

Miles, H. P., M.R.C.S., L.R.C.P. Lond., has been appointed District Medical Officer of Kingsbridge Union.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

Belgrave Hospital for Children, 77 and 79, Gloucester-street, S.W.—House Surgeon for six months. Gratuity £5, and board and lodging.

Bethnal Green Infirmary.—Assistant Medical Officer. Salary at rate of £80 per annum, with board and residence.

Birmingham and Midland Ear and Throat Hospital, 109, Edmund-street, Birmingham.—House Surgeon. Salary at rate of £40 per annum for first six months, and, if re-appointed: at rate of £60 per annum, with board, lodging, and washing.

Bristol General Hospital.—Casualty House Surgeon. Salary £70 per annum, with board, residence, &c.

Cardiff Infirmary.—Honorary Gynæcologist.

Cheshire County Asylum, Parkside, Macclesfield.—Junior Assistant Medical Officer, unmarried. Salary £130, rising to £150 per annum, with board, apartments, washing, and attendance.

City of Nottingham Workhouse Infirmary.—Assistant Medical Officer. Salary £160 per annum, with furnished rooms.

Cornwall County Asylum, Bodmin.—Junior Assistant Medical Officer, unmarried. Salary £120, rising to £150, with board, furnished apartments, &c.

County Asylum, Lancaster.—Assistant Medical Officer, unmarried. Salary £150, increasing to £200, with apartments, board, washing, and attendance.

Cumberland Infirmary, Carlisle.—Resident Medical Officer. Salary at rate of £80 for first six months, and £100 second six months per annum respectively, with board, lodging, and washing.

Denbighshire Infirmary, Denbigh.—House Surgeon. Salary £100, with board, residence, and washing.

District Hospital, West Bromwich.—Resident Junior House Surgeon. Salary £50 per annum, with board, lodging, washing, and attendance.

General Infirmary, Gloucester, and Gloucestershire Eye Institution.—Assistant House Surgeoncy for six months. Salary at rate of £30 per annum, with board, residence, and washing.

Glamorgan County Asylum, Bridgend.—Assistant Medical Officer, unmarried. Salary £175, with board, lodging, attendance, and laundry.

Great Northern Central Hospital, Holloway, N.—House Physician for six months. Salary at rate of £60 per annum, with board, lodging, and washing. Also Junior House Physician for six months. Salary at rate of £30 per annum, with board, lodging, and washing. Also non-resident Assistant House Surgeon. Salary at rate of £30 per annum, with luncheon and dinner. Also Junior House Surgeon for six months. Salary at rate of £30 per annum, with board, lodging, and washing.

Kasr-el-Ainy Hospital and School of Medicine, Cairo, Egypt.—Physician to the Hospital and Professor of Clinical Medicine at the School. Salary £E320 per annum and private practice allowed.

Liverpool Stanley Hospital.—Third House Surgeon. Salary £70, with board and residence.

London Hospital, Whitechapel, E.—Surgical Registrarship. Salary £100 per annum.

MANCHESTER CHILDREN'S HOSPITAL.—Junior Resident Medical Officer, unmarried, for six months, and eligible for election as Senior for another six months. Salary at rate of £80 a year when Junior, and £100 a year as Senior, with board and lodging.

MANCHESTER ROYAL INFIRMARY.—Pathological Registrar. Salary £100 per annum.

METROPOLITAN HOSPITAL, Kingsland road, N.E.—House Physician. Salary at rate of £40 per annum. Also House Surgeon. Salary at rate of £40 per annum. Also Assistant House Physician. Salary at rate of £20 per annum. Also Assistant House Surgeon. Salary [illegible] for six months.

[illegible] ASYLUM, Denbigh.—Second [illegible] per annum, rising to £100, [illegible]

[illegible] Demonstrator in Physiology. [illegible]

[illegible] HOSPITAL.—Junior House Surgeon for six months. Salary at rate of £50 per annum, with [illegible] case.

SHEFFIELD ROYAL HOSPITAL.—Junior Assistant House Surgeon, unmarried. Salary £50 per annum, with board, washing, and lodging.

SMITH ISOLATION HOSPITAL, Henley on Thames.—Medical Superintendent, for six months. Salary at rate of £80 per annum, and allowances.

SWANSEA UNION WORKHOUSE.—Assistant Medical Officer. Salary £200 per annum.

UNIVERSITY OF GLASGOW.—Examiner for Degrees in Medicine and Science, with special reference to Physics. Salary £30.

WEST AFRICA.—Medical Officers, unmarried, for military expedition. Engagement for six months, excluding voyages. Salary £30 a month. Free passages both ways and with full pay. £10 gratuity for each month of service in West Africa. Free rations and field allowance of 5s. a day while in West Africa. Application should be sent to the Private Secretary, Colonial Office, Downing street, S.W.

WEST AFRICA, GOVERNMENT RAILWAY.—Assistant Medical Officers. Salary £35 per month. First-class passages, free quarters, and four-fourths' leave on half pay after eight months' residential service. Apply to Messrs. Shelford and Son, 35A, Great George- [illegible]

[illegible] road, W.—House Physician [illegible] board and lodging provided. [illegible] Surgeon. Salary £70 per annum, with rooms, board, and washing.

Births, Marriages, and Deaths.

BIRTHS

BOXALL.—On August 26th, at Portland place, W., the wife of Robert [illegible]

[illegible] Lond., of a daughter.

WALLACE.—On August 25th, at Battersea rise, S.W., the wife of Joseph B. Wallace, M.B. Glasg., of a son.

MARRIAGES

NEWSOME—GIBBS.—[illegible] by the Rev. C. [illegible] B.S. Durh., late [illegible] of William Gibbs, [illegible]

SULLIVAN—DUNCAN.—On August 27th, at St. Katharine's Roman Catholic Church, Bow, P. Sullivan, L.R.C.P., L.R.C.S., &c., of Campbell road, Bow, to Janet Blanthorne, younger daughter of Captain Robert Duncan, of the R.M.S. *Kinfauns Castle*, and of Forest Gate.

TAGGART—COCLOUGH.—On [illegible] Greenheys, Manchester, [illegible] Taggart, M.B., Ch.B. V[illegible] late Cæsar Scott Tagg[illegible] Mrs. Coclough, Burslem, Staffs.

SILVER WEDDING.

HAYNES—JONES.—On August 30th, 1876, by the Rev. C. Musgrave Harvey, rector, the Rev. A. B. Dickinson, rector of Old Radnor, and the Rev. Alfred Scott, Horace Eyre Haynes, of Evesham, to Lucy Marion, second daughter of Frederick Jones, Esq., of The Friars, Acton (now residing at Blainpstone House, Bedford).

DEATHS

BAK[illegible] ing Baker, M.R.C.S. [illegible] Service, retired.

BIR[illegible] Kensington, Henry [illegible] M.B., M.S. Aberd., J.P., aged 57 years.

KELLY.—Suddenly, on August 12th, Adam Lawson Kelly, M.D., L.F.P.S. Glasg., aged 66 years, of 26 Blythswood square, Glasgow.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

A DISPUTED ACCOUNT.

THE *Windsor Chronicle* of August 23rd contains an account of an action brought by Mr. W. L. T. Goodridge, a medical man at Windsor, against Mr. A. F. Davies, landlord of the Grapes Hotel, in the same town, for the sum of £1 13s. alleged to be due for professional services. The action began in a manner that is very *familiar to medical men. One guinea of the account was for attendance* upon the defendant's barmaid, and the question arose whether the defendant, or *the patient*, or *the patient's mother was liable for* this sum. The other 12s. was charged by Mr. Goodridge for attendance upon Mrs. Davies's baby. According to Mr. Davies, the visits to the baby were not professional visits but friendly ones, mere casual conversations when Mr. Goodridge was in the house, and he also maintained that he was not liable to pay the barmaid's account, although it would seem that he or his wife called Mr. Goodridge to attend upon her. We are glad to say that the judge gave judgment in favour of Mr. Goodridge for the full amount claimed, with costs. But winning his case in a county court will hardly compensate Mr. Goodridge for the annoyance which he has had to undergo. A public-house is a centre of gossip, and the defendant's view of the matter was certain to be insisted upon before the action and will probably be stated frequently now that the case has gone against him.

WANTED—A SEASIDE RESORT.

To the Editors of THE LANCET.

SIRS,—Can you or any of your readers give me the name of a quiet seaside town on the south-west coast where a person suffering from catarrhal phthisis could pass the winter with a minimum of cold and wet weather? The patient, a lady, has benefited materially by open-air treatment for the last two months and has an insuperable objection to going abroad for the winter. One lung only is affected and that not seriously. *I am, Sirs, yours faithfully,*

August 20th, 1901. OPEN-AIR.

DIVISIONAL POLICE SURGEONS AND CABMEN.

WE have received a copy of the *Cab Trade Record*, the official journal of the London Cabdrivers' Trade Union, for August, 1901. The London cabby is, as a rule, a civil-spoken, hard-working man. He may have his own interpretation of the Scriptural dictum: "Whosoever shall compel thee to go one mile go with him twain," but we prefer to regard his fondness for making two miles into four as a weakness *rather than a vice. The interests of cabmen will not be served by* such impertinences as appear in the official journal which has been forwarded to us, in passages marked on pages 2 and 4. The paragraphs in question deliberately charge "some of those medical hacks known as divisional police surgeons" with being "in with the police" and with doing their work in a "perfunctory and self-interested manner." A more graceless, baseless charge was never brought. The *Cab Trade Record* insists that every cabman charged with drunkenness should demand to be examined by an independent medical man. We see no objection to any cabman calling in as many medical men as he likes, provided that he pay them their fees, but we see every objection to the bringing of unfounded charges against a set of men who are quite as honest and as hard-working as cabmen.

MANDRAKES.

ON August 24th Mr. William Hawkins was charged at Southwark Police-court with being drunk and disorderly. He was hawking mandrake and had established his "pitch" outside the shop of a rival dispenser of drugs whose goods he was comparing with his own much to the depreciation of the former. But as regards Mr. Hawkins and his mandrakes which were probably briony roots, he has only himself to blame for getting into trouble. He mentioned that he dug up his mandrakes with a table knife. This is not at all the right way to go to work. The mandrake, if we may believe experts on the subject, is a terrible root and demands caution. According to the best authorities when evulsed from the earth it is naturally annoyed and shrieks. If the gatherer hears the shrieks he immediately dies or goes mad or is stricken with some loathsome disease. The proper way to gather mandrakes is to go to where they grow at the right time, the season of the year, the phase of the moon, and several other matters being taken into consideration. A dog, preferably one belonging to some one else, also has to be procured. One end of a cord is to be attached to the mandrake and the other to the dog. The seeker after mandrakes *having carefully stopped his ears* says "Rats" or stimulates the dog by whipping it so that it bounds forward and so pulls the mandrake out of the ground. On hearing the shriek the dog dies. The root is then carefully gathered into a clean linen cloth and taken home. The genuine article is the *Mandragora officinalis* and if gathered according to instructions it possesses wonderful properties. The earliest recorded use of mandrakes was as a charm or drug to promote fertility, as may be seen from Genesis xxx. 14. But as mandrakes were uncommon and dangerous to get and there was a great demand for them the ingenious traders were wont to substitute artificial mandrakes. Sir Thomas Browne gives the following description of these mandrakes quoted from a physician named Mathiolus who he says learned this "way of Trumpery from a vagabond cheater lying under his care for the French disease. ...... The roots, which are carried about by impostors to deceive unfruitful women, are made of the roots of canes, Brinoy, and other plants, for in these, yet fresh and virent, they carve out the figures of men and women, first sticking therein the grains of barley and millet where they intend the hair should grow; then bury them in sand until the grains shoot forth their roots, which at the longest will happen in 20 days; afterward, clip and trim those tender strings in the likeness of beards and other hairy teguments." We do not wish to imply that this was Mr. Hawkins's method, but we merely point out that he cannot find the genuine mandrake in this country for it does not grow here, and that it is as well for him that he cannot if he digs up his roots with a knife. He was fined 5*s*. and we think he may consider himself lucky that nothing worse happened. Dabbling in magic nowadays does not pay.

"THE EQUIPMENT OF A CIVIL SURGEON AT THE WAR."

To the Editors of THE LANCET.

SIRS,—In reply to your correspondent "Civil Surgeon," in THE LANCET of August 24th, p. 574, I would suggest the subjoined kit for a civil surgeon going to South Africa. Many of the things perhaps seem superfluous, but no one would regret having taken them when once up country. All camp furniture, &c., can be easily disposed of at cost price on leaving the country, so that the initial outlay is not really so great as it seems. Many men, to avoid a little extra expense, take all manner of makeshifts most weird; the position of civil surgeons is anomalous enough in all conscience—they need not look like bandits. Primarily uniform is absolutely essential—there is a local army order to that effect. I would strongly urge that it should be bought at a "pukka" military tailor's, such as [illegible], Piccadilly, and not at any "stores." The following is the list: One khaki serge tunic, one khaki drill or gabardine tunic, both with leather buttons and detachable gorget patches and no badges of rank. I would also suggest a plain blue serge "jumper" with brass buttons and plain blue trousers. This suit would be found to be most useful at mess, dining out, &c. One pair khaki serge trousers, one pair khaki drill trousers, one pair Bedford cord riding breeches strapped with leather, one pair pigskin Stohwasser leggings, one pair khaki Fox's spiral putties, one pair not too heavy brown shooting-boots, one pair lighter weight brown boots, one pair leather slippers, one dozen pairs extra leather laces and boot-cleaning gear, one khaki serge field cap, one good felt slouch hat with puggaree, one Sam Browne belt without sword attachment, one khaki haversack, one Silver's vulcanite water-bottle, one military mackintosh, one cavalry cloak (to be obtained at the Army Clothing Factory, Pimlico), one flannel "mufti" suit and a soft cap, four good flannel shirts, one medium Jaeger vest and pair of pants, two suits flannel pyjamas, 12 pairs socks, two khaki silk handkerchiefs for the neck in lieu of collars, 12 handkerchiefs, one camp bed and mattress, one Wolseley valise, one pillow, two blankets, one canvas bath, and one cavalry aluminium canteen. The camp furniture should be marked with the owner's name in plain letters. One Berkefeld filter, one pair of spurs, and one waistbelt with swivel for attaching a good hunting knife. All the above with the exception of the camp kit can be put into a large waterproof canvas kitbag to be obtained from the Army Equipment Stores in Regent-street. The camp kit and Wolseley valise can be put in a canvas sack with padlock mouth. In addition I should advise the taking of a small-size Gladstone bag for small articles. A supply of chocolate and Lazenby's soup squares are sound things to take, and above all things a Berkefeld filter. If fond of sport a 12-bore shot-gun should be taken, which can be easily sold on coming home, and about 500 cartridges No. 3 and No. 6 shot. A Zeiss field-glass is very useful to have and a camera (No. 3 pocket folding Kodak for choice) and six dozen films in a calcium tube. For instruments a pocket case, a stethoscope, a one-minute clinical thermometer, and a hypodermic syringe with metal piston with a supply of tabloids.

I am, Sirs, yours faithfully,

St. Thomas's Hospital, S.E., August 27th, 1901. A. E. STEVENS.

A DOCTORS' AGE

To the Editors of THE LANCET.

SIRS,—When is he old? When is he so old-fashioned as to be in the eyes of his patients useless? Time was, and not so long ago, when a medical man was not much considered, not much trusted, and not often consulted by the people till he had arrived at a good old age as to time and experience. But we have changed all that now, and the doctor may become old-fashioned, even professionally decrepit, when comparatively young and not yet by any means in the sere and yellow leaf. This terrible fact arises from two apparent causes. Many medical men, once qualified, once endowed with their degrees or diplomas, are so far satisfied with their position that they cease to work, read, or keep up with all the many advances and improvements in the progressive science and art of medicine. Another reason is that medicine, that is, the science and practice of his art, is so progressive that it is no libel to say that the student of to-day knows as much as the profession of 20 years ago, and what was looked upon as truth, founded on stable law, is found by the increased and burning light of scientific research to be doubtful if not fallacious. This being so it comes to this, that unless the practitioner keep pace with this advance he necessarily falls behind in the race and becomes what is called old-fashioned, effete, and, indeed, a drug in the market. Patients—i.e., patients in the higher platform of intelligence—very often come to look with suspicion on the medical man whose hair is white and who, in their idea, has travelled beyond the energies, and maybe the conceits, of youth. The remedy, if there be a remedy, for this untoward state of matters is for the medical man to be as much a student as practitioner, and to show his patients that, though old in years, his age is dowered by the best and most progressive of scientific experience. We are told in the Book that on the walls of Belshazzar's banqueting-hall appeared the words, "*Mene*, he is numbered; *Tekel*, he is weighed"—referring to the impending destruction of Babylon. Let these ominous words, when applied to the old medical man be words denoting that though old in years he may still be young and vigorous, so far as he is concerned with the scientific practice of his pr fession. The physician or surgeon living in cities or towns, whe he has the great and manifest advantages of the hospital or infirmar can, if he likes, rise to, and keep the platform of, the highest and mo enlightened practice. This cannot be gainsaid, but it must not forgotten that as "stone walls" do not a prison make, so the gener practitioner, or even the village doctor, has in his practice (especiall midwifery) as much material for scientific research as the mo fashionable and successful city practitioner. Only, let it be understoo that this general practitioner must keep up to the times, must be th diligent student first, to be the successful and respected practition afterwards.

I am, Sirs, yours faithfully,

August 22nd, 1901. SENEX.

"HOME EXERCISES IN SPINAL CURVATURE."

To the Editors of THE LANCET.

SIRS,—Would you or one of your readers inform me who is th publisher of this book? The price is 2*s*.

I am, Sirs, yours faithfully,

August 25th, 1901. ENIGMA.

"STUPID, ISN'T IT?"

> "No, don't do that. I don't want to be found here. Besides, it useless. I know exactly what has happened. A point of th serrated edge of the Order has pierced the brain near the eye. Th first effect was unconsciousness, the next will be internal bleedin the last will be coma and death. In five minutes a clot of bloo will have covered the lacerated brain, and I shall lose consciousne again. Stupid, isn't it?"

When we happened to see the above passage quoted in sundry review of Mr. Hall Caine's book we were inevitably reminded of certai graphic and obviously inaccurate passages about hospitals whic appeared in "The Christian." When, however, we read the "Etern City" for ourselves we thought it possible that Mr. Hall Caine h compressed as much ignorance on medical subjects as he could in six lines because the drivel is exactly what a man like Bar Bonelli would have said. He was a wicked old man who w false to his mistress and false to his wife, whom he left to d alone, though he had the decency to see her body removed the church. He was, though a Prime Minister, nothing b a *poseur* with an affectation of knowing everything, so that whe he was dying he might very well have made the silly speech p into his mouth. But a further perusal of the book assures us th the speech is not due to Baron Bonelli's overweening vanity but Mr. Hall Caine's ignorance. On page 349 is a description of the la illness of the countess, the aunt of the heroine. Dr. Fedi, th physician called in, came and "examined the countess—her breas her side, and the glands under her arms ...... and announced th the patient must have a nurse immediately." When he ca again he found his patient worse and thus delivered hi self: "Your aunt has internal cancer. If the tumours h been diagnosed while still small nephrectomy might have be possible; now they are beyond the reach of legitimate surger A man who either thinks that malignant disease of the kidn can be diagnosed by examining the mamma and the axillary glan or, else, that nephrectomy is the operation usually performed mammary cancer, will believe anything. The doctrine of invi cible ignorance will, perhaps, be a reason for thinking that Mr. H Caine is not a wilful sinner, but the man who writes on medi subjects in such a fatuous manner is not the one to criticise hospit and their work with the pomposity and self-satisfaction with wh Mr. Hall Caine wrote in "The Christian."

◆

X. Y. Z.—If we understand the question the patient is not only of a now but was of age at the time that he was attended. We think th the decision, if legal proceedings were taken, would depend upon t particular judge's view of the case. A medical man, when sent for a house, presumes that the master of the house is responsible for t payment of his fees. In the case of domestic servants, even if su moned by the master or mistress of the house, he usually inquires whom the bill is to be sent; but in the case of a son of the house would naturally suppose that if the patient did not pay him th father would. X. Y. Z. will, of course, not take legal proceedin except upon legal advice.

F.R.C.S., in a communication which it would hardly be advisable the interest of the profession as a whole to publish, attributes t majority of the ills, referred to in the letters headed "The Times a Troublous," to the congested condition of the Register. To a certa extent he is right but the situation is one that we believe is curing itself to some extent; while he must remember that the duties which now fall to the lot of medical men are much more numerous and far-reaching in their scope than they used to be

Mr L. Roberts—Washing soda is to a certain extent corrosive and therefore is not so suitable for use in domestic cookery as the bicarbonate of soda, but used with due caution no harm would occur No cases of either illness or of death from the use of washing soda in cookery have come under our notice

Robin—We have no definite information on most of the points contained in our correspondent's letter but in the current Medical Directory the name of the present medical officer in charge is given as Dr M N Sharman to whom our correspondent had better write

Perplexed desires to know if a boy studying for the Army who is unable to close his left eye voluntarily and consequently shoots from the left shoulder would be handicapped as an artillery officer or for a line regiment His vision is good

X writes to us upon Sanatoria, but has not inclosed his name and address for our information

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During the week marked copies of the following newspapers have been received—*Echo Cambrian News Windsor Chronicle Surrey Advertiser Scientific American Supplement Engineer Local Government Journal Yorkshire Post Standard Reading Mercury Mining Journal Hertfordshire Mercury, Bakers Record South African News Windsor and Eton Express Liverpool Daily Post Aberdeen Weekly Free Press Blackburn Weekly Standard Huddersfield Examiner Leighton Buzzard Reporter Architect Monthly Record Animal Guardian Daily Chronicle &c*

METEOROLOGICAL READINGS

(Taken daily at 8.30 a m by Steward's Instruments)

THE LANCET Office August 29th 1901

Date.	Barometer reduced to Sea Level and 32° F	Direction of Wind	Rainfall	Solar Radia in Vacuo	Maximum Temp Shade.	Min Temp	Wet Bulb.	Dry Bulb	Remarks at 8.30 A M
Aug 23	30 25	E		110	80	57	59	63	Hazy
" 24	30·13	E		106	78	58	60	62	Hazy
" 25	30·03	S E		114	84	55	55	65	Cloudy
" 26	29·42	S W	0 31	116	66	56	53	58	Cloudy
" 27	29 77	W	0 29	104	65	49	52	58	Cloudy
" 28	29 81	N W	0 46	109	65	48	49	54	Fine
" 29	30 03	W		106	65	52	51	56	Cloudy

Medical Diary for the ensuing Week.

OPERATIONS

METROPOLITAN HOSPITALS

MONDAY (2nd)—London (2 P M) St Bartholomew's (1.30 P M) St Thomas's (3 30 P M) St George's (2 P M) St Mary's (2 30 P M) Middlesex (1.30 P M) Westminster (2 P M) Chelsea (2 P M) Samaritan (Gynæcological by Physicians 2 P M) Soho-square (2 P M) Royal Orthopædic (2 P M) City Orthopædic (4 P M) Gt Northern Central (2.30 P M) West London (2.30 P M) London Throat (2 P M)

TUESDAY (3rd)—London (2 P M) St [illegible] Thomas's (3.30 P M), Guy's (1 30 [illegible] minster (2 P M), West London [illegible] (2 P M) St George's (1 P M) [illegible] St Mark's (2.30 P M) Cancer (2 P M) Metropolitan (2.30 P M) London Throat (2 P M and 6 P M) Royal Ear (3 P M) Samaritan (9 30 A M and 2.30 P M) Throat Golden [illegible]

WEDNESDAY [illegible] (2 P M) Ro[illegible] (3 P M) St [illegible] (2 P M) St [illegible]

THURSDAY (5th)—St [illegible] (3.30 P M) [illegible] George's [illegible] (1.30 P M) [illegible] London [illegible] logical 2[illegible] St Mark's [illegible] Golden-sq[illegible]

FRIDAY (6th)—London (2 [illegible] Thomas's (3 30 P M) Guy's [illegible] cross (3 P M) St. George's [illegible] (2 P M) Ophthalmic (10 [illegible] Northern Central (2 30 [illegible] P M) London Throat (2 P M and 6 P M) Samaritan (9.30 A.M and 2.30 P M) Throat Golden-square (9 30 A M)

SATURDAY (7th)—Royal Free (9 A M and 2 P M) London (2 P M) Middlesex (1.30 P M) St Thomas's (2 P M) University College (9 15 A M) Charing-cross (2 P M) St George's (1 P M) St Mary's (10 P M) London Throat (2 P M) Throat Golden-square (9.30 A M)

[illegible]

LECTURES ADDRESSES, DEMONSTRATIONS, &c

MONDAY (2nd)—WEST LONDON VACATION POST GRADUATE COURSE (West London Hospital Hammersmith road W)—5 P M Mr Bidwell: Preparations of Instruments and Ligatures

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It is especially requested that early intelligence of local events having a medical interest or which it is desirable to bring under the notice of the profession, may be sent direct to this Office

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication

We cannot prescribe or recommend practitioners

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Letters relating to the publication sale, and advertising departments of THE LANCET *should be addressed "To the Manager"*

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I.—*Il Piccolo*, Trieste.

J.—Messrs. W. and A. K. Johnston, Edinburgh.

K.—Dr. Walter Kidd, Alum Bay, Isle of Wight; Mr. A. Kidd, Port Elizabeth, Kidderminster Amalgamated Friendly Societies, &c., Secretary of; Kent Medical Benevolent Society, Dr. Charles E. Hoar, Herr S Karger, Berlin.

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THE LANCET.

LONDON: SATURDAY, SEPTEMBER 7, 1901.

An Address to Students.

WITHIN a month from now some 1500 young men in this country will commence the study of medicine. They are entering upon a path which they will have to tread for at least five years, if they faint not by the way. Cannot we who have passed over this path before and can look back upon its toils, its difficulties, and its dangers—cannot we of our knowledge, of our experience, impart some advice, some assistance to those who are coming after? We hope so. It is true that they must, as their seniors have done, learn by experience; but although they have to tread the paths for themselves we can, at least, warn them of some of the trials ahead of them and possibly save them a few detours.

EDUCATION AND INCLINATION.

For him who would study medicine there is no better equipment than a good general education. Even apart from the mental training which the acquisition of a good education must have given, general knowledge of a level much above that required at the preliminary examinations will not be wasted in the study of medicine. The medical sciences are so many-sided that there is but little knowledge which may not assist in unravelling some difficult problem, in enlightening some dark corner, of medical study. At the present day there is especially one item of a general education which is of inestimable value to the student, and that is a colloquial acquaintance with certain modern languages. A practical knowledge of French and German will open to the student's view stores of medical knowledge not available to him who knows only his native tongue. It is true that translations and extracts of articles from foreign periodicals will give a glimpse of this foreign literature, but the small portion thus rendered accessible to the English-speaking student will not bear comparison with what remains behind. We would not suggest that a large extent of general knowledge will in itself enable the medical man to practise his profession in any way more successfully, but it will facilitate in no small degree the acquisition of professional knowledge. Few things are more distressing to a teacher of medicine than to see the difficulties with which those have to contend who have entered on their studies insufficiently equipped in general knowledge; troubles encounter them at every step, and though these in time may be surmounted it is only at a woeful waste of zeal and energy.

Quite apart, however, from this preliminary equipment in general knowledge, all are not equally suited for the practice of medicine. It may well be asked, Is there no natural build of mind and body which specially fits a man for the onerous duties of medical practice, in which he becomes the arbiter of life and death to those who trust themselves to his care? Truly, there is. In medicine, as in every other vocation, there are certain qualities and attributes which are essential for the man who would follow it with satisfaction to himself and good chances of benefiting his neighbours by his work. And to all it is not given to possess them. In the very foremost rank we would put a liking for the work. Without going into the large and vexed question as to how far the choice of a profession should be left to a boy himself—for many other considerations must in most cases be allowed their due weight—we may express a very decided opinion that anyone who enters on the study of medicine without feeling any inclination for it will not unlikely find before his student days are over that he has mistaken his calling. That work is likely to be best done which is done *con amore.* He who has no special leaning towards medicine will feel to be a task what otherwise might be a genuine pleasure—for the practice of medicine should be a joy rather than a care. Among the most important requisites for the study and practice of medicine is a genuine love for the healing art.

THE ABSOLUTE NEED OF ACCURACY.

The second desideratum in the medical aspirant is accuracy, and this is as necessary in the student as it is when the momentous issues of practice hang upon the proper appreciation of facts Of all the earlier subjects which the medical student has to master few will question that the most important is anatomy. It is the very basis and foundation of all the medical sciences and a knowledge of it is as essential for the physician as for the surgeon. As Sir CHARLES BELL well expressed it, nearly 100 years ago, when speaking of the importance of one special portion of anatomy, "Without a knowledge of the arteries a surgeon can neither think sensibly nor act safely." Since, then, a competent acquaintance with the science of anatomy is a necessity for the medical man in whatever department of practice his work may lie, what manner of mind is needed for its acquisition? An accurate mind is essential. Accuracy in observation while he is dissecting a part will make the student's memory accurate in retaining what he then observes. The structural anatomy of the human body is so complete, so finite a science, that what a student once learns of it can never become out of date or be upset by some subsequent discovery. Individual variations may occur, but the general plan is practically invariable. Even the variations which are met with are, as a rule, few in number and well recognised, so that any anatomical fact which a student gleans from his text-book and verifies on the subject before him may be considered applicable to nearly every case with which he has to deal. Accuracy in observing and accuracy in remembering are alike important No man is more to be pitied than a surgeon who, without a due knowledge of anatomy, enters on an operation, for the greatest mortification a man can experience is a feeling of unfitness for the work which he has undertaken. Every incision is made with uncertainty, and the encounter with unexpected structures may render the operation of no avail, or may even cost the patient his life. Even in slight injuries or diseases an accurate knowledge of the normal anatomy of the part is absolutely essential to a reasonable hope of a trustworthy diagnosis and a successful treatment. Seeing, then, how important is an accurate knowledge of anatomy, it is obvious that no trouble can be wasted which is devoted to the obtaining of a competent knowledge of the subject. And for this accuracy is essential. Although we have taken anatomy as an instance of the importance of accuracy, the possession of this quality is equally desirable in all the ancillary sciences of which the medical student has to acquire a working knowledge. Numberless instances at once rise in our mind of the truth of this statement. but it is unnecessary to quote them, for our readers can hardly help recalling a dozen examples. And the accurate observation which the student has practised in his anatomical studies is the very best training he could possibly have for the accurate observation which is so much needed in clinical medicine and surgery.

THE RÔLE OF IMAGINATION.

There are many branches of the complex science of medicine in which a mental quality is needed which is often considered to be antagonistic to accuracy. This quality is "imagination." Medicine is ever changing. The facts of to-day become the doubts of to-morrow and the wild hypotheses of yesterday may take their place as the accepted theories of to-day. The medicine of the ancients appears to us to be largely erroneous and many moderns laugh at the ideas held by their predecessors. This is unwise, for many of the ideas we have to-day may well furnish matter for ridicule for those who come after us.

> "Our little systems have their day,
> They have their day and cease to be."

Hardly need we say that all the while, although with much ebb and flow, medical knowledge is steadily advancing. The greater part of the facts and theories of medicine are so firmly established that they can never be moved. Yet inasmuch as our foundations cannot be too firmly laid we should from time to time examine and re-examine even those facts of medicine which appear to be most definitely settled. For, to vary the metaphor, it may well be that some link in the chain of reasoning has been admitted without proof, that some step has been taken in haste without waiting for a definite demonstration.

No better instance of this can be quoted than the theory that bovine tuberculosis is a cause of tubercle in human beings. We are not now concerned whether Professor KOCH'S theory be true or not, for the argument is equally valid in either case. For many years it has been held that the milk of cows suffering from bovine tuberculosis was liable to cause the appearance of tubercle in those who were fed with it. The theory was accepted and acted on by everyone, both in this country and elsewhere, until Professor KOCH pointed out the absence of all proof that was satisfactory to himself of any connexion between the milk of tuberculous cows and human tuberculosis. This was where imagination came in. It suggested to Professor KOCH that this connexion had been prematurely assumed as true, and he investigated the matter and found himself unable to transmit bovine tuberculosis to other animals. The scientific world is against the great savant's views, but his departure from accepted theory will make it necessary to revise all the evidence bearing upon the question, and the consequence of this can only be a sifting and spread of information. This instance shows a valuable use to which imagination can be put, but it has other more common and yet more important duties. For the student imagination rightly used will give priceless aid in the understanding of the theories of physiology and pathology, though it is chiefly when he is qualified that he finds the value of imagination. If every symptom resulted from a single cause, diagnosis would be exceedingly simple, but little trouble would be needed to discover the cause of any malady, and treatment would become in most cases as simple as diagnosis. Unfortunately, it is not so; there are few symptoms which may not be ascribed to at least half a dozen different causes, and with many symptoms the possible causes are legion. Here is the rôle of imagination. The physician weighs all the symptoms and signs that he has elicited, and then by the aid of his imagination he endeavours to light on a lesion—one disease which will account for all these. In many cases the diagnosis is simple and no great play of the imagination is needed. Frequently, however, the symptoms do not all fit in with the most obvious diagnosis, and imagination has to suggest the explanation. Such imagination is not idle or flighty guessing in the least. Rather it is the art of swift deduction, where a right solution may be reached even though some logical step may be temporarily wanting.

EXAMINATIONS AND THEIR USE.

Nowadays all have to pass examinations, and the student of medicine has many. Examinations are at the best but an untrustworthy method of guaranteeing that a student is fit to practise his profession; but he must neither undervalue nor over-estimate them. They are of great use in directing the student's work into the best channels, and they serve to show him something of the standard of knowledge which is required. Examinations should, if possible, be taken at the due time and not postponed, for the habit of putting off an examination soon grows on the procrastinator. Should a failure occur, as is, alas, far from uncommon, let the student not despair, but examine into the cause of the want of success and remedy it before the next ordeal.

> "It becomes no man to nurse despair,
> But in the teeth of clenched antagonisms.
> To follow up the worthiest."

Some of the very soundest and most successful practitioners have occasionally failed in test examinations, and many will admit that the lessons they learned from the mortifying check to their careers proved useful to them at the time and afterwards. They learned the value of a little introspection, and anticipated a position in which they afterwards found themselves more than once when face to face with puzzling cases in practice. For when the final examinations are behind him, and the quondam student becomes the fully-qualified practitioner he must not imagine that his time of study has gone by. If he be wise he will for ever remain a student. All of us make mistakes, and he is truly wise who is willing to learn by his mistakes An error in diagnosis or in treatment loses part of its harm if he who made it finds it out and its reason, and thus learns not to commit the same error on another occasion. Thus he may be the better, the more accurate, physician for the error he once made. Time and experience are needed for the youthful physician to become a skilful diagnostician. Nearly 500 years ago BASIL VALENTINE wrote: "Only knowledge and experience and thorough investigation of nature make a trustworthy physician." As time goes on diagnosis may become almost intuitive and with some this diagnostic power rises to such heights that it appears marvellous to the less learned.

SYMPATHY AND DISCRETION.

There is a tendency, a great tendency, for the student of medicine to become in his hospital work a little careless of the feelings of his patients. This is doubtless due to no want of kindliness in his nature, but, in great part, to the fact that very many patients have to be seen in a short time of whom many are intellectually slow. Be the cause however, what it may the result is the same; the patients do not derive from the treatment all the benefit they should, and the student himself fails to give that degree of attention to the cases which under other circumstances he would have devoted. Any lack of sympathy, harmful in a hospital is even more prejudicial, if that be possible in private practice. The sick feel a need for sympathy; the feeling that his sufferings are disregarded by those around, that no obvious attempt is being made to alleviate them or to lighten his pangs, cannot but have a very harmful effect on the patient's mind, and through his mind on his body. On the other hand, a judicious expression of sympathy with the sufferer, a sympathy shown not merely in words but in the manner, the tone of voice, and the touch of the hand, will exert a favourable influence on the mind of the patient, on his appetite, on his general nutrition, and even on the morbid process itself. It is generally recognised that if a patient believes he will get well his recovery is far more probable than when his despondency as to the result of his illness depresses his vital powers. Necessarily the difference this can make in any disease cannot be great, but it may be quite sufficient to alter the "balance of power" and to incline the vital processes towards recovery. It were well for the student early in his hospital career to peruse TUKE's valuable work entitled "Body and Mind", he will there see many instances of the great influence the mind has on the body. The action of the body on the mind is more obvious and is therefore less likely to be forgotten. This manifestation of sympathy on the part of the physician must not degenerate into a mere humouring of the fads and fancies of the patient. To give way to every wayward imagination of a sick man will not tend to restore him to health, but a judicious firmness in insisting on those rules which the physician considers binding combined with a kindly yielding in those matters which are of no importance, will go far to assist the patient in his struggle with disease. The medical man must be a sympathetic friend as well as a scientific adviser and neither function must be allowed to lapse. His great endeavour should be thoroughly to understand his patient, to learn to recognise how much pain the patient is suffering and how far the complaints which are made to him depend not on the disease itself but on the patient's mental constitution. It is almost needless to say that this is exceedingly difficult and the end is best attained by the physician putting himself mentally in the position of his patient, imagining what his own feelings would be if he were afflicted with pneumonia or a broken leg and what he would like to have said and done to him under those circumstances. When the patient's confidence has been gained, then the physician will be in the best position to act for his good. Herein lies one of the chief benefits of "family doctors." When a medical man has known a patient from his earliest childhood; when, perhaps, he has even assisted in bringing him into the world; has attended him during infancy and childhood, perhaps through several severe illnesses; has seen him grow to manhood and to middle age; then, indeed as must be obvious, he knows to the full all his individual peculiarities—all the personal traits which exert, not only in health, but even more in disease, so great an influence on a man's life and conduct. A great part of the benefit of this "knowledge of the patient's constitution," as this kind of intimate familiarity with a patient's mind and body is generally termed, depends on the trust which the patient has in his medical adviser. This trust is shown not only in the confidence with which a man will put himself under treatment in a disease endangering his life, but also in the reliance which he places in his medical man's opinion on many matters, some of which are but remotely connected with the treatment of disease. Not even a clergyman enters more intimately into the life of the patient than does the medical man and this influence can work for great good. But the position carries with it enormous responsibilities. It is impossible to over estimate the sanctity of the patient's confidences or the privacy of any knowledge that the medical adviser may arrive at concerning him in the course of attending him professionally. The student cannot learn too early that it is the duty of the medical man to respect his patients to enter into their troubles, and to preserve their confidences intact. Unless he can display the qualities of sympathy and discretion the utmost scientific knowledge may only mislead him to the patient's detriment.

BODILY STRENGTH IS NEEDED.

There is yet another requisite both for the student and for the medical man concerning which space must be found to say a word or two. In each case good health is required. We do not endorse a suggestion made a few years ago, that every would be student of medicine should measure so many feet in height and so many inches round the chest, and should scale so many pounds. Height and weight are but sorry criteria of good health. Nevertheless, good physical health is almost essential. The strain of five years hard study is by no means slight, and a breakdown during the student days would be a rarer event than it is if more attention were paid to the bodily health. And though the strain before qualification is severe, much more severe is it when the medical man enters practice. Disturbed nights add their depressing effect to the exhaustion of laborious days, and nothing but a strong constitution can withstand this strain on health. To himself the physician owes it that he should not work beyond his strength and to those dependent on him it may mean all the difference between ease and direful poverty. Let every student husband his strength and live as befits a child of science soberly and discreetly. So will he much improve his chances of success as a student and will enter upon his life work with the pleasurable feeling first examination for the Fellowship of the Royal College of Surgeons of England is one of the hardest and most uncertain examinations known to us. In making the suggestions which follow we premise in the student a complete knowledge of the simpler works.

For the Preliminary Scientific Examination of London University Rideal's *Practical Organic Chemistry* (Lewis, 2s. 6d.), Tilden's *Inorganic Chemistry* (J. & A. Churchill, 10s.), Remsen's *Organic Chemistry* (Macmillan, 6s. 6d.), and Bernays' *Practical Chemistry* (J. & A. Churchill, 4s. 6d.) are recommended. Daniell's *Text-book of Physics* (Macmillan and Co., 21s.) should be supplemented by Deschanel's well-known volumes and such books as Catchpool's *Sound* (Clive, 3s. 6d.), Lowson's *Botany* (Clive, 6s. 6d.), and Wells and Davies's *Zoology* (Clive, 6s. 6d.) We understand that in October Messrs. Arnold will publish Mudge's *Biology*, a book which is intended exactly to fit the needs of this examination, while the course of botanical reading should include Scott's *Structural Botany* (Adam and Charles Black, two vols., 3s. 6d. each). For the first M.B. of the University of London and for the first Fellowship of the Royal College of Surgeons of England Morris's *Anatomy* (J. & A. Churchill, 36s.) is, on the whole, the best text-book, but the student should also read embryology by Schäfer and splanchnology by Schäfer and Symington in Quain's *Anatomy* (Longmans, 9s. and 16s. respectively) and revise his osteology from time to time by Gray's *Anatomy* (Longmans, 36s.) and his practical work by Cunningham's *Practical Anatomy* (two vols.; Young J. Pentland, 12s. 6d. each) or Brodie's *Dissections Illustrated* (Whittaker and Co., 42s.). For both these examinations Stewart's *Physiology* (Baillière, Tindall, and Cox, 15s.) or Foster's *Physiology* (Macmillan and Co., in four parts, 10s. 6d. each, and appendix, 7s. 6d.) should be read.

For the final medical examinations of the great universities no different text-books are absolutely required to those suggested for the final examination of the Conjoint Board, but the student's reading should be regularly supplemented by studying the valuable monographs in Allbutt's *System of Medicine*, the pages of the medical journals, and such works as Powell's *Diseases of the Lungs and Pleura* (Lewis, 18s.), Gowers's *Treatises on Neurology* (J. & A. Churchill, vol. i., 15s; vol. ii, 20s.), von Jaksch's *Clinical Diagnosis*, (Griffin and Co., 24s.), and Judson Bury's *Clinical Medicine* (Griffin and Co., 21s.). A sound knowledge of bacteriology will also be expected of the medical graduates of the principal universities, who will be expected to be familiar with the modern views of the etiology and prevention of infective diseases. Sternberg's *Bacteriology* (J. & A. Churchill, 24s.) and Crookshank's *Text-book of Bacteriology* (H. K. Lewis, 21s. net) are the best and most comprehensive modern works. For the final surgical examination of the University of London (that for the degree of M.S.) and for the final F.R.C.S. the first thing for the candidate to remember absolutely is that his anatomical knowledge must be as perfect as it was at his previous tests. If it be taken for granted that the student has a thorough knowledge of such a text-book as that of Rose and Carless, then the book to read is Tillmann's *System of Surgery* (Kimpton, 63s.). The book is thoroughly well written, comprehensive, and completely up to date, which can no longer be said of Holmes's *System* or even of Erichsen's splendid work. *A Manual of Surgical Treatment*, by W. Watson Cheyne and F. F. Burghard, is being issued in parts at prices varying from 10s 6d. to 18s. by Longmans. Five parts are published and a sixth is in preparation. This is a valuable book, sound, practical, and up-to-date; and the same may be said of Walsham's *Surgery*, now in its seventh edition (J. & A. Churchill, 15s). Such monographs as those by Bland-Sutton on *Tumours* (Cassell and Co., 21s.), by Treves on *Intestinal Obstruction* (Cassell and Co., 21s.), by Tubby on *Deformities* (Macmillan and Co., 21s. net), by Morris on the *Surgery of the Kidney* (Cassell and Co., 42s. net), by Waring on *Operative Surgery* (Young J. Pentland, 12s. 6d.), and by Marsh on *Joints* (Cassell and Co., 12s. 6d.) should also be read.

Recent Medical Literature.

During the past students' year many excellent works have appeared which have been highly reviewed in our columns but which cannot be called essential to the library of the student. A certain proportion of these text-books have been, and will be, read by very many students and if they are kept up to date where necessary will very possibly take the place in popularity of those now occupied by other works. Some text-books in these days of medical progress require annual revision; explanations once necessary become no longer so, new discoveries entail large additions, doubt is thrown upon accepted theories, importance is given in the medical curriculum to subjects which had previously been barely noticed, and so on. For any or all of these reasons a book that is to appeal to students from year to year must be revised almost annually. It follows from this that text-books which we now recommend as essential—as far as any one text-book can be essential to the student's education—may easily drop behind and its place be taken by another book more carefully brought up to date and more directly written to suit the immediate exigencies of the examination boards. During the past year a new edition of an excellent book on physiology has been published (*Elements of Human Physiology*, by Ernest H. Starling, M.D., F.R.C.P. Lond., F.R.S., fourth edition, much enlarged, 690 pages, with 317 engravings, 8vo, 12s. 6d. J. & A. Churchill). The book, as we said in our review of it, "gives the established facts in physiology in a very clear and logical fashion, and while it would appear in parts that he (the author) writes rather for the young physiologist than for the student of medicine, yet it must be remembered that a true study of physiology involves an accurate knowledge of organic chemistry." In surgery several new works or new editions of previously published works have appeared to which attention should be drawn. Mr. Henry Morris has published the Hunterian Lectures for 1899 (*On the Origin and Progress of Renal Surgery*. With 28 illustrations, 6s. Cassell and Co., Limited). A new edition of *Surgical Diseases of Children*, by Mr. Edmund Owen (third edition, revised and enlarged, with five chromo plates and 120 engravings, 21s Cassell and Co., Limited), has also appeared and is an excellent *résumé* of accepted knowledge on the subject written in a bright practical manner.

Among the numerous American works to which we have had to draw attention in our review columns during the year we may pick out for special notice *A Text-Book of the Practice of Medicine*, by James M. Anders, M.D., Ph.D., LL D (two octavo volumes, 1292 pages, fully illustrated, cloth 24s net. W. B. Saunders and Co.), which is a very complete and satisfactory book deserving a prominent place in every medical library. *A Text-Book of the Theory and Practice of Medicine*, edited by William Pepper, M.D., LL.D. (complete in two royal octavo volumes of about 1000 pages each, illustrated; price per volume, cloth 21s. net. W. B. Saunders and Co) is another first-class treatise. The articles are exhaustive in scope and the book as a whole is, as we stated at the time that it appeared, thoroughly practical and useful. *A Text-book of Surgery*, edited by Dr. W. W. Keene and Dr. J. W. White (two royal octavo volumes of 1250 pages with 500 woodcuts in the text and 39 coloured and half-tone plates, price, cloth, 30s. net. W. B. Saunders and Co) is another admirable text-book which has been revised and enlarged during the year. It is a complete and readable account of the science and art of surgery and is a fair reflex of the present position across the Atlantic. Two other American works illustrating well the genius of that country for productions neat in shape and encyclopædic in character may be mentioned One is *A Year book of Medicine and Surgery*, edited by GEORGE M GOULD (two volumes octavo of about 600 pages each, illustrated, price per volume 13*s* 3*d* net. W B Saunders and Co) The other is the *Illustrated Medical Dictionary*, by W A. NEWMAN DORLAND, M D, editor of the *Pocket Medical Dictionary* (octavo, 800 pages, 19*s* net W B Saunders and Co)

Professor WOODS HUTCHINSON, A M, M D, has written a work of singular interest and in a very attractive style (*Studies in Human and Comparative Pathology*, edited by Dr Edward Lake, 350 pages, price 12*s* 6*d* Henry J Glaisher) The study of comparative pathology is still in its infancy, but it is a most interesting and instructive study, and any senior student who desires to read a book which no one but a person properly grounded in medical science could follow is recommended to this work The book would have no direct bearing on his examinations, but would give him valuable ideas Dr G V POORE'S addresses on Medical Jurisprudence (*A Treatise on Medical Jurisprudence*, illustrated, 530 pages, price 12*s* John Murray) is a work which, like Dr Woods Hutchinson's, is not only full of information but charming reading The author has a thorough grasp and knowledge of his subject By means of a free employment of illustrative cases drawn from the records of the law courts and from large personal experience the dry details are endowed with lively interest which is likely to imprint them on the student's memory Mr WALTER C C PAKES, the bacteriologist to Guy's Hospital and demonstrator in sanitary science in that school, has produced a very good text book (*The Science of Hygiene a Text book of Laboratory Practice*, pp xv 308, price 15*s* Methuen and Co) The work, as we said when we reviewed it, is "wide in scope and accurate in detail" It covers the whole of the laboratory work required from candidates for the various diplomas in public health and, indeed, it covers much more than this, and will be found a good work of reference for medical officers of health generally

OLD FRIENDS

We regretfully leave out of our list many old friends but we have done so deliberately, not because we are otherwise than certain that everyone must derive much benefit from reading the works of Erichsen, Holmes, Playfair, and Bristowe for example, but because in these days of an extended curriculum and frequent examinations it is of the first importance to the student to have his knowledge always on hand, clear, well-defined, and certain A text-book that in details especially in details of classification, has dropped behind might possibly muddle a student or betray him into error By all means let him when he has passed his examination, read these excellent books but he had better wait until his days of probation are over before studying the evolution of medicine We have also made no attempt whatever to indicate the best books to employ in the more special branches of medical and surgical work At the classes and clinical demonstrations dealing with these subjects, as in the laboratory, the professor or lecturer will tell his pupils what books he desires them to read and the particular book will depend upon the scope of his addresses and demonstration. In previous Students Numbers of THE LANCET will be found an exhaustive list with critical comments of all the best text books

UNIVERSITY OF LONDON

SINCE 1864 suggestions for converting the Examining Board of the University of London into a body exercising distinct teaching functions have been continually before the Senate and Convocation, but an efficient plan is even yet far from being completed or in working order The scheme for the *concentration of medical studies* and the revision of the curricula for the early education of medical students are held over until the next winter session, and it will take a very considerable time before the regulations affecting the future of medical education in London will be decided on, much less made operative There is a good deal of talk at the various committee meetings, but very little progress, for there is no agreement on principles, and *therefore, much difference of opinion on details*

The history of the opposition to a real teaching University in London is a very curious study In 1864 Mr. Bompas and Dr Sansom appear to have made the first move in this direction after the original foundation of the University, but their proposals were at once rejected by the Senate *Dr Pye Smith's* resolutions in 1878 were also rejected, as were similar ones afterwards adopted by Convocation in 1881 and 1882. The first important movement outside the members of Convocation began in 1884 and it then took 14 years for a Bill to be passed through Parliament appointing a statutory commission to arrange the details by which the University should be guided in carrying out its teaching duties Although the Senate and other authorities nominated by the Statutory Commission were elected in October, 1900, no educational regulations are yet forthcoming

The dissatisfaction which most educational experts in London felt with the attitude of the University of London towards higher education in London led in November, 1884, to the formation of an association for promoting the establishment of a teaching university for London under the presidency of Lord Reay and the vice-presidency of Sir George Young, and the association immediately entered on an active propaganda in support of its principles and objects These were defined by the association as follows —

1 The organisation of university teaching in and for London, in the form of a teaching university, with faculties in arts, science, medicine, and laws. 2. The association of *university examination with university teaching, and the* direction of both by the same authority 3 The conferring of a substantive voice in the government of the university upon those engaged in the work of university teaching and examination 4 Existing institutions in London of university rank not to be abolished or ignored but to be taken as *the basis or component parts of the* university, and either partially or completely incorporated with the minimum of internal change. 5 An alliance to be established between the University and the Professional Corporations, the Council of Legal Education as representing the Inns of Court, and the Royal Colleges of Physicians of London and Surgeons of England.

A sub committee was appointed to draw up a scheme in accordance with these objects and it attracted much attention and support from the teachers of London On Lord Reay being appointed to the Governorship of Bombay the late Mr John Marshall accepted the presidency of the association. This movement naturally alarmed the Senate and Convocation of the University of London, as it was directly aimed to fill up the gap in London education, which their institution had been originally formed to occupy, but they preferred to become an Imperial examining board instead of a local university Many of the graduates, however, were in favour of reforming the University on the lines laid down by the association so on Jan 6th, 1885 a special committee of 40 members was appointed to consider its proposals On Feb 24th they reported to Convocation that the objects of the association would, if carried into effect by the University add to its usefulness and importance This report was carried by a large and influential majority and the committee was re-appointed A scheme embodying these proposals was drafted by a sub-committee with Lord Justice Fry as chairman but after a prolonged discussion on July 28th and Nov 3rd of the same year was rejected by 43 votes in favour of an amendment of Mr (now Sir) Philip Magnus to refer back the scheme for consideration and to increase the number of the special committee by 20 names Most of the members of the special committee at once resigned Mr Magnus's scheme, which varied but little in its general plan from that of Lord Justice Fry, was brought before Convocation of Dec 8th, 1885 and was referred to a special committee of 25 members to work out the details and lay them before Convocation

Meanwhile the question of degrees for London medical students had been introduced to the profession by the late Dr Walter Moxon in a most lucid and powerful article in our columns on July 25th, 1885 entitled "The Demand for Equitable Graduation in the South of England, being a Study of an Unfulfilled Duty of the Royal Colleges of Physicians and Surgeons." He pointed out that these Colleges, if empowered to grant medical degrees, would at once constitute a teaching university in London and be the nucleus or centre of growth of a more general teaching university. A memorial in favour of this movement was presented to these Royal Colleges bearing the signatures of over 600 teachers, practitioners, and students of medicine. A committee of delegates of the two Colleges had already presented a report, which was fully considered in October, 1885, and a motion moved by Dr. (now Sir) Samuel Wilks was adopted in the following terms: "That it is desirable that persons examined by the Royal College of Physicians of London and the Royal College of Surgeons of England conjointly and found duly qualified, either by the ordinary or an additional qualification, should have a degree in medicine and surgery conferred on them." It is interesting to know that Dr. Fincham, Dr. S. O. Habershon, Dr. C. West, Dr. (now Sir) William Gowers, Dr. (now Sir) W. H. Broadbent, Dr. Sansom, Dr. Barnes, Dr. Wilson Fox, Dr. Norman Moore, Dr. Moxon, Sir Andrew Clark, Sir Henry Pitman, and Sir William Jenner all spoke in favour of the movement. This preliminary report, having been referred to the Councils of the Royal Colleges and reported on, was further considered by the committee of delegates at very frequent meetings and they again reported in December, 1886, in favour of the granting of a degree in medicine and surgery to London medical students by the Royal Colleges and that an application for this purpose should be made to the Crown. A carefully drawn up statement giving the reasons for this step accompanied the report of the delegates. This final report came before both Colleges on Dec. 16th, 1886, after a most interesting discussion at the Royal College of Physicians of London as to whether the degree should be conferred by the Colleges acting by themselves alone or by some university outside the Colleges but on which they could be represented. This obviously was intended to include either a reformed London University or such a university as was contemplated by the Teaching University Association. On the 23rd an amendment taking the latter view was defeated by a large majority and the two Colleges were now definitely pledged to go on with their own scheme.

On June 29th, 1886, Mr. Magnus's scheme, which differed but little in its essentials from that of Lord Justice Fry, was passed by Convocation, but was no more acceptable to the Senate than former ones had been. The year 1887 was practically spent in conferences between the various bodies interested and three new schemes were ultimately brought forward, one by the University of London as representing the views of the Senate; a second by the Royal College of Physicians of London and the Royal College of Surgeons of England; and a third by University College and King's College, London. All these applications were put in for hearing before the Privy Council before Jan. 16th, 1888, but in consequence of a multiplicity of petitions for and against them, and of the great importance of the question, Her Majesty's Government advised the appointment of a Royal Commission. In May, 1888, the Commission was formed and held its first meeting on June 2nd. Lord Selborne was the chairman, and the other members were Sir James Hannen, Mr. Brodrick, Warden of Merton College, Oxford, Sir William Thomson (now Lord Kelvin), Professor (now Sir George) Stokes, Vice-Chancellor Ball, and Dr. Welldon, with Mr. J. L. Goddard as secretary. The Warden of Merton College resigned after the first sitting on a question of procedure as to the limitation of the proposed evidence. After hearing most voluminous evidence the Commissioners issued their report on April 29th, 1889, in which the petition of the Royal Colleges to grant degrees in medicine and surgery was unanimously rejected. A reconstitution of the University of London mainly on the lines of the scheme of Lord Justice Fry was unanimously recommended to be tried, but in a separate note the members more immediately connected with education—viz., Sir William Thomson, Professor Stokes, and Dr. Welldon—declared their preference for the establishment of a new teaching university in London without interfering with the work so ably done by the existing institution, although they would permit the existing institution to undertake the new duties if it could, which they doubted. If a proper scheme in full accord with the recommendations of the Commissioners were forthcoming from the University of London the petition of University and King's Colleges to be constituted into a university was not to be granted. Conferences between the various bodies interested and the Senate and between the Senate and Convocation as to the modifications required to meet the views of the Commission led to no result, so Lord Cranbrook, as Lord President of the Privy Council, wrote to the University of London at the end of 1890 asking their intentions with regard to a new Charter. After many futile attempts a finally revised scheme "was drawn up" by the Senate and submitted to Convocation in 1891. This was too complicated to receive much support and was rejected by a large majority.

Two years of conferences had led to no result and Lord Cranbrook at once gave notice that he would fix an early date for a meeting of a Committee of the Privy Council to take into consideration the petition of University and King's Colleges "to be a university in and for the London district, having power to grant degrees in the Faculties of Art, Science, and Medicine, with power to add other faculties." The Lords of the Privy Council passed the Draft Charter of this new University, leaving the two Royal Colleges to determine whether they would accept the representation offered to them in the new University. This was declined, but the alternative representation of the 10 medical schools was accepted, and so they became, with University and King's Colleges, constituent colleges in the University. The University was to be called the Albert University, but afterwards, when the Joint Grand Committee of Gresham College had given their full support to the scheme, the name was by consent changed to that of "Gresham." The draft charter had to be laid on the table of both Houses of Parliament for 30 days. During the Parliamentary recess a most determined opposition was started by the authorities of the Victoria University and the provincial medical colleges, supported by many members of the Senate and Convocation of the University of London, by Bedford College, the Birkbeck Institute, and similar bodies, and the University Extension Society. Many London professors, especially in science, urged the formation of a professorial university in opposition to a federated one. Parliament assembled in February, 1892, and on March 3rd Lord Salisbury received a deputation representing these interests, at which Vice-Principal Rendall and Mr. Chamberlain were the principal speakers. On March 9th the Draft Charter was remitted by Mr. Balfour for reconsideration and on April 25th a new Royal Commission was appointed "to consider and if they think fit alter and amend the proposed Charter remitted in compliance with an address of the House of Commons, so as to form and report to us a scheme for the establishment under Charter of an efficient teaching university of London." The members of the new Commission were Earl Cowper (chairman), Lord Reay, Bishop Barry, Lord Playfair, Vice-Chancellor Rendall, Professor Ramsay, Professor Sidgwick, Canon Browne, Mr. Anstie, Q.C., Mr. R. C. Palmer, Sir W. S. Savory, Sir G. M. Humphry, and Professor Burdon-Sanderson, a well selected group of men representing practically all the interests involved in the solution of the question.

The sittings began on May 21st, 1892, and after hearing most lengthy, and in many respects contradictory, evidence, as well as a recapitulation of that put before Lord Selborne's Commission, the new or Cowper Commission were not able to report before January, 1894. The chief recommendations then were that there should be one university with teaching functions confined to London and that the existing university should be reconstructed so as to carry on this work without interfering with its present duties, and that University College, King's College, Bedford College, the Royal College of Science, the City and Guilds of London Institute, certain theological colleges and colleges of music, and the London medical schools should be at once admitted as schools or colleges in the University. The students were to be divided into those attached to those institutions (internal or collegiate students) and those unattached (external or non-collegiate students). The examinations for the internal students were to be arranged by an Academic Council of the members, and those for the external students by a board specially appointed for that purpose. The final examination for the degrees in either were to be the same or to represent the same standard of knowledge, and "identical, so far as identity is consistent with the educational interests of both classes of students." The governing body was to be a Senate composed of the Chancellor and 65 other members. It was also proposed that these recommendations should be effected, not by Charter, but by legislative authority and by the appointment of a Commission with statutory powers. [illegible] ed by the Royal Colleges [illegible] ing's College after some [illegible] Deputations in support [illegible] e were received by Lord [illegible] ere told that the Government would "consult very largely the vote of Convocation, whenever it is taken." On Jan. 22nd, 1895, a meeting of Convocation took place, when 206 voted in favour of the scheme and 174 against. On May 14th, at the next meeting, Mr. Bompas endeavoured to get the resolutions which had been passed at the last meeting rescinded, but he was defeated by 238 votes against 116 As if to show the futility of consulting the graduates Mr. Napier, LL.D., a marked opponent of the scheme, was elected a Fellow of the Senate at the same meeting by 1231 votes, whilst only 738 graduates supported Mr. Cozens-Hardy, one of its most prominent and influential advocates.

On May 9th, 1895, Lord Playfair introduced a Bill in the House of Lords to carry out the recommendations of the Cowper Commission. The Bill was a very short one and the operative clause was as follows :—

1. The Commissioners shall make statutes and ordinances for the University of London in general accordance with the scheme of the report hereinbefore referred to, but subject to any modifications which may appear to them expedient after considering any representations made to them by the Senate or Convocation of the University of London or by any other body or persons affected.

2 In framing such statutes and ordinances the Commissioners shall see that provision is made for securing adequately the interests of non-collegiate students.

3. All such statutes and ordinances shall be laid forthwith before both Houses of Parliament, and shall come into operation on the expiration of 40 days after they have been so laid, and shall have effect as if enacted by this Act, but shall be subject to alteration in the manner provided by such statutes and ordinances.

The Bill passed its first reading, but its further progress was stopped by the resignation of the Government. On the accession to office of the new Ministry an influential deputation waited on Nov. 28th, 1895, on the Duke of Devonshire, as Lord President of the Privy Council, asking him to introduce a similar Bill, but with a right of appeal to the Privy Council added. The deputation met with little encouragement and Sir John Lubbock in his election address adopted the strange position that every graduate should be able to exercise the right of veto even by a proxy vote and without a personal attendance at Convocation, so that the prospects of the Bill at the end of 1895 were far from hopeful. The opposition of the graduates was further shown by the rejection of Sir Joseph Lister (now Lord Lister) as a Fellow in favour of the late Mr. Walter Rivington in June, 1896. Another amended Bill was introduced in the House of Lords and it passed but was withdrawn in the House of Commons. Other tentative measures were tried in 1897. Some important points not in the former Bills were now introduced by way of compromise, and these satisfied a large section of Convocation which had formerly been actively hostile, although many graduates under the leading of Mr. Fletcher Moulton still continued a strenuous opposition The Bill was, however, again introduced in the House of Lords by the Lord President on Feb. 21st, 1898, when it passed through the various stages without material alteration. It was then introduced in the House of Commons and passed the second reading on June 15th, when it was at once referred to the Standing Committee on Law. It was returned from this body practically unaltered and although many obstructive amendments—formerly defeated—were again urged it passed successfully through the Committee stage in July and received the Queen's assent on August 12th, 1898

The Statutory Commission was composed of Lord Davey, the Bishop of London, Sir William Roberts, M D, Sir Owen Roberts, Professor Jebb. Professor Michael Foster, M.D, and Mr. Edward Henry Busk, LL.B. Mr. T. Bailey Saunders was appointed secretary to the Commission. The statutes were published Feb 13th, 1900.

During the sittings of the Statutory Commission confidential draft reports were sent to the Clerk of Convocation. The first report dealt with the questions of the constitution of the University and asked for any representations which Convocation might desire to offer on degrees and examinations. The suggestions were very numerous, but had no influence with the Commission, although its attention was specially called to the fact that the registered graduates in medicine and surgery would only be represented by two members of the Senate, whilst arts and science were each to have six and music one. Six months later the concluding portion of the confidential draft report was forwarded for considerations affecting the schools and teachers of the University. In spite of the recommendations of Convocation engineering was made into a distinct faculty instead of being included under science, and economics and political science (including commerce and industry) were also separated into a faculty. The students in these subjects will proceed to degrees in science, but will have no separate representation on the Senate.

Early in the session of 1900 the new statutes obtained Parliamentary sanction and received the assent of Her Majesty the Queen without alteration. The University, after some very delicate negotiations, was transferred to the Imperial Institute building. The society known as the Imperial Institute surrendered the lease of that building to the Government, who granted the use of the central and eastern portions to the University of London substantially on the same terms as the former building in Burlington-gardens was held. "The University does not acquire its title from or under the Imperial Institute; it will have no relation with that body; it will not inherit any of its duties or liabilities." Convocation is asking for three of the best rooms in the house for a writing room, a graduates' club-room, and a room for conversation and other social purposes, and that these should be properly furnished.

The statutes as published by the Statutory Commissioners are practically identical with the recommendations of Lord Cowper's Commission in January, 1894. The visitor is Her Majesty in Council (now His Majesty). The Chancellor in future will be elected for life by the graduates in Convocation; the Vice-Chancellor will be elected by the Senate from its own body and the Chairman of Convocation by the members of Convocation; and 56 members of the Senate will include the Chancellor and the Chairman of Convocation. The other members are—16 chosen by Convocation; 18 by various educational bodies; 16 by the faculties; and four Crown members. The Senate is the supreme governing and executive body of the University and will have the custody and use of the common seal of the University, and the entire management of, and superintendence over, the affairs and property of the University. There are three standing committees of the Senate whose functions will be only advisory. These are (1) the Academic Council, of 16 persons, appointed to the Council by the members returned by the respective faculties, who will advise on the courses of study for internal students and any matter relating to these students; (2) the Council for External Students, of 16 members, elected by Convocation, to advise on the superintendence, regulation, and conduct of the examinations for such students, and for the equalisation as far as possible of the standards of knowledge and attainments prescribed for the degrees conferred upon external and internal students respectively; and (3) a board made up of an indefinite number of members of the Senate to promote the extension of University teaching. Convocation elects the next Chancellor and its own chairman and deputy chairman There are eight faculties—viz, theology, arts, laws, music, medicine, science, engineering, economics and political science. The members will be chiefly teachers and will consider and report on any matter referred to them by the Senate or on any matter relating to courses of study or granting of degrees. Boards of studies will also be formed at the discretion of the Senate The members of the Faculty of Medicine elected to the Senate, and therefore on the academic council, to regulate the courses of study and granting of degrees to medical students are Dr Rose Bradford, Dr Kingston Fowler, and Dr. E C Perry Sir T. Barlow and Dr. J. Frank Payne are returned by Convocation, Dr. Allchin and Dr. Pye-Smith represent the Royal College of Physicians of London, Mr. Pearce Gould and Mr. Howse the Royal College of Surgeons of England, and Dr T. Buzzard now represents King's College, London. The elections to the Senate took place on Oct. 13th, 1900

Since the formation of the reorganised University last year there seems to be but little progress in its practical work.

Teaching remains where it was and examinations have undergone no change as to either routine or suitability. The two important questions of the concentration of medical studies and the rearrangement of the curriculum for the matriculation, the preliminary scientific M.B., and intermediate M.B. examinations have been discussed by the Boards of Intermediate Medical Studies of the Faculty of Medicine. For the matriculation examination another examination for internal students or some alternative should be recommended in its place. At the preliminary scientific M.B. examination the arrangements suggested are evidently more practical than those now in use, but the terminal or sessional examination at a school of science or medical school will probably be adopted instead of the present preliminary scientific M.B. The report on the intermediate M B. is mainly interesting from the divergence of opinion as to the retention of organic chemistry in the syllabus for this examination and as to the necessity of there being a "honours" list.

The "concentration of medical studies" committee also reported in July, 1901, but the differences in opinion at the different medical schools were so great that, like the report on curricula, it was decided to postpone the further consideration of the matter until the winter session. The decision of these questions lies with the Senate and its Academic Council and it is not likely that any definite regulations will be published for a very long time yet. The whole procedure of the University is too cumbrous to affect the course of any present, or perhaps we may add any coming, student during the next two or three years. The Senate, we hear, has been largely concerned with the idea of teaching Chinese in connexion with the University, hoping that the China merchants in the City of London will endow the chair and endorse the scheme. There is still some difference as to whether colloquial or philosophic Chinese is what is wanted by the merchants or by the learned scholars. We would draw their attention from this novel problem to the more familiar one in the statutes. "The Senate may make arrangements with the Royal College of Physicians of London and the Royal College of Surgeons of England, or either of them, to conduct jointly with the Senate examinations in such portions of the subjects included in the course of study for a medical degree as may be agreed upon between the Senate and these Colleges, or either of them, and may also make similar arrangements with other corporations and institutions holding professional examinations in subjects included in other courses of study." We have as yet heard of no action being taken towards this great relief to the examinations of the medical student.

The arrangements for the courses of study for medical students and the granting of degrees are in the hands of the Senate, and considering that more than 30 years have been spent in endeavouring to found a real university in the metropolis it is only a bare justice that pupils from 1864 who were debarred from obtaining a true medical degree and had to be content with licensing qualifications only should have the opportunity of obtaining a degree on an examination test only and without undergoing further and unnecessary curricula of study. A final examination test, mainly practical, in medicine, surgery, obstetric medicine, and hygiene, would be all that should be required and could easily be made thoroughly efficient. The medical profession in London and the provinces has ever been most active to secure for past, present, and future medical students in London a degree on similar terms to those which are granted to the students in the Scotch and provincial universities, and it lies with the Senate of the existing University of London to grant this just demand.

SOME OF THE CHIEF APPOINTMENTS HELD BY MEDICAL MEN.

Medical Officer to the Local Government Board.—This appointment is in the hands of the President of the Local Government Board for the time being, and has hitherto been filled by the promotion of one of the two assistant medical officers of that Board.

Medical Inspectors of the Local Government Board.—These appointments also are made by the President of the Local Government Board. Qualification and experience in public health are taken into consideration. The Board employ 11 inspectors; also a director of the vaccine lymph station, two vaccinators, two medical inspectors for Poor-la purposes, and a water analyst.

Medical Officers to Poor-law Districts.—These appoin ments are made by the guardians of the union or parish i question, subject to the approval of the Local Governme Board, which approval is primarily concerned with th medical and surgical qualifications of the persons appointe and the locality of their residences. As a rule the sam person may be appointed medical officer for the workhou and for the district; but the appointments of district medic officer and workhouse medical officer may also be hel separately. The appointment usually lasts during the lif of the holder.

District Medical Officers of Health.—The appointmen are made by the urban or rural district council in questio subject to the sanction of the Local Government Boar which sanction takes account of qualifications, salary, are of district, and place of residence.

County Medical Officers of Health.—The appointments a made by the respective county councils, with whom th question in all its details absolutely rests. The Loc Government Act of 1894 has transformed the sanita districts created by the Public Health Act of 1875 into urba and rural districts, subject to district councils. The councils must, and county councils may, appoint medic officers of health, subject to a provision that a county medic officer may at times act for a district council instead of th district council appointing its own officer. The duties county medical officers of health are defined by Acts Parliament. They consist, generally speaking, of examinin and reporting to the local authority all matters dangerous health within their district, not otherwise provided for b special Acts. No appointment of medical officer of healt may be made unless an advertisement of the salary to b assigned and of the day of election has appeared in som public local newspaper at least seven days previously.

Lord Chancellor's Visitors in Lunacy.—There are tw medical visitors in lunacy nominated by the Lord Chancellor. The appointments are usually bestowed on gentlemen who have distinguished themselves in psychologica medicine, but who have not within two years been intereste in any house licensed for the reception of persons of unsoun mind. These appointments debar their holders from privat practice; their duties consist in the supervision and visitin of lunatics for whose welfare the Court of Chancery i responsible.

Prison Medical Service.—The medical officers attached to the larger prisons are required to devote their whole time to their official duties. Forms of application can be procured from the Secretary to the Prison Department at the Home Office, as all appointments are made by the Home Secretary. The salary commences at £250 per annum, with free quarters or an allowance in lieu thereof. The duties of a prison surgeon consist in visiting, examining and attending the prisoners, in attending the officers and staff of the prison with their families, and supervising the sanitary arrangements of the prison. The attendance on prisoners is subject to certain regulations, which permit the calling in of a medical practitioner from outside should circumstances demand it, and which forbid the performance of serious operations, except in urgent cases, without previous consultation with another medical practitioner.

Medical Officers of the Mercantile Marine.—The Merchant Shipping Act, 1894, directs (Section 209) that every foreign-going ship having 100 persons or upwards on board shall carry a duly qualified medical practitioner. Ship's medical officers, however, are more often appointed under the part of the same Act relative to "emigrant ships." For the purposes of the Act an emigrant ship is defined as one which carries more than 50 steerage passengers, and a steerage passenger is defined as one who is not a cabin passenger. Section 303 provides that a medical practitioner shall be carried on board an emigrant ship where the number of steerage passengers exceeds 50 and also where the number of persons on board (including cabin passengers, officers and crew) exceeds 300. A medical practitioner shall not be considered to be duly authorised for the purposes of this Act unless (*a*) he is authorised by law to practise in some part of His Majesty's dominions or in the case of a foreign ship in the country to which that ship belongs; and (*b*) his name has been notified to the emigration officer at the port of clearance, and has not been objected to by that officer; and (*c*) he is provided with proper surgical instruments to the satisfaction of that officer. The remuneration for these appointments is extremely variable, ranging from a free passage to the port of destination to a handsome salary during continuance in the service. The appointments are, of course, made by the various firms of shipowners and the applicants for the appointments on the first class lines are numerous Nowadays only younger men get the good berths, and an effort is made to retain their services

Medical Inspectors of Merchant Ships —These are appointed by local marine boards when the Board of Trade requires them to do so, or at ports where there is no Local Marine Board, by the Board of Trade Medical Inspectors of seamen are appointed in the same manner, and the emigration officer at the post of clearance may appoint a medical inspector of passenger ships

Factory Surgeon —Under the Factory and Workshop Act certifying surgeons are appointed by the inspectors of factories The duties are to certify as to the fitness for employment of children and young persons about to be engaged in factories and workshops and *to investigate and report on accidents* Certificates of fitness for employment have to be given after a personal examination of the person named therein at the factory or workshop There is a scale of fees for investigating and reporting on accidents which is sanctioned by the Secretary of State. The fees are low, but in any intricate case, or when any peculiar circumstances arise either in making the inquiry or in framing the report, the inspectors may recommend a higher fee, so that no fee exceeding 10*s* be assigned for any one accident, and provided the reason for assigning such higher fee be stated by the inspector When a certifying surgeon receives notice of an accident at a factory or workshop he must proceed thither with the least possible delay and make a full investigation as to the nature and cause of the death or injury caused by the accident and within the next 24 hours send a report to the inspector of factories For the purposes of such inspection he has the same powers as an inspector of factories, with power to enter any room to which the dead or injured person may have been removed The same regulations and provisions as in the case of accidents apply to cases of lead, phosphorous, or arsenical poisoning and to cases of anthrax occurring in a factory The duties of a factory surgeon include also the making of a report annually to the Home Secretary as to the persons inspected by him, while among his powers, other than those mentioned, is that of inspecting at all times the register of accidents which the occupier of a factory is by law compelled to keep

Public Vaccinator —These are appointed by the guardians in unions and parishes A candidate for this office must hold a certificate of proficiency in vaccination. The contract under which the public vaccinator undertakes his duties is in accordance with a form prescribed by the Local Government Board which also has power to make rules with regard to his duties and remuneration. Except in the case of the medical officer of a workhouse the contract must provide for a payment to the public vaccinator of not less than 1*s* in respect of each child registered in the district from Sept 1st, 1898, or resident there and afterwards registered or not registered at all, except where such child has before attaining the age of four months died, or been removed or had small pox, or been duly certified as vaccinated by another practitioner, or where a certificate of exemption has been obtained by the parent, a payment of not less than 5*s* for each successful primary vaccination or revaccination at the home of the person vaccinated, and a payment of not less than 2*s* 6*d* for each successful primary vaccination of a person other than a child, or successful revaccination at the surgery or elsewhere than at such home No payment is to be made for revaccination of a person less than 10 years old or who has been revaccinated within 10 years. These payments include postage unless otherwise agreed In the case of a workhouse medical officer a fee of not less than 2*s* 6*d* is to be paid for each successful primary vaccination or revaccination A visit must be paid to the home of the child on the request of its parent or custodian, or after notice from the vaccination officer, between 9 A M and 4 P M, and 24 hours notice must be given to the parent or custodian, unless otherwise arranged, and all vaccinations must be duly posted in a register to be kept in a prescribed form Vaccinations must be with glycerinated calf lymph or other lymph issued by the Local Government Board and otherwise in accordance with prescribed regulations

Medical Referees under the Workmen's Compensation Act 1897 —These are appointed by the Home Secretary and must be "men of independent position and high standing in their profession," while preference is given to those whose experience fits them for the duties to be performed by them These consist in examining and reporting upon accident cases referred to them in which claims made by workmen for compensation under the above Act are disputed by their employers Medical referees act as medical advisers or assessors to the committees, arbitrators, and county court judges who decide these cases, and they are not called as witnesses, though they may be requested to be present at the hearing of a matter in which there is diversity of evidence on surgical questions The fees approved by the Treasury are two guineas for a first reference with examination and written report, one guinea for a further written statement or a second or subsequent reference, and three guineas for attendance at the proceedings The number of cases referred must necessarily vary considerably according to the danger of the industries prevailing in different districts The Act of 1897 now applies to agricultural labourers of all *kinds, but accidents in agricultural labour* are of rare occurrence

Colonial Appointments —West Africa and the West Indies are the place where medical officers are chiefly required. As vacancies occur, which are not very frequent the Colonial Office fill them in British Guiana Jamaica Trinidad, Windward Islands Leeward Islands British Honduras, Fiji, Sierra Leone Gambia, Gold Coast, Lagos, Ceylon, Straits Settlements Hong-Kong, Cyprus, Gibraltar St Helena, and the Falkland Islands In Ceylon and Jamaica local candidates usually receive the vacant appointments West [illegible] charge of a dis[illegible] house, asylum, [illegible] the aged and children In West Africa the medical officers are also required to take charge of any hospital, public dispensary, lunatic asylum or other Government institution at their respective stations to supervise the sanitation of the district, to perform vaccination, and to give gratuitous attendance to all Government officials and in most cases, the families of such officials also All applications should be made to the Colonial Office

THE SANITARY INSPECTORS' CONFERENCE —The annual conference of the Sanitary Inspectors' Association was held this year in London, the hall of the Carpenters' Company having been generously offered for the purpose Apart from the transaction of business and the reading of papers the members of the conference made some interesting visits to some of the great sanitary stations of London. After hearing papers on the main drainage system of London by Sir Alexander Binnie and on the bacterial treatment of sewage by Dr Clowes, chemical adviser to the London County Council, the conference proceeded by river to the sewage works at Crossness where the coke beds were inspected and the methods of dealing with raw sewage, concluding the day's proceedings by a visit to the works of the Sanitas Company at Limehouse This company, owing to the expansion of their business, have recently acquired new premises in which now, as well as in the old premises at Bethnal Green the various sanitas products are made The process by which sanitas is made was watched with considerable interest As is well known, it depends upon the facility with which essential *oils* take up oxygen turpentine and eucalyptus oil being commonly used for the purpose These oils under continued treatment with air and water at a certain temperature take up oxygen forming peroxides, hydrogen peroxide being contained in the water and chiefly camphor peroxide being retained in the oil The process is of some duration The germicidal disinfectant and deodorant properties of sanitas are due to the facility with which it yields up oxygen Though as powerful as carbolic acid this fluid is quite non poisonous. The company sat down afterwards to lunch and in the speeches which followed Sir James Crichton Browne, who presided, referred to the work of the Sanitary Inspectors Association and stated that it was most important for them to know exactly how the antiseptic and deodorant agents with which they came officially into contact were prepared and to what their efficiency was due Mr Kingzett afterwards gave a demonstration of the way in which sanitas and sanitas products acted. The annual dinner of the association was held at the Holborn Restaurant, when Sir Hugh Gilzean Reid, the president of the association occupied the chair

SESSION 1901-1902.

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GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION OF THE UNITED KINGDOM.

Registration of Medical Students.—The following are the General Medical Council's Regulations in reference to the registration of students in medicine:—

Every medical student shall be registered in the manner prescribed by the General Medical Council. No medical student shall be registered until he has passed a preliminary examination as required by the General Medical Council and has produced evidence that he has commenced medical study. The commencement of the course of professional study recognised by any of the qualifying bodies shall not be reckoned as dating earlier than fifteen days before the date of registration. The registration of medical students shall be placed under the charge of the branch registrars. Every person desirous of being registered as a medical student shall apply to the branch registrar of the division of the United Kingdom in which he is residing; and shall produce or forward to the branch registrar a certificate of his having passed a preliminary examination as required by the General Medical Council, and evidence that he has commenced medical study. The branch registrar shall enter the applicant's name and other particulars in the Students' Register, and shall give him a certificate of such registration. Each of the branch registrars shall supply to the several qualifying bodies, medical schools, and hospitals, in that part of the United Kingdom of which he is registrar, a sufficient number of blank forms of application for the registration of medical students. Applications for special exceptions are dealt with by the Students' Registration Committee, which reports all such cases to the Council.

The Preliminary Examination in General Education, required to be passed previously to registration as a medical student, shall be as follows:—

"1. English language, including grammar and composition. 2. Latin, including grammar, translation from specified authors, and translation of easy passages not taken from such authors 3. Mathematics, comprising (*a*) arithmetic, (*b*) algebra, as far as simple equations, inclusive; (*c*) geometry, the subject matter of Euclid, Books I., II., and III., with easy deductions 4 One of the following optional subjects: (*a*) Greek, (*b*) French, (*c*) German, (*d*) Italian, (*e*) any other modern language."

In many cases the Council will not accept certificates of pass in Preliminary Examination in General Education unless the whole of the subjects included in the Preliminary Examination required by the Council for Registration of Students of Medicine have been *passed at the same time*

Professional Education.—The course of professional study after registration shall occupy at least five years. The Final examination in Medicine, Surgery, and Midwifery must not be passed before the close of the fifth academic year of medical study.

The following is a list of Examining Bodies whose examinations in general education are recognised by the General Medical Council as qualifying for registration as a medical or dental student the applicant producing satisfactory evidence that he has passed them:—

I.—UNIVERSITIES IN THE UNITED KINGDOM.

University of Oxford.—Junior Local Examinations. Senior Local Examinations. Responsions. Moderations. Final Examination for a degree in Arts.

University of Cambridge.—Junior Local Examinations. Senior Local Examinations. Higher Local Examinations. Previous Examination. General Examination. Final Examination for a degree in Arts.

University of Durham.—Examination for Certificate of Proficiency. Preliminary Examination in Arts for Graduation in Medicine and Science. Final Examination for a degree in Arts.

University of London.—Matriculation Examination. Final Examination for a degree in Arts or Science.

Victoria University.—Preliminary Examination. Entrance Examination in Arts. Final Examination for a degree in Arts or Science.

University of Birmingham.—Matriculation Examination.

University of Wales.—Matriculation Examination. Final Examination for a degree in Arts or Science.

University of Edinburgh.—Local Examinations (Senior and Junior). Preliminary Examination for Graduation in Arts or Science or Medicine and Surgery. Final Examination for a degree in Arts or Science.

University of Aberdeen.—Local Examinations (Senior and Junior). Preliminary Examination for Graduation in Arts or Science or Medicine and Surgery. Final Examination for a degree in Arts or Science.

University of Glasgow. — Preliminary Examination for Graduation in Arts or Science or Medicine and Surgery. Final Examination for a degree in Arts or Science.

University of St. Andrews.—Preliminary Examination for Graduation in Arts or Science or Medicine and Surgery. Final Examination for a degree in Arts or Science or for the diploma of L L A.

University of Dublin. — Public Entrance Examination. Examination for the first, second, third, or fourth year in Arts Final Examination for a degree in Arts.

Royal University of Ireland.—Matriculation Examination. Final Examination for a degree in Arts or Science.

Oxford and Cambridge Schools Examination Board.—Lower certificate (to include all the required subjects at one time). Higher certificate (to include the required subjects).

II.—MEDICAL LICENSING BODIES.

Royal Colleges of Physicians and Surgeons in Ireland.—Preliminary Examination.[1]

III —EDUCATIONAL BODIES OTHER THAN UNIVERSITIES.

College of Preceptors.—Examination for a First Class Certificate.

Intermediate Education Board of Ireland.—Junior or Middle Grade Examination; Senior Grade Examination.

Educational Institute of Scotland. — Preliminary Medical Examination.

Scotch Education Department. — Leaving Certificates in Lower and Higher Grades and in Honours.

Central Welsh Board.—Senior Certificate Examination.

IV. — INDIAN, COLONIAL, AND FOREIGN UNIVERSITIES AND COLLEGES.

The Certificates from Indian, Colonial, and Foreign Universities and Colleges must contain evidence that the Examination has been conducted by or under the authority of the Body granting it, must include all the subjects required by the General Medical Council, and must state that all the subjects of Examination have been passed in at one time; copies of the form of the required Certificate are supplied by the Registrar of the Council for the purpose. In the case of Natives of India or other Oriental countries whose vernacular is other than English an Examination in a Classic Oriental Language may be accepted instead of an Examination in Latin.

H. E. Allen, LL.B., Registrar of the General Council and of the Branch Council for England, 299, Oxford-street, London, W.—James Robertson, Registrar of the Branch Council for Scotland, 48, George-square, Edinburgh.—S. W. Wilson, L.R.C.P. Irel., Registrar of the Branch Council for Ireland, 35, Dawson-street, Dublin.

POWERS AND DUTIES OF THE GENERAL MEDICAL COUNCIL.

As there is apparently, even among members of the medical profession, a great amount of ignorance as to the powers and duties of the General Medical Council, we think it well to lay clearly before our readers what the General Medical Council is and also what it is not.

Many of the false ideas on the subject are due to the use of the shortened title, "General Medical Council." The full title is, "General Council of Medical Education and Registration of the United Kingdom." This title is in accordance with the Medical Act of 1858, by which the General Medical Council was established to enable persons requiring medical aid to distinguish qualified from unqualified practitioners. Registrars were to be appointed by the General Council and by the Branch Councils to keep registers of qualified persons. Registrars were bound by Section XIV. of the Act to keep their registers correctly, a duty which, mainly owing to the apathy of members of the medical profession, has not been adequately performed.

It will thus be seen that the General Medical Council is primarily a body of gentlemen charged with looking after the education and registration of medical practitioners. The sole penalty it can inflict is to strike a man's name off the

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[1] The Council has recommended that this examination be discontinued.

Medical Register. It is as well here to put down the advantages, such as they are, of being duly registered. A duly registered practitioner may sue in the courts of law for the recovery of charges for medical attendance or advice, or surgical attendance or advice, or for the supply of medicine, or for the performance of any operation—provided that he is not debarred from suing by being a Fellow or a Member of any corporation which objects to its Fellows or Members so suing. He may be exempted, if he so desire, from serving on juries, from serving sundry corporate and parochial offices, and from serving in the Militia. Only a registered practitioner can hold appointments in the navy, army, and sundry Poor-law and other institutions. Only a registered person can sign a valid medical certificate. Removal of the name from the Register debars a man from all the above-mentioned privileges.

Let us now consider what the General Medical Council is not. Unfavourable comparisons are often drawn between the General Medical Council and the Incorporated Law Society. The two bodies are not in the very least upon the same footing. The Incorporated Law Society is a society composed of such practitioners as apply for membership and are elected by the Council. It is by statute the keeper of the roll of solicitors who have to pay a fee each year to obtain renewal of certificate to practise, which certificate has then to be stamped by the Inland Revenue authorities on payment of the annual duty. The society is also intrusted with the duty of inquiring into professional misconduct and reports thereon to the High Court which may or may not agree with the report. The offender is struck off the rolls by the court, not by the society. Only a minority of solicitors are members of the society. The society has a charter and is governed by a council. The somewhat analogous body in the medical profession is the British Medical Association, which, however, has none of the legal powers possessed by the Incorporated Law Society.

The General Medical Council is in no way a medical protection society or a medical defence union. It is not a professional union or a guild charged with looking after the interests of the medical profession after the manner of the old trades guilds, except in so far as it is concerned with the education of medical students. It has no powers over any member of the medical profession except to remove the name of any offending member from the roll of the profession or Medical Register. It cannot take away any degree, or diploma, or licence, and even if a practitioner is struck off the Medical Register there is nothing in the existing state of the law to prevent such practitioner continuing to practise, provided that he does not use any name or title implying that he is registered. Practitioners may be removed from the Medical Register (1) if convicted of felony or misdemeanour in England or in Ireland, or in Scotland of any crime or offence, and (2) on being adjudged by the General Medical Council to have been guilty of "infamous conduct in a professional respect." The words "infamous conduct" are certainly unfortunate, for they cover such a comparatively trivial offence as advertising, and such a truly infamous offence as that recently committed by a medical man who committed adultery with a married woman whom he was attending professionally.

The General Medical Council is primarily a body charged with looking after medical education; it is but little concerned with medical politics. Inspection of the last volume of the minutes dealing with the period Jan. 1st to June 11th, 1901, shows that the time of the Council was almost entirely taken up with considering educational and registration matters, the latter including the penal cases of removal from the Register. Among other subjects the Council received the note from the Privy Council as to reciprocity in Italy and a report from the Medical Aid Associations Committee relative to the formation of a Conciliation Board. The Council at present consists of 31 members, of whom, as will be seen by the annexed list, all but 10 are representatives of some corporate body. Five members are chosen by the Crown on the advice of the Privy Council, and five others are elected by the members of the medical profession as Direct Representatives. An election takes place this winter to select the Direct Representatives for the next five years.

President of the General Council.—Sir William Turner. Members of the General Council.—Dr. Norman Moore, chosen by the Royal College of Physicians of London; Mr. Thomas Bryant, Royal College of Surgeons of England; Sir Hugh Reeve Beevor, Apothecaries' Society of London; Dr. Joseph Frank Payne, University of Oxford; Dr. Donald MacAlister, University of Cambridge; Sir George Hare Philipson, University of Durham; Dr. Philip Henry Pye-Smith, University of London; Dr. Alfred Harry Young, Victoria University; and Dr. Bertram C. A. Windle, University of Birmingham. Sir John Batty Tuke, chosen by the Royal College of Physicians of Edinburgh; Dr. Patrick Heron Watson, Royal College of Surgeons of Edinburgh; Sir Hector Clare Cameron, Faculty of Physicians and Surgeons of Glasgow; Sir William Turner, University of Edinburgh; Sir William Tennant Gairdner, University of Glasgow; Dr. Robert William Reid, University of Aberdeen; and Dr. James Bell Pettigrew, University of St. Andrews. Dr. Lombe Atthill chosen by the Royal College of Physicians of Ireland: Dr. Charles Bent Ball, Royal College of Surgeons in Ireland; Mr. Charles R. C. Tichborne, Apothecaries' Hall of Ireland; Dr. Edward Hallaran Bennett, University of Dublin; and Sir Christopher John Nixon, Royal University of Ireland. Nominated by His Majesty, with the advice of his Privy Council: Mr. Charles Sissmore Tomes, Mr. William Henry Power, Sir John Williams, Dr. David Caldwell McVail, and Dr. James Little. Elected as Direct Representatives: Mr. George Brown, Dr. James Grey Glover, Mr. Victor Alexander Haden Horsley, Dr. William Bruce, and Sir William Thomson. Treasurers of the General Council.—Mr. Thomas Bryant and Dr. Philip Henry Pye-Smith. Registrar of the General Council and of the Branch Council for England.—Mr. Henry E. Allen, LL.B., B.A. Registrar of the Branch Council for Scotland.—Mr. James Robertson. Registrar of the Branch Council for Ireland.—Mr. S. Wesley Wilson.

REGULATIONS
OF THE
MEDICAL EXAMINING BODIES IN THE UNITED KINGDOM.

UNIVERSITY OF OXFORD.

THERE are two degrees in Medicine, B.M. and D.M., and two degrees in Surgery, B.Ch. and M.Ch.

The B.M. and B.Ch. degrees are granted to those members of the University who have passed the Second Examination. Graduates in Arts (B.A. or M.A.) are alone eligible for these two degrees. In order to obtain the degrees of B.M. and B.Ch. the following examinations must be passed:—1 Preliminary subjects: Mechanics and Physics, Chemistry, Animal Morphology and Botany. 2. Professional. (*a*) First Examination: Subjects—Organic Chemistry, unless the candidate has obtained a first or second class in Chemistry in the Natural Science School; Human Physiology unless he has obtained a first or second class in Animal Physiology in the Natural Science School; Human Anatomy, and Materia Medica with Pharmacy (*b*) Second Examination: Subjects—Medicine, Surgery, Midwifery, Pathology Forensic Medicine with Hygiene. The approximate dates of the examinations are as follows:—Preliminaries—Mechanics, Physics and Chemistry, December and June; Animal Morphology, December and March; Botany, March and June; Professional (First and Second B.M.) June and December.

The degree of D.M. is granted to Bachelors of Medicine of the University—(1) who took the degree of B.M. previously to the end of Trinity Term, 1886, provided they have spent three years in the practice of Medicine after taking that degree, and have composed a dissertation on some medical subject approved by the Regius Professor of Medicine, before whom it must be read in public; (2) who took the degree of B.M. subsequently to the end of Trinity Term, 1886 provided they have entered their thirty-ninth term and have composed on some medical subject a dissertation which is approved by the professors in the Faculty of Medicine and examiners for the degree of B.M. whose subject is dealt with. A book published within two years of the candidate's application for the degree may be substituted for a dissertation. The degree of M.Ch. is granted to Bachelors of Surgery of the University who have entered their twenty-seventh term, who are members of the surgical staff of a recognised hospital, or have acted as Dresser or House Surgeon in such a hospital for six months, and who have passed an examination in Surgery, Surgical Anatomy, and Surgical Operations. This examination is held annually, in June, at the end of the Second B.M Examination.

The First Examination for the degrees of B.M. and B.Ch. may be passed as soon as the Preliminary Scientific Examinations have been completed. The subjects of this examination may be presented separately or in any combination or in any order, provided Anatomy and Physiology be passed together.

The Second Examination may be passed after the completion of the first, but Pathology may be professed before, with, or after the remaining subjects Before admission to the Second Examination candidates must present Certificates of instruction in Infectious and Mental Diseases, and of attendance on Labours, and of proficiency in the practice of Vaccination.

Scholarships, &c.—Scholarships in some branch of Natural Science (Chemistry, Physics, Biology) of the average value of £80 per annum, tenable for four years and renewable under certain conditions for a fifth year, as well as Exhibitions of a less annual value, are awarded after competitive examination every year by some of the Colleges. Notices of vacancy, &c., are published in the *University Gazette*. In February there is competed for annually by those who, having obtained a first-class in any school (Moderations or final), or a Scholarship or Prize open to general competition in the University, have passed all the examinations for the degree of B.M. one Radcliffe Travelling Fellowship. It is tenable for three years and is of the annual value of £200. The examination is partly scientific, partly medical. The holder must travel abroad for the purpose of medical study. A Rolleston Memorial Prize is awarded once in two years to members of the Universities of Oxford and Cambridge of not more than ten years' standing for an original research in some Biological subject including Physiology or Pathology.

More detailed information may be obtained from the University Calendar; from the Examination Statutes, 1894, which contain the official schedules of the several subjects of examination in both Arts and Medicine; from the Student's Handbook to the University, published by the Clarendon Press; from the Regius Professor of Medicine; and from the Professors in the several departments of medical science.

The Lecturers for the various subjects are as follows:—Regius Professor of Medicine: Sir J. S. Burdon-Sanderson, D.M Pathological Histology and Practical Bacteriology: The Lecturer in Pathology, J Ritchie, D.M Edin. Professor of Human Anatomy: A. Thomson, M.A. Waynflete Professor of Physiology: F. Gotch, M.A. University Lecturer on Physiology: J S Haldane, M.A Practical Physiology and Histology: G Mann, D.M. Edin. Physiological Chemistry: Walter Ramsden, M A. Lichfield Lecturer in Clinical Medicine: W. Collier, M A., D.M. Camb. Lichfield Lecturer in Clinical Surgery: Alfred Winkfield, F.R C.S Eng. Organic Chemistry in Relation to Medicine, &c., followed by Practical Work: Aldrichian Demonstrator, W. W. Fisher, M.A., and J. E. Marsh, M A Lecturer in Materia Medica and Pharmacology: W. J. Smith Jerome, B M Lond Linacre Professor of Comparative Anatomy. W. F. R Weldon, M.A Elementary Animal Morphology (Practical): the Aldrichian Demonstrator, E. Goodrich, M.A., and assistants. Sherardian Professor of Botany: S. H. Vines, M.A Waynflete Professor of Chemistry: W. Odling, M.A Lees Reader in Chemistry: A G Vernon Harcourt, M.A. Laboratory Instruction: W. W. Fisher, M.A. J. Watts, M.A., V. H. Veley M.A., and J E. Marsh, M.A. Professor of Experimental Philosophy: R. B Clifton, M.A. Instruction in Practical Physics: R. B. Clifton, M.A., J. Walker, M.A., and J. C. Alsop, B.A. Elementary Heat and Light: Lees Reader in Physics, R E. Baynes, M.A. Elementary Mechanics: F. J. Smith, M.A

UNIVERSITY OF CAMBRIDGE.

The student must enter at one of the Colleges, or as a non-collegiate student, and keep nine terms by residence in the University. He must pass the Previous Examination in Classics Mathematics, &c, which may, and should if possible, be done before coming into residence in October, or he may obtain exemption through the Oxford and Cambridge Schools Examination Board or the Cambridge Senior Local Examinations. He may then devote himself to medical study in the University, attending the hospital and the medical lectures, dissecting, &c. Or he may, as nearly all students now do, proceed to take a degree in Arts, either continuing mathematical and classical study and passing the ordinary examinations for B.A., or going out in one of the Honour Triposes. The Natural Sciences Tripos is the most appropriate, as some of the subjects are practically the same as those for the first and second M.B. examinations.

For the degree of *Bachelor of Medicine (M.B.)* five years of medical study are required. This time may be spent in Cambridge or at one of the recognised Schools of Medicine. The first three or four years are usually spent in Cambridge, the student remaining in the University till he has passed, say, the examination for the Natural Sciences Tripos and the first and second examinations for M.B. Cambridge being now a complete School of Medicine, all the requisite lectures and hospital practice may be attended here, and many students remain to attend lectures and hospital practice until they have passed the first part of the third examination for M B. The supply of subjects for Dissection is abundant and the laboratories for Pathology, Bacteriology, and Pharmacology are well equipped. Addenbrooke's Hospital provides for the necessary clinical training.

There are three examinations for M.B The *first* includes Chemistry and other branches of Physics, and Elementary Biology. These parts may be taken together or separately. The *second* includes Human Anatomy and Physiology. The *third* is divided into two parts—viz, (1) Pharmacology and General Pathology; (2) Principles and Practice of Surgery, Midwifery and Diseases peculiar to Women, Principles and Practice of Physic. The examinations are partly in writing, partly oral, and partly practical, in the hospital, in the dissecting-room, and in the laboratories. An Act has then to be kept in the Public Schools, by the candidate reading an original dissertation composed by himself on some subject approved by the Regius Professor of Physic.

As Operative and Clinical Surgery now form parts of t third M.B. examination candidates who have passed bo parts of that examination are admitted to the registra degree of *Bachelor of Surgery (B.C.)* without separa examination and without keeping an Act.

The degree of *Doctor of Medicine* may be taken thr years after that of M.B. or four years after that of M. An Act has to be kept, consisting of an original The sustained in the Public Schools, with *vivâ voce* examinatio and an extempore Essay has to be written on some subj relating to Physiology, Pathology, the Practice of Medici or State Medicine.

For the degree of *Master of Surgery (M.C.)* the candid must have passed all the examinations for B C., if he is an M.A. have obtained some other registra qualification in surgery. He is required either (1) pass an examination in Surgical Anatomy and Surgi Operations, Pathology, and the Principles and Pract of Surgery, and to write an extempore Essay a Surgical Subject; or (2) to submit to the Medi Board original contributions to the advancement of Science or Art of Surgery. Before he can be admitted to examination two years at least must have elapsed fr the time when he completed all required for the degree B.C. Before submitting original contributions he must h been qualified at least three years.

An abstract of the Regulations and Schedules of the ra of the examinations in Chemistry, Physics, Biology, a Pharmaceutical Chemistry may be obtained upon sendi a stamped directed envelope to the Registrary, Cambrid Full information is contained in the *Cambridge Univers Calendar*.

UNIVERSITY OF LONDON.

The Matriculation Examination.—Candidates for a degree in this University must have passed the Matricu t on Examination. No exemption either from Matriculati or from subsequent examinations is allowed on account degrees obtained at other Universities or of examinatio of other examining bodies that may have been passed. T examinations take place twice in each year—on the seco Monday in January and the second Monday in June; a may be held not only at the University of London, but als under special arrangement, in other parts of the Unit Kingdom or in the colonies. Every candidate must, on before April 25th for the June examination, and on or befo

Nov. 25th for the January examination, apply to the Registrar for a form of entry, which must be returned on or before May 1st or Dec. 1st respectively, accompanied by a certificate showing that the candidate has completed his sixteenth year and by his fee for the examination. A certificate from the Registrar General in London or from the superintendent registrar of the district, or a certified copy of the baptismal register, is required in every case in which it can possibly be obtained. In other cases a declaration [illegible] ade before a magistrate by his par[illegible] candidate, if of full age, will be [illegible] cannot be admitted after the list is closed, any candidate who may not have received a form of entry within a week after applying for it should communicate immediately with the Registrar, stating the exact date of his application and the place where it was posted. Every candidate must pay a fee of £2, and if he withdraws his name, or fails to present himself at the examination, or fails to pass it, the fee shall not be returned to him, but he shall be allowed to enter for any subsequent matriculation examination upon payment at every such entry of an additional fee of £1, provided that he comply with the other regulations. Candidates must show a competent knowledge of: 1. Latin 2. English Language, History to the end of the seventeenth century, with the Geography relating thereto. 3 Mathematics (Elementary) 4. General Elementary Science. 5 Any one of the following languages or sciences: Greek, French, German, Sanskrit, Arabic, Elementary Mechanics, Elementary Chemistry, Elementary Sound, Heat, and Light Elementary Magnetism and Electricity, and Elementary Botany. (No credit will be given for more than one of these subjects, and candidates desiring to be examined in Sanskrit or Arabic must give two months' notice to the Registrar. The examination in Botany is only held in the United Kingdom. Candidates in any one of the optional Branches of Science will find it an advantage to have obtained some elementary instruction in the practical use of apparatus) A pass certificate signed by the Registrar is delivered to each successful candidate after the report of the examiners shall have been approved by the Senate. The first six candidates in the Honours Division, of not more than twenty years of age at the commencement of the examination, shall respectively receive an exhibition or a prize. Any candidate obtaining a place in the Honours Division at the matriculation examination in January shall be admissible to the intermediate examination either in Arts or in Science in the following July

Provincial Examinations for Matriculation.—These examinations are appointed by the Senate from time to time upon the application of any city, institution, or college desiring to be named as a local centre for one or more examinations, and are carried on simultaneously with the examinations in London under the supervision of sub-examiners also appointed by the Senate. Candidates wishing to be examined at any provincial centre must give notice upon their forms of entry to the Registrar of the University, who will then make all necessary arrangements. Besides the University fee, a fee usually varying from £1 to £2 is charged by the local authorities, and must be paid *at the local centre* immediately before the commencement of the several examinations The answers of the candidates at the provincial examinations are reviewed by the examiners at the same time as the answers of the candidates examined in London, and a list of the candidates who have passed at each provincial examination is published, at the time fixed by the regulations, at the place where such examination has been held.

Preliminary Scientific [illegible] studies pursued before the whc[illegible] as been passed will not coun[illegible] required for the M B degree Candidates must have passed the matriculation examination. The examination takes place twice in each year, once for Pass and Honours, commencing on the second Monday in July, and once for Pass candidates only, commencing on the third Monday in January Every candidate must apply by post-card to the Registrar for a form of entry on or before May 24th for the July examination, or on or before Dec. 15th for the January examination, which must be returned on or before June 1st and Dec 22nd respectively, accompanied by the candidate's fee of £5 The subjects [illegible] divide[illegible] General [illegible] In Che[illegible] and Simple Volumetric Analysis. Physics implies a knowledge of acoustics, heat, magnetism, electricity, and optics. General Biology comprises a knowledge of the elements of zoological (vertebrate or invertebrate) and botanical morphology, physiology, and embryology. Candidates shall be allowed to enter for the whole examination or for either section. Candidates who present themselves for the two sections together shall be credited with either section in which they may have passed, although they may have failed to pass in the other, but no such candidate shall be placed in the Honours List. Candidates must bear in mind that the standard of attainment for the Honours examination is much higher than that for the Pass examination; and they should therefore exercise due caution in making their choice, to which they will be required to adhere. Candidates for Honours in Botany and Zoology must take the Pass examination in General Biology; in other respects no candidate may take both the Pass and the Honours papers in the same subject. The fee of £5 covers the whole of the examination, whether taken altogether or in sections

Provincial Examinations for the Preliminary Scientific Examination —The pass examination (except the practical examinations) may be held not only at the University of London but also under special arrangements in other parts of the United Kingdom. All Honours papers, some of which under former arrangements used to be given out at the provincial centres, must now be taken only at the University of London.

Bachelor of Medicine —Every candidate for the degree of Bachelor of Medicine will be required—1 To have passed the Matriculation Examination in this University not less than five years previously. 2. To have passed the Preliminary Scientific Examination not less than four years previously. 3 To have been engaged in his professional studies during five years subsequent to matriculation and four years subsequent to passing the Preliminary Scientific Examination at one or more of the medical institutions or schools recognised by this University, one year at least of the four being spent in one or more of the recognised institutions or schools in the United Kingdom. 4. To pass two examinations in Medicine

Intermediate Examination —The Intermediate Examination in Medicine takes place twice in each year—once for Pass and Honours commencing on the first Monday in July, and once for Pass candidates only, commencing on the third Monday in January The subjects of the examination are Anatomy, Physiology and Histology, Organic Chemistry, Materia Medica, and Pharmaceutical Chemistry. The standard of attainment required for Honours is much higher than for a Pass No candidate shall be admitted to this examination unless he have passed the Preliminary Scientific Examination at least two years previously and have produced certificates to the following effect:—1. Of having completed his nineteenth year. 2 Of having, subsequently to having passed the Preliminary Scientific Examination, been a student during two years at one or more of the medical institutions or schools recognised by this University, and of having attended a course of lectures on each of three of the subjects in the following list: Descriptive and Surgical Anatomy, Physiology and Histology, Pathological Anatomy, Materia Medica and Pharmacy, General Pathology, General Therapeutics, Forensic Medicine, Hygiene, Obstetric Medicine and Diseases Peculiar to Women and Infants, Surgery, Medicine 3. Of having, subsequently to having passed the Preliminary Scientific Examination, *dissected during two sessions.* 4 Of having, subsequently to having passed the Preliminary Scientific Examination, attended a course of Practical Chemistry, comprehending practical exercises in conducting the more important processes of general and pharmaceutical chemistry, in applying tests for discovering the adulteration of articles of the Materia Medica and the presence and nature of poisons, and in the examination of mineral waters, animal secretions, urinary deposits, calculi, &c 5 Of having attended to Practical Pharmacy and of having acquired a practical knowledge of the preparation of medicines These certificates (as is the case also with all the certificates hereinafter mentioned) must be transmitted to the Registrar at least four weeks before the commencement of the examination. Fee for this examination, £5

M B. Examination —The M B Examination takes place twice in each year—once for Pass and Honours, commencing on the last Monday in October, and once for Pass candidates only, commencing on the first Monday in May. The subjects of the examination are General Pathology, General Therapeutics, Hygiene, Surgery, Medicine, Obstetric Medicine, and Forensic Medicine. No candidate will be admitted to this examination within twenty-one months of the time of his passing the Intermediate Examination unless he be a registered medical practitioner of not less than three years' standing, in which case he must produce certificates of having gone through the required course of training at any time previously. Every candidate must produce certificates:—1. Of having passed the Intermediate Examination. 2. Of having attended a course of lectures on each of two of the subjects enumerated above in the regulations for that examination for which the candidate had not on that occasion presented certificates. 3. Of having conducted at least twenty labours. Certificates on this subject will be received from any legally qualified practitioner in Medicine. 4. Of having attended the Surgical Practice of a recognised hospital or hospitals during two years, with clinical instruction and lectures on Clinical Surgery. 5. Of having attended the Medical Practice of a recognised hospital or hospitals during two years, with clinical instruction and lectures on Clinical Medicine, including Infectious Diseases and Lunacy. 6. Of having, after having attended Surgical and Medical Hospital Practice for at least twelve months subsequently to passing the Intermediate Examination in Medicine, attended to Practical Medicine, Surgery, or Obstetric Medicine, with special charge of patients, in a hospital, infirmary, dispensary, or parochial union during six months, such attendance not to be counted as part of either the Surgical or the Medical Hospital Practice prescribed in Clauses 4 and 5. 7. Of having acquired proficiency in Vaccination. Certificates on this subject will be received only from the authorised vaccinators appointed by the Privy Council. The fee for this examination is £5.

Bachelor of Surgery.—The examination for the degree of Bachelor of Surgery takes place once in each year and commences on the Tuesday following the first Monday in December. Candidates must produce certificates to the following effect:—1. Of having passed the examination for the degree of Bachelor of Medicine in this University. 2. Of having attended a course of instruction in Operative Surgery and of having operated on the dead subject. The subjects of the examination are Surgery and Pathology and Surgical Anatomy. Fee £5.

Master in Surgery.—The examination for the degree of Master in Surgery takes place once in each year and commences on the first Monday in December. Candidates must produce certificates to the following effect:—1. Of having taken the degree of Bachelor of Surgery in this University. 2 Of having attended, subsequently to having taken the degree of Bachelor of Surgery in this University: (*a*) to Clinical or Practical Surgery during two years in a hospital or medical institution recognised by this University; or (*b*) to Clinical or Practical Surgery during one year in a hospital or medical institution recognised by this University, and of having been engaged during three years in the practice of his profession; or (*c*) of having been engaged during five years in the practice of his profession, either before or after taking the degree of Bachelor of Surgery in this University. One year of attendance on Clinical or Practical Surgery, or two years of practice, will be dispensed with in the case of those candidates who at the B.S. Examination have been placed in the first division. 3 Of moral character, signed by two persons of respectability. The examination is conducted by means of printed papers and *vivâ voce* interrogation, and the subjects are Mental Physiology (especially in its relations to mental disorder) and Surgery. Any candidate for the degree of M.S. may transmit to the Registrar, not later than Oct. 1st, a printed Dissertation, Thesis, or Commentary, written in view of candidature, or published within two academical years immediately preceding, treating scientifically some special department of Surgical Science; and if the Thesis be approved by the examiners the candidate will be exempt from the written examination in Surgery. The fee is £5.

Doctor of Medicine.—The examination for this degree takes place once in each year and commences on the first Monday in December. Candidates may present themselves for examination either in Medicine or State Medicine. Those presenting themselves for the M.D. Examination in Medicine must produce certificates to the following effect:—1. Of having attended, subsequently to having taken the degree of Bachelor of Medicine in this University: (*a*) to Clinical or Practical Medicine during two years in a hospital or medical institution recognised by this University; (*b*) or to Clinical or Practical Medicine during one year in a hospital or medical institution recognised by this University, and of having been engaged during three years in the practice of their profession; (*c*) or of having been engaged during five years in the practice of their profession, either before or after taking the degree of Bachelor of Medicine in this University. 2. Of moral character, signed by two persons of respectability. One year of attendance on Clinical or Practical Medicine, or two years of practice, will be dispensed with in the case of those candidates who at the M.B. Examination have been placed in the First Division. Candidates presenting themselves for the M.D. Examination in State Medicine must produce certificates to the following effect:—1. Of having attended, subsequently to having taken the degree of Bachelor of Medicine in this university: (*a*) to State Medicine during two years, including six months' practical instruction in a laboratory and six months' outdoor sanitary work; (*b*) or to State Medicine during one year, and of having held for a period of two years the position of medical officer of health in any sanitary district; (*c*) or of having held for a period of three years the position of medical officer of health in any sanitary district. 2. Of moral character. One year of attendance on State Medicine or one year of holding the position of medical officer of health will be dispensed with in the case of those candidates who at the M.B. Examination have been placed in the First Division. The examination is conducted by means of printed papers and *vivâ-voce* interrogation, and the subjects are Medicine (or State Medicine) and Mental Physiology (especially in its relation to mental disorder). Any candidate for the degree of M.D. may transmit to the Registrar, not later than Oct. 1st, a printed Thesis, written in view of candidature, or published within two academical years immediately preceding, treating scientifically some special department of Medical Science; and if the Thesis be approved by the examiners the candidate will be exempt from the written examination in Medicine (or State Medicine). The fee is £5.

UNIVERSITY OF DURHAM.

One Diploma and six degrees are conferred—viz., the Diploma in Public Health and the degrees of Bachelor in Medicine, Bachelor in Surgery, Master in Surgery, Doctor in Medicine, Bachelor in Hygiene, and Doctor in Hygiene. These degrees are open both to Men and Women.

For the degree of *Bachelor in Medicine* (*M.B.*) there are four professional examinations

The subjects of the First Examination are—Elementary Anatomy and Elementary Biology, Chemistry, and Physics.

The subjects for the Second Examination are—Anatomy, Physiology, Materia Medica, Therapeutics, Pharmacology, Pharmacy.

The subjects for the Third Examination are—Pathology, Medical Jurisprudence, Public Health, and Elementary Bacteriology.

The subjects of the Fourth Examination are—Medicine, Clinical Medicine and Psychological Medicine, Surgery and Clinical Surgery, Midwifery and Diseases of Women and Children:

N.B —It is required that at least one of the five years of professional education shall be spent in attendance at the University College of Medicine, Newcastle-upon-Tyne. Candidates who have passed the First and Second Examinations of the University will be exempt from First and Second Examinations of the Conjoint Board.

For the degree of *Bachelor in Surgery* (*B.S.*) every candidate must have passed the examination for the degree of Bachelor in Medicine of the University of Durham and must have attended one course of lectures on Operative Surgery and one course on Regional Anatomy. Candidates will be required to perform operations on the dead body and to give proof of practical knowledge of the use of surgical instruments and appliances.

For the degree of *Master in Surgery* (*M.S.*) candidates must not be less than twenty-four years of age and must satisfy the University as to their knowledge of Greek. In case they shall not have passed in this subject at the Preliminary Examination in Arts for the M.B degree they must present themselves at Durham for examination in it at one of the ordinary examinations held for this purpose before they can proceed to the higher degree of M.S. They must also have obtained the degree of Bachelor in Surgery of the University of Durham and must have been engaged for at least two years subsequent to the date of acquirement of the degree of Bachelor in Surgery, in attendance on the practice of a recognised hospital, or in the naval or military services, or in medical or surgical practice.

The subjects of examination are:—Principles and Practice of Surgery, Surgical Pathology, Surgical Anatomy, Surgical Operations, Clinical Surgery.

For the degree of *Doctor in Medicine (M.D.)* candidates must be not less than twenty-four years of age and must satisfy the University as to their knowledge of Greek. In case they shall not have passed in this subject at the Preliminary Examination in Arts for the M.B. degree they must present themselves at Durham for examination in it at one of the ordinary examinations held for this purpose before they can proceed to the higher degree of M.D. They must also have obtained the degree of Bachelor in Medicine of the University of Durham and must have been engaged for at least two years subsequently to the date of acquirement of the degree of Bachelor in Medicine in attendance on the practice of a recognised hospital, or in the military or naval services, or in medical and surgical practice. Each candidate must prepare an Essay, which must be typewritten, based on original research or observation, on some medical subject selected by himself, and approved of by the Professor of Medicine and must pass an examination thereon, and must be prepared to answer questions on the other subjects of his curriculum so far as they are related to the subject of the Essay.

The University of Durham has instituted a special examination whereby the degree of Doctor of Medicine may be obtained without residence. Candidates shall not be under 40 years of age and shall have been in active practice for 15 years as registered medical practitioners. They shall produce certificates of moral character from three registered members of the medical profession, and if they have not passed an examination in Arts previously to the Professional Examination in virtue of which they have been placed on the Register, they shall be required to pass in Classics and Mathematics. Candidates who have passed an examination in Arts previously to being placed on the Register are required to pass an examination in Latin. They will be examined in the Principles and Practice of Medicine, including Psychological Medicine, Hygiene, and Therapeutics, the Principles and Practice of Surgery, Midwifery, and Diseases of Women and Children, Pathology (Medical and Surgical), Anatomy (Medical and Surgical), Medical Jurisprudence, and Toxicology. The fee will be 50 guineas, of which 20 guineas will be retained if the candidate fails to satisfy the examiners.

Candidates for any of the above degrees must give at least 28 days' notice to Professor Howden, Secretary, College of Medicine, Newcastle-on-Tyne.

VICTORIA UNIVERSITY (MANCHESTER).

Colleges of the University: Owens College, Manchester; University College, Liverpool; and Yorkshire College, Leeds.

Matriculation, which consists in signing the University Register, must precede entry upon any course of study in a College of the University, if that course is to be counted towards the required minimum of attendance for a degree. Those only can matriculate who are registered students of a College of the University.

Four degrees in Medicine and Surgery are conferred by the Victoria University—viz., Bachelor of Medicine and Bachelor of Surgery (M.B. and Ch.B.), Doctor of Medicine (M.D.), and Master of Surgery (Ch.M.).

All candidates for degrees in Medicine and Surgery are required to pass an examination called the Preliminary Examination (Faculty of Medicine), or to have passed s other examination as may be recognised by the Univer for this purpose.[2]

Degrees of Bachelor of Medicine and Bachelor of Surgery.—Before admission to the degree of M.B. or Ch.B. candidates are required to present certificates that they will have attained the age of 21 years on the day of graduation and that they have pursued the courses of study required by the University Regulations during a period of not less than five years subsequently to the date of their registration by the General Medical Council, two of such years having been passed in a College of the University, and one year at least having been passed in a College of the University subsequently to the date of passing the First M.B. Examination. All candidates for the degrees of Bachelor of Medicine and Bachelor of Surgery are required to satisfy the examiners in the several subjects of the following examinations: the First Examination, the Second Examination, and the Final Examination.

The First Examination.—The subjects of examination are as follows:—(1) Chemistry; (2) Elementary Biology; (3) Physics. Candidates must have attended during at least one year courses both of lectures and of laboratory work in each of the above-named subjects. The Examination is divided into two parts: Part 1, Physics and Chemistry; Part 2, Biology; and the candidates may pass in these parts separately.

The Second Examination.—The subjects of examination are as follows:—A: (1) Anatomy; (2) Physiology, including Physiological Chemistry and Histology; B: (3) Materia Medica and Pharmacy. Candidates may pass in A or B separately.

The Final Examination.—The subjects of examination are as follows:—(1) Pharmacology and Therapeutics. (2) General Pathology and Morbid Anatomy. (3) Forensic Medicine and Toxicology, and Public Health. (4) Obstetrics and Diseases of Women. (5) Surgery, Systematic, Clinical and Practical. (6) Medicine, Systematic and Clinical, including Mental Diseases and Diseases of Children.

Candidates may either present themselves in all the six subjects of examination on the same occasion or may pass the examination in two parts, the first part consisting of *two* or *three* of the subjects (1), (2) and 3), the second part of the remaining subjects.

Candidates who fail to satisfy the examiners in the first part must either present themselves again in the subjects as selected or in all the three subjects of the First part or in all the six subjects of examination.

Candidates for the first part of the examination must have completed the *fourth winter* of medical study.

Candidates for the second part of the examination, or for the whole examination, must have completed the fifth year of medical study.

Degree of Doctor of Medicine.—Candidates are not eligible for the degree of Doctor of Medicine unless they have previously received the degrees of Bachelor of Medicine and Bachelor of Surgery and at least one year has elapsed since they passed the examination for those degrees. Candidates for the degree of Doctor of Medicine are required to present a printed Dissertation embodying the results of personal observations or original research, either in some department of medicine or of some science directly relative to medicine. No candidate will be admitted to the degree unless his Dissertation shall have been recommended by the General Board of Studies to the Council for acceptance. Candidates may be examined on any subject connected with their dissertations.

Degree of Master of Surgery.—Candidates are not eligible for the degree of Master of Surgery unless they have previously received the degrees of Bachelor of Medicine and

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[2] The examinations at present recognised are:—1. Graduatio this or some other university of the United Kingdom, provided Latin has formed part of one of the Degree Examinations. 2. Lor Matriculation. 3. Higher Certificate of the Oxford and Cambr hchools Examination Board. (Certificates must show that the ca date has satisfied the Examiners in Latin, Elementary and Additional Mathematics, English or History, and in either Greek, French, or German. The Mechanical Division of Natural Philosophy will satisfy [illegible] Locals (Honours). [illegible] power to accept other examinations of at least equal standard.

Bachelor of Surgery and at least one year has elapsed since they passed the examination for those degrees. The subjects of examination are as follows: (1) Surgical Anatomy; (2) Surgery; (3) Operative Surgery; (4) Clinical Surgery; (5) Ophthalmology; (6) Pathology and Bacteriology.

Communications should be addressed to the Registrar, Victoria University, Manchester.

UNIVERSITY OF BIRMINGHAM.

The University of Birmingham grants the degrees of M.B., B.Ch., M.D., M.Ch., and also a B.Sc., and a degree and a diploma in Public Health. In order to obtain any of these degrees it is necessary that a student shall have passed at least the first four years of his curriculum in attendance upon the classes of the University.

Degrees of Bachelor of Medicine and Bachelor of Surgery.—The student must have passed either the Matriculation Examination of the University or one of the following examinations, which will be accepted in lieu thereof, for the present: (*a*) the previous examination of the University of Cambridge; (*b*) responsions of the University of Oxford; (*c*) the Matriculation Examination of any other University in the United Kingdom; (*d*) the leaving Certificate (Higher) of the Oxford and Cambridge Boards; (*e*) the Oxford or Cambridge Junior Local Examinations (First or Second Class Honours); (*f*) the Oxford or Cambridge Senior Local Examination (Honours); or (*g*) the College of Preceptors' Examination for First Class Certificate A Matriculation Examination will be held on Sept. 16th, 1901, and succeeding days. First Examination.—Chemistry and Physics. Second Examination.—Anatomy, Comparative Anatomy, and Physiology. Third Examination.—Materia Medica and Pharmacy. Fourth Examination (at the end of the fourth year).—Pharmacology, Pathology, Forensic Medicine, Toxicology, and Public Health. Two years' hospital work must have been accomplished Final Examination.—Medicine, Surgery, Midwifery, Gynæcology, Mental Diseases, and Ophthalmology. Attendance on general hospital for a year after the passing of the fourth examination, also attendance at fever hospital, lunatic asylum, vaccination, and courses of Ophthalmology, Medical and Surgical Anatomy and Operative Surgery.

Degrees of Doctor of Medicine and Master of Surgery.—Candidates for either of these degrees will be required either (*a*) to present a thesis embodying original observations in some subject embraced in the medical curriculum and approved by a board of medical examiners to whom the thesis will subsequently be submitted, on the report of which board the degree will be awarded or withheld (the candidate may be examined on the subject which he has chosen for his thesis and the examiners may require to see the notes of original observations on which the thesis is based); or (*b*) to pass a general examination (written and practical) in Medicine or Surgery, according to the degree desired, and, in addition, to show special proficiency in any one of the following subjects to be chosen by the candidate. For the degree of M.D.: (*a*) Infectious Diseases, (*b*) Diseases of the Chest. (*c*) Diseases of the Abdomen, (*d*) Nervous Diseases, (*e*) Diseases of Children, (*f*) Midwifery, (*g*) Pathology, (*h*) Bacteriology, (*i*) Medical Jurisprudence and Toxicology, (*j*) Public Health, (*k*) Mental Diseases, or (*l*) Diseases of the Skin. For the degree of M.Ch.: (*a*) Regional Surgery, (*b*) Gynæcology, (*c*) Ophthalmology, or (*d*) Diseases of the Ear, Nose, and Throat.

Degree in Public Health.—For the regulations for this degree and for the diploma in the same subject see p. 686.

Fees.—Matriculation, £2; First Examination, £5; Second Examination, £5; Third Examination, £1; Fourth Examination, £3; Final Examination, £5.

UNIVERSITY OF EDINBURGH.

Four Degrees in Medicine and Surgery are conferred by the University of Edinburgh—viz., Bachelor of Medicine (M.B.), Bachelor of Surgery (Ch.B.), Doctor of Medicine (M.D.), and Master of Surgery (Ch.M.). The degree of Bachelor of Surgery cannot be conferred on any person who does not at the same time obtain the degree of Bachelor of Medicine, and similarly the degree of Bachelor of Medicine is not conferred on any person who does not at the same time obtain the degree of Bachelor of Surgery.

Subject to regulations to be made from time to time by the University Court, the University may also confer diplomas in special branches of medical and surgical practice on graduates of the University in Medicine and Surgery.

Before commencing his medical studies each student must pass a preliminary examination in (1) English, (2) Latin, (3) Elementary Mathematics, and (4) Greek or French or German: Provided always that, in the case of a candidate whose native language is not English, an examination in the native language of the candidate may be substituted for one in either French or German, and an examination in any other classical language for one in Latin or Greek.

No one is admitted to the degrees of Bachelor of Medicine and Bachelor of Surgery who has not been engaged in Medical and Surgical study for five years. No course of lectures will be allowed to qualify unless the lecturer certifies that it has embraced at least 100 lectures, or 50 lectures, as may be required by the regulations, and that the student has also duly performed the work of the class.

Candidates for the degrees of M.B. and Ch.B. must have attended for at least three academic years the medical and surgical practice either of the Royal Infirmary, Edinburgh, or of a general hospital elsewhere which accommodates not fewer than 80 patients and possesses a distinct staff of physicians and surgeons. They must have attended Clinical Surgery during a course or courses extending over not less than nine months. These courses may be conducted by the professor of clinical surgery, or by professors or lecturers appointed for the purpose by the University Court, or by the ordinary surgeons of the Royal Infirmary, Edinburgh, or of a general hospital defined and recognised as hereinbefore provided, and shall consist of regular instruction at the bedside, along with clinical lectures. A similar course of clinical medicine during a course or courses extending over not less than nine months is required. The candidate must have attended a course of instruction in Mental Diseases given by the University Lecturer, or by a recognised Teacher, consisting of not less than six Class-room meetings for lectures and demonstrations and ten meetings in the Wards of a recognised Asylum for the insane. The candidate must have attended a course of 25 meetings on Practical Pharmacy in a university or recognised school of medicine, or have dispensed drugs for a period of three months in a hospital or dispensary, or in an establishment recognised by the Pharmaceutical Society. The candidate must have attended for at least six months, by apprenticeship or otherwise, the out-practice of a hospital, or the practice of a dispensary, or of a physician or surgeon, or of a member of the London or Dublin Society of Apothecaries. He must have acted as clerk in the medical wards and dresser in the surgical wards of a public hospital for a period of six months in each case; and must also have availed himself, to such an extent as may be required by the Senatus, with the approval of the University Court, of opportunities of studying at a hospital or dispensary, Post-mortem Examinations, Fevers, Diseases of the Eye, Operative Surgery, and *one of* the three following, viz.—Diseases of Children, and Diseases of the Larynx, Ear, and Nose, and Diseases of the Skin, or such other special departments as may from time to time be determined. The candidate must have attended, under the superintendence of a registered medical practitioner, twelve cases of labour, or such additional number as the Senatus, with the sanction of the University Court, may from time to time determine; or have attended for three months the practice of a lying-in hospital, or of the maternity department of a general hospital or other public charitable institution, and have conducted personally six or such an additional number of cases of labour as the Senatus, with the approval of the University Court, may from time to time determine. The candidate must have been properly instructed in Vaccination at a public vaccination station, by a public vaccinator, authorised by the proper Government authority to grant certificates of proficiency in vaccination.

Next, with respect to the places and institutions at which the studies of the candidate may be prosecuted, the following regulations have effect:—Two of the five years of medical study must be spent in the University of Edinburgh. The remaining three years may be spent in any University of the United Kingdom, or in any Indian, Colonial, or Foreign university recognised for the purpose by the University Court, or in such medical schools or under such teachers as may be recognised for the purpose by the University Court. Of the subjects of study, 16 in number—viz., Anatomy, Practical Anatomy, Chemistry Practical Chemistry, Materia Medica, Physiology, Practical Physiology, Practice of Medicine, Surgery, Midwifery and Diseases of Women, Pathology, Practical Pathology, Physics, Botany, Zoology, Medical Jurisprudence, and Public Health—not less than eight must be taken in the University of Edinburgh or in some other university of the United Kingdom, or in some Foreign or Colonial university entitled to confer the degree of Doctor of Medicine, recognised for the purpose by the University Court, or in a college incorporated with, or affiliated to, a university entitled to confer the degree of Doctor of Medicine, recognised for the purpose by the University Court.

Each candidate is examined, both in writing and orally, *and clinically where the nature of the subject admits*:—*First*, in Chemistry, Zoology, Botany, and Physics; second, in Anatomy, Physiology, Materia Medica, and Therapeutics; third, in Pathology; and fourth in Surgery, Medicine, Midwifery, Forensic Medicine, and Public Health, and clinically in Medicine and Surgery in a hospital. The examinations are conducted, as far as possible, by demonstrations of objects placed before the candidates. Candidates who profess themselves ready to submit to an examination in the first division of these subjects may be admitted to examination therein at the first period of examination after they have completed their attendance on the necessary classes Candidates who have passed their examination in the first division of these subjects may be admitted to examination in the second division at the end of their third winter session Candidates who have passed their examinations in the subjects comprised in the first and second divisions may be admitted to examination in the third division at the end of the fourth winter session. Candidates who have passed their examinations in the subjects comprised in the first, second, and third divisions may be admitted to examination in the fourth or final division when they have completed the fifth year of study.

The fee to be paid for the degrees of Bachelor of Medicine and Bachelor of Surgery is £23 2*s*., and the proportion of this sum to be paid by a candidate at each division of the examination shall be as follows—viz: For the First Division of the Examination (Botany, Zoology, Physics, and Chemistry), £6 6*s*.; for the Second Division (Anatomy, Physiology, and Materia Medica and Therapeutics), £6 6*s*.; for the Third Division (Pathology), £4 4*s*.; and for the Final [illegible] al Surgery, Medicine and Clinic [illegible] Forensic Medicine and Public [illegible] be paid for the degree of Doctor of Medicine is £10 10*s*., and the fee to be paid for the degree of Master of Surgery is £10 10*s*.

UNIVERSITY OF GLASGOW.

The University of Glasgow is both a teaching and a degree-granting body, but admits to graduation only candidates whose preliminary examination and course of study conform to its own regulations. Within certain limits instruction given by recognised medical schools and teachers may be accepted, but eight of the subjects other than clinical must be taken in this or some other recognised university entitled to confer the degree of M.D., and at least two years of the course must be taken in Glasgow University. Under the new regulations four degrees, open both to men and women, are conferred: M.B. and Ch.B (always conjointly), M.D. and Ch.M. A Preliminary Examination must be passed in (1) English, (2) Latin, (3) Elementary Mathematics, and (4) Greek, or French, or German, with possible options to students whose native language is not English in the case of the fourth subject Candidates taking the University preliminary examination are not obliged to pass in all the four subjects at one examination but must do so at not more than two occasions. For the degrees of M.B. and Ch.B. a curriculum of five years is required, in each of the first four of which the student must attend at least two five months' courses, or alternatively one five months' course and two courses of two and a half months. The minimum of attendance in the first four years includes five months' courses in the following subjects:—Anatomy, Practical Anatomy (two courses), Chemistry, Materia Medica and Therapeutics. Physiology. Practice of Medicine, Surgery, Midwifery and Diseases of Women and Infants, and Pathology; and courses of two and a half months in the following:—Practical Chemistry, Physics, Botany, Zoology, Practical Physiology, Practical Pathology, Medical Jurisprudence and Public Health. Candidates must attend at least three years the Medical and Surgical Practice of a recognised hospital accommodating at least 80 patients and having a distinct staff of physicians and surgeons. At least nine months' hospital attendance is required on both Clinical Surgery and Clinical Medicine, and the student must have acted as clerk in medical and dresser in surgical wards, and must have had six months' out-door practice; he must also have attended a course of Mental Diseases and of Practical Pharmacy (25 meetings), must have been properly instructed in Vaccination at a public vaccination station, and must have attended at least 12 cases of labour, or three months of the practice of a Lying-in Hospital, six cases being personally conducted. The University also requires further study in Post-Mortem Examinations, Fevers, and Ophthalmology, and recommends study in other special subjects. If a candidate has completed in a University of the United Kingdom a course of study and passed an examination in Botany, Zoology, Physics or Chemistry, qualifying for a degree in Science or in Arts, he is held to have passed the examinations in such subject or subjects.

There are four Professional Examinations, the first comprising Botany, Zoology, Physics, and Chemistry, to be taken after the completion of the included courses (candidates being at liberty to take two subjects at a time); the second comprising Anatomy, Physiology, and Materia Medica and Therapeutics, to be taken at the end of the third winter session; the third comprising Pathology, Medical Jurisprudence and Public Health, to be taken at the end of the fourth winter session; and the fourth or final, comprising Surgery, Clinical Surgery, Practice of Medicine, Clinical Medicine, and Midwifery, to be taken on completion of the fifth year of study.

The degrees of M.D (Doctor of Medicine) and Ch.M. (Master of Surgery) are higher degrees in Medicine and Surgery respectively, and candidates (not under 24 years of age) who have previously obtained the double bachelorship may be admitted to either M.D. or Ch.M. on completing the after course prescribed, including an examination in Clinical Medicine for M.D. and an examination in Surgical Anatomy, operations on the dead body, and Clinical Surgery for Ch.M.

Fees.—The fees for M.B. and Ch.B. are £23 2*s*. The class fee in each subject of the curriculum for M.B. and Ch.B. is £3 3*s*. and the present fees for hospital attendance are £21 The fee for M.D. is £10 10*s*. (stamp duty being now abolished), and for Ch.M. £10 10*s*.

During last academic year there were 600 men and 62 women attending University courses in the Faculty of Medicine—a total of 684. The great majority of the students take their hospital course at the Western Infirmary, where clinical instruction is given by professors of the University and other physicians and surgeons. Clinical instruction on Fevers is given at Belvidere Hospital, while special courses, largely of a practical nature and embracing work in Hospital or Asylum wards, are conducted by University Lecturers on the Eye, the Ear, the Throat and Nose, and Insanity. Queen Margaret College, hitherto conducted as a separate institution for the higher education of women, has now been made over to the University, and in it medical classes for women are conducted under University professors and other lecturers appointed by the University Court, whilst for clinical instruction female students are admitted to the Royal Infirmary. Since 1894, the year in which the University first conferred degrees on women, 63 women have graduated in Medicine.

Bursaries and Prizes to the annual amount of about £820 are appropriated to medical students, and Scholarships and Fellowships to the annual amount of about £1600 may be held by medical students who have gone through the Arts course.

UNIVERSITY OF ABERDEEN.

The curricula for the several degrees conferred are nearly the same as in the Universities of Edinburgh and Glasgow.

Professional Examinations are held twice in each year—namely, in March and July, directly after the close of the winter and summer sessions.

The fees for graduation are the same as in the University of Edinburgh. Matriculation fee, including all dues, for the winter and summer sessions, £1 1*s.*; summer session alone, 10*s.* 6*d.*

Besides the Royal Infirmary, students have the opportunity of attending the following institutions: General Fever Hospital; Sick Children's Hospital; General Dispensary, and Lying-in and Vaccine Institutions daily; Royal Lunatic Asylum; Eye Institution, in which is given clinical instruction on Diseases of the Eye, and on the application of the Ophthalmoscope for their diagnosis.

A diploma in Public Health is granted by the University to graduates in Medicine of a University in the United Kingdom, after a special examination. The diploma can be entered on the Register of the General Medical Council.

[Application for further information should be addressed to the Secretary of the Medical Faculty.

UNIVERSITY OF ST. ANDREWS (UNITED COLLEGE ST. ANDREWS AND UNIVERSITY COLLEGE, DUNDEE).

The following are extracts from the Regulations for Degrees in Medicine contained in Ordinance No. 45 (St. Andrews, No. 4) of the Commissioners under the Universities (Scotland) Act, 1889. These regulations came into force on April 19th, 1897. Four Degrees in Medicine and Surgery shall be conferred by the University of St. Andrews—viz., Bachelor of Medicine (M.B.), Bachelor of Surgery (Ch.B.), Doctor of Medicine (M.D.), and Master of Surgery (Ch.M.). The degrees of M.B. and Ch.B. shall always be conjoined. Before commencing his medical studies each student shall pass a Preliminary Examination in, (*a*) English, (*b*) Latin, (*c*) Elementary Mathematics, and (*d*) one of the following optional subjects:—(α) Greek, (β) French, (γ) German, (δ) Italian, (ε) any other Modern Language, (ζ) Logic. A degree in Arts or in Science in any of the universities of the United Kingdom and in some colonial or foreign universities shall exempt from the Preliminary Examination. The Preliminary Examination for graduation in Medicine and Surgery, Arts or Science, of the University of St. Andrews is accepted as equivalent to the Registration Examination required by the General Medical Council (the certificate to include the required subjects). Also the Final Examination for a degree in Arts or Science and the final examination for the Diploma of L.L A

Candidates for the degree of Bachelor of Medicine and Bachelor of Surgery must have been engaged in medical study for at least five years. In each of the first four years the candidate must have attended at least two courses of instruction in one or more of the subjects of study specified below, each course extending over a session of not less than five months, either continuous or divided into two terms, or, alternatively, one such course along with two courses, each extending over a session of not less than two and a half months. During the fifth or final year the candidate shall be engaged in clinical study for at least nine months at the Infirmary of Dundee or at one or more of such public hospitals or dispensaries, British or foreign, as may be recognised for the purpose by the University Court. The candidate must have received instruction in each of the following subjects of study, including such examinations as may be prescribed in the various classes—viz.: Anatomy, Practical Anatomy, Chemistry, Materia Medica, Physiology, or Institutes of Medicine, Practice of Medicine, Surgery, Midwifery and the Diseases peculiar to Women and Infants, Pathology, Practical Chemistry, Physics (including the Dynamics of Solids, Liquids and Gases, and the Rudiments of Sound, Heat, Light, and Electricity), Elementary Botany, Elementary Zoology, Practical Physiology, Practical Pathology, Forensic Medicine and Public Health. The candidate must have attended for at least three years the Medical and Surgical Practice either of the Infirmary of Dundee or of a General Hospital elsewhere which accommodates not fewer than 80 patients and possesses a distinct staff of physicians and surgeons and is recognised for the purpose by the University Court. Additional subjects of study are Practical Pharmacy, Mental Diseases, Practical Midwifery (12 cases of labour), Vaccination, Children's Diseases, Fevers, Ophthalmology, and Post-mortem Examinations

With respect to the places and institutions at which the studies of the candidate may be prosecuted the following regulations shall have effect:—1. Two of the five years of medical study must be spent in the University of St. Andrews. 2. The remaining three years may be spent in any University of the United Kingdom or in any Indian, Colonial, or Foreign University recognised for the purpose by the University Court, or in such medical schools or under such teachers as may be recognised for the purpose by the University Court.

Women shall be admitted to graduation in Medicine, subject to the provisions of Ordinance No. 18 [General No. 9—Regulations for the Graduation of Women and for their Instruction in the Universities]: Provided always that every candidate for graduation shall produce evidence of having satisfied the conditions herein laid down with respect to the Preliminary Examination, and shall be examined in all the subjects necessary for graduation by the Examiners of the University of St. Andrews. All the classes necessary for graduation shall be taken in the University of St. Andrews, except in so far as instruction obtained elsewhere is allowed by the said Ordinance.

Professional Examinations for the Degrees of Bachelor of Medicine and Bachelor of Surgery.—Each candidate shall be examined both in writing and orally, and also clinically where the nature of the subject admits, in the following divisions—viz., First, in Botany, Zoology, Physics, and Chemistry; Second, in Anatomy, Physiology, and Materia Medica; Third, in Pathology, and Forensic Medicine and Public Health; Fourth, in Surgery and Clinical Surgery, Practice of Medicine and Clinical Medicine, and Midwifery.

The fee to be paid for the degrees of Bachelor of Medicine and Bachelor of Surgery shall be 22 guineas, and the proportion of this sum to be paid by a candidate at each division of the examination shall be regulated from time to time by the University Court. The fee to be paid for the degree of Doctor of Medicine shall be 10 guineas, exclusive of any stamp duty which for the time may be exigible. The fee to be paid for the degree of Master of Surgery shall be 10 guineas.

The whole medical curriculum can be taken in University College or the first two years in United College.

Bursaries, United College, St. Andrews.—Fourteen Taylour Thomson Bursaries for female Medical students of the annual value of from £20 to £30 each, tenable for one or two years. The Bursaries are awarded in the order of merit, the most valuable ones being given to those students who obtain the highest marks in the Preliminary Examination, and who are prepared to take two Anni Medici at the United College, St. Andrews.

University College, Dundee.—(*a*) Open to either sex: Eleven Entrance Bursaries of £15, tenable for one year. (*b*) Open to either sex: Four £20 and three £15, second year. (*c*) Four £20 and two £15, third year. (*d*) Bute Bursary, founded in 1893 by the Most Honourable the Marquis of Bute, K.T. This Bursary consists of the free proceeds of £1000. (*e*) Two Bursaries of the annual value of £25, tenable for three years at either University College, Dundee, or at any Scottish University (local candidates only).

For further particulars apply to the Dean of the Medical Faculty, University College, Dundee, N.B.

UNIVERSITY OF DUBLIN (TRINITY COLLEGE).

Matriculation.—All students in the School of Physic intending to practise Physic must be matriculated, for which a fee of 5*s.* is payable. No student can be admitted for the winter course after Nov. 25th.

Degrees in Medicine (M.B.), Surgery (B.Ch.), and Midwifery (B.A.O.).—Candidates for these degrees must be of B.A. standing and must be for at least five academic years on the books of the Medical School, reckoned from the date of matriculation. The Arts course may be concurrent with the medical course, and the B.A. degree need not be taken before the final medical examination, but the medical degrees are not conferred without the Arts degree. The following courses must be attended:—(1) Lectures—Systematic, Practical and Applied Anatomy, Chemistry and Practical Chemistry, Surgery and Operative Surgery, Histology, Botany, Zoology, Physics, Physiology, Practice of Medicine, Midwifery, Pathology, Materia Medica and Therapeutics, Medical Jurisprudence and Hygiene; (2) three courses of nine months' attendance on the Clinical Lectures of Sir Patrick Dun's or other recognised Dublin Hospital (one year at a recognised London or Edinburgh hospital before the commencement of the Dublin curriculum may be counted as one year spent in such Dublin hospital); (3) Practical Vaccination, one month's instruction; (4) Mental

Disease, three months'; (5) Practical Midwifery with Clinical Lectures, including not less than 30 cases, six months'; (6) Ophthalmic Surgery, three months'. Two examinations have to be passed. The Previous Medical or Half M.B. Examination, including Physics and Chemistry, Botany and Zoology, Anatomy and Institutes of Medicine (Practical Histology and Physiology), may be passed when credit has been obtained *for the corresponding subjects*, and these may be taken separately if desired. The Final Examination is subdivided into five sections, comprising Applied Anatomy (Medical and Surgical), Applied Physiology, Jurisprudence and Hygiene, Materia Medica and Therapeutics, Medicine, Surgery, Pathology, Midwifery, Gynæcology, Obstetrical Anatomy, Clinical Medicine, Mental Diseases, Clinical Surgery, Operations, Clinical Ophthalmology. The first seven of these subjects may be passed in the fourth year and the last eight in the fifth year. Fee for the *Liceat ad Examinandum*, £10. Fee for the degrees, £17.

Doctor in Medicine.—A Doctor in Medicine must be a Bachelor in Medicine of at least three years' standing, or have been qualified to take *the degree of* M.B. *for* three years, and must read a thesis before the Regius Professor of Physic. Total amount of fees for this degree, £13.

Master in Surgery.—A Master in Surgery must be a Bachelor in Surgery of the University of Dublin of not less than three years' standing, and must produce satisfactory evidence of having been engaged for not less than two years *from the date of his registration* in the study, or study and practice, of his profession. He must then pass an examination in the *following* subjects:—1. Clinical Surgery. 2. Operative Surgery. 3. Surgical Pathology. 4. Surgery 5 Surgical Anatomy (on the dead subject), and one of the following optional subjects:—1. Surgery in one of the following branches—viz., Ophthalmic and Aural, Gynæcological, and Dental. 2. Mental Disease. 3. Medical Jurisprudence and Hygiene. 4 Advanced Anatomy and Physiology. 5 Comparative Anatomy. Fee for the degree of Master in Surgery, £11.

Master in Obstetric Science.—A Master in Obstetric Science must have passed the M.B. and B.Ch. examinations, and produce a certificate of having attended a summer course in Obstetric Medicine and Surgery.[3] He is then *required to pass an examination in the following subjects*:—1. Practice of Midwifery 2 Gynæcology. 3 Anatomy of Female Pelvis and Elementary Embryology. 4. Clinical Gynæcology. *Fee for the degree of Master in Obstetric* Science. £5.

University Diplomas.—Candidates for the diplomas in Medicine, Surgery, or Obstetric Science must be matriculated in Medicine, and must have completed two years in Arts and five years in Medical Studies. The Course and Examination *necessary for the diplomas* are the same as for the degrees except that the candidate is not required to attend the Lectures on Botany and Zoology, nor to pass the Previous Medical examination in *those subjects*. A diplomate, on completing his course in Arts and proceeding to the degree of B.A., may become a Bachelor by attending the Lectures on Botany and Zoology, passing the Previous Medical examination in those subjects, and paying the degree fees. Fee for the *Liceat ad Examinandum*, £10. Fee for the diplomas in Medicine, Surgery, and Midwifery, £11.

ROYAL UNIVERSITY OF IRELAND.

All Degrees, Honours, Exhibitions, *Prizes*, Scholarships, and Studentships in this University are open to students of either sex.

Candidates for any degree in this University must have passed the Matriculation Examination. *Students from* other universities and colleges are included in this rule.

The following degrees, &c., are conferred by the University in this Faculty:—Bachelor of Medicine Doctor of Medicine, Bachelor of Surgery, Master of Surgery, Bachelor of Obstetrics and Master of Obstetrics; in Sanitary Science, a special diploma; and in Mental Disease, a special diploma.

The Medical Examinations, except those for the diploma in Sanitary Science and the First Medical Examination, will be held twice yearly—viz in April and in *October*. The examination *for the diploma* in Sanitary *Science* will be held in July, and the First Medical Examinations in June and September.

The course for degrees in Medicine, &c., is of at least five years' duration.

The First Examination in Medicine.—Students may be admitted to this examination after the lapse of one academical year from the time of their matriculation. They must also have previously passed the First University Examination and completed the first year of the medical curriculum. *The subjects of this examination are* Natural Philosophy Systematic Chemistry, Zoology and Botany. The *examination in each subject will comprise two parts*:—1. A written examination. 2. Practical work and oral examination. For Chemistry the practical examination takes place at the close of the second year. Particular weight will be given to the practical part of the examination. Candidates at the First Examination in Medicine who at the First University Examination did not obtain 30 per cent. of the marks assigned to French or German will be required to present themselves for a qualifying examination in French or German. Failure to obtain 30 per cent. of the marks assigned to either of these languages will involve the loss of the examination.

The Second Examination in Medicine.—Students will be admitted to this examination after the lapse of one medical year from the time of passing the First Examination in Medicine, provided they have completed the second year of the medical curriculum. The subjects for this examination are Anatomy, Physiology, and Practical Chemistry.

The Third Examination in Medicine—Students will be admitted to this examination after the lapse of one medical year from the time of passing the Second Examination in Medicine, provided they have completed the third year of the medical curriculum. The subjects for this examination will be Anatomy, Physiology, and Materia Medica (*Pharmacology and* Therapeutics).

The Examination for the Medical Degrees.—Students will be admitted to this examination after the lapse of not less than one medical year from the time of passing the Third Examination in Medicine, provided they have completed the course of medical studies prescribed for the entire medical curriculum. The examination consists of three parts or divisions:—(*a*) Medicine, including Therapeutics and Pathology, Mental Diseases, Medical Jurisprudence and Hygiene (*b*) Surgery, Theoretical, Clinical, Operative; Surgical Anatomy, with Ophthalmology and Otology; Surgical Pathology. (*c*) Midwifery and Gynæcology, with Diseases of Children. Each part of this examination must be passed as a whole. Upon completing satisfactorily his examination in all three divisions the candidate will, in addition to the parchment diplomas recording his admission to the Medical Degrees of M.B., B.Ch., and B A O, receive a certificate of having passed a qualifying examination in the subjects of Medicine Surgery, and Midwifery. The fee for this certificate is £10, which must be paid prior to the candidate's admission to the Medical Degrees.

M.D Degree.—*Candidates may present themselves for the* examination for this degree after the lapse of three academical years from the time of obtaining the degree of M B They must at the same time produce a certificate of having been, *for* at least two academical years engaged in hospital or private, medical surgical, or obstetrical practice, or in the military or naval medical service. Every candidate will be examined at the bedside, and required to diagnose at least three medical cases, and prescribe treatment, and to write detailed reports on at least two cases to be selected by the examiners and to discuss all the questions arising thereon

The M.Ch Degree—This degree will be conferred only on graduates in Medicine of the University of at least three years' standing. They must at the same time produce a certificate of having been, for at least two academical years, engaged in hospital or private, medical, surgical, or obstetrical practice, or in the military or naval medical service. The examination for this degree will comprise Surgical Diseases and Surgery, both theoretical and operative; Surgical Anatomy; Ophthalmology and Otology; and will include—(*a*) a written examination; (*b*) a clinical examination; (*c*) an examination *on Surgical* Instruments and Appliances; and (*d*) an examination in Operative Surgery.

The Mastership in Obstetrics—This degree will be conferred *only on graduates in Medicine of the University* of at least three years' standing. They must at the same time produce a certificate of having been, for at least two academical years, engaged in hospital or private, medical, surgical, or obstetrical practice, or in the military or naval military service. The examination will comprise the Theory and Practice of Midwifery and of Diseases of Women and Children and the Use of Instruments and Appliances and will include—(*a*) a written examination; (*b*) a clinical examination as far as practicable; (*c*) an oral examination, with practical illustrations; and (*d*) an examination on Instruments and Appliances.

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[3] Existing graduates in Medicine of the standing of M D are not required to attend this course.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGE OF PHYSICIANS OF LONDON AND THE ROYAL COLLEGE OF SURGEONS OF ENGLAND [4]

Regulations relating to the several Examinations applicable to Candidates who commenced their Professional Education on or after Jan. 1st, 1892.

Any candidate who desires to obtain both the licence of the Royal College of Physicians of London and the diploma of Member of the Royal College of Surgeons of England is required to complete five years of professional study at recognised Medical Schools and Hospitals and to comply with the following regulations and to pass the examinations hereinafter set forth. (One of the five years may be spent in an Institution recognised by the Board for instruction in Chemistry, Physics, Practical Chemistry, and Biology.)

Professional Examinations.—There are three Examinations, called herein the First Examination, the Second Examination, and the Third or Final Examination, each being partly written, partly oral, and partly practical. These examinations will be held in the months of January, April, July, and October, unless otherwise appointed. Every candidate intending to present himself for examination is required to give notice in writing to Mr. F. G. Hallett, secretary of the Examining Board, Examination Hall, Victoria Embankment, W.C., fourteen clear days before the day on which the examination commences, transmitting at the same time the required certificates.

The subjects of the First Examination are—Chemistry and Physics, Practical Pharmacy, and Elementary Biology. A candidate may take this examination in three parts at different times. A candidate will be admitted to examination in Chemistry and Physics, in Practical Pharmacy, and Elementary Biology, on producing evidence of having passed the required Preliminary Examination and of having received instruction in these subjects at a recognised institution, *or he may take Pharmacy* at any time during the curriculum. A candidate rejected in one part or more of the First Examination will not be admitted to re-examination until after the lapse of a period of not less than three months from the date of rejection, and he will be re-examined in the subject or subjects in which he has been rejected. If referred in Chemistry or Biology he must produce evidence of further instruction at a recognised institution. Any candidate who shall produce satisfactory evidence of having passed an examination for a degree in Medicine on any of the subjects of this examination conducted at a university in the United Kingdom, in India, or in a British colony will be exempt from examination in those subjects in which he has passed.

The fees for admission to the First Examination are as follows: For the whole examination, £10 10*s*; for re-examination after rejection in Part I., £3 3*s*; and for re-examination in each of the other parts, £2 2*s*.

The subjects of the Second Examination are Anatomy and Physiology. Candidates will be required to pass in both subjects at one and the same time. Candidates will be admissible to the Second Examination at the expiration of two winter sessions and one summer session (or fifteen months during the ordinary sessions) from the date of passing the Preliminary Examination, and after the lapse of not less than 12 months or one Winter and one Summer Session from the date of passing Parts I. and III. of the First Examination on production of the required certificates of professional study

A candidate referred on the Second Examination will be required, before being admitted to re examination, to produce a certificate that he has pursued, to the satisfaction of his teachers, in a recognised place of study, his Anatomical and Physiological studies during a period of not less than three months subsequently to the date of his reference.

The fees for admission to the Second Examination are: £10 10*s*. for the whole examination, and £6 6*s*. for re-examination after rejection.

The subjects of the Third or Final Examination are: Part I. Medicine, including Medical Anatomy, Pathology, Practical Pharmacy, Therapeutics, Forensic Medicine, and Public Health. Candidates who have passed in Practical Pharmacy at the First Examination will not be re-examined in that subject at the Third Examination. Part II. Surgery, including Pathology, Surgical Anatomy, and the use of Surgical Appliances. Part III. Midwifery and Diseases Peculiar to Women. Candidates may present themselves for examination in Midwifery and Diseases of Women at any time after the completion of the fourth year of professional study at a Medical School and Hospital, not less than one year after passing the Second Examination, on production of the required certificates. Candidates may take this examination in three parts at different times, or they may present themselves for the whole examination at one time. They will be required to produce the following evidence before being admitted to the several parts of the Third, or Final Examination—viz., in Medicine, of having attended Lectures on Medicine, Pathology including Bacteriology, Pharmacology and Therapeutics, Forensic Medicine, and Public Health; Practical Instruction in Medicine; Medical Hospital Practice during two winter and two summer sessions; Demonstrations in the Post-mortem Room during 12 months; Clinical Lectures on Medicine during nine months; of having discharged the duties of Medical Clinical Clerk; Practice of a Fever Hospital and Clinical Demonstrations at a recognised Lunatic Asylum; in Surgery, of having attended Lectures on Surgery and Pathology including Bacteriology; Practical Instruction in Surgery; of having performed operations upon the Dead Subject; Surgical Hospital Practice during two winter and two summer sessions; Demonstrations in the Post-mortem Room during 12 months; Clinical Lectures on Surgery during nine months; of having discharged the duties of Surgical Dresser, and Clinical Instruction in Ophthalmology; in Midwifery of having attended Lectures on Midwifery; Practical Instruction in Midwifery; Clinical or other Lectures, with Practical Instruction in Diseases Peculiar to Women; and of attendance on 20 Labours.

Fees for admission to the Third or Final Examination are as follows: For the whole examination, £21. Part I. For re-examination in Medicine, including Medical Anatomy, Pathology, Therapeutics, Forensic Medicine, and Public Health, £5 5*s*.; for re-examination in Practical Pharmacy (if taken at this examination), £2 2*s*. Part II. For re-examination in Surgery, including Pathology, Surgical Anatomy, and the use of Surgical Appliances, £5 5*s* Part III. For re-examination in Midwifery and Diseases Peculiar to Women, £3 3*s*.

A candidate referred on the Third or Final Examination will not be admitted to re-examination until after the lapse of a period of not less than three months from the date of rejection and will be required, before being admitted to re-examination, to produce a certificate, in regard to Medicine and Surgery, of having attended the Medical and Surgical Practice, or the Medical or Surgical Practice, as the case may be, during the period of his reference; and in regard to Midwifery and Diseases Peculiar to Women a certificate of having received, subsequently to the date of his reference, not less than three months' instruction in that subject by a recognised teacher.

ROYAL COLLEGES OF SURGEONS AND PHYSICIANS OF EDINBURGH AND FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

These Colleges have made arrangements by which, after one series of examinations, held in Edinburgh or in Glasgow, or in Edinburgh and Glasgow, the student may obtain the diplomas of the three Bodies.

The three Bodies grant their Single Licences only to candidates who already possess another and opposite qualification in Medicine or Surgery, as the case may be, recognised by them. Copies of the Regulations for the Single Licence of any of the Bodies may be had on application to the respective secretaries.

Professional Education.—1. Candidates who commence medical study *before* Jan 1st, 1892 must have been engaged in professional study during 45 months from the date of registration as medical students by the General Medical Council, which period shall include not less than four winter sessions' attendance at a recognised medical school. 2 The candidate must produce certificates or other satisfactory evidence of having attended the following separate and *distinct courses of instruction*: Anatomy during at least six months; Practical Anatomy, twelve months; Chemistry, six months, Practical or Analytical Chemistry, three months; Materia Medica, three months; Physiology, six months; Practice of Medicine, six months; Clinical Medicine, nine months; Principles and Practice of Surgery, six months; Clinical Surgery, nine months; Midwifery and the Diseases of Women and Children, three *months*; Medical Jurisprudence, *three months*; Pathological Anatomy, three months. The six months' courses delivered in Scotland must consist of not fewer than 100 lectures. The three months' courses must consist of not fewer than 50 lectures The number of lectures certified as attended at any school not situated in Scotland should not be less than three fourths of the total number of lectures delivered in a course. 3 The candidate must also produce the following certificates.—(*a*) Of having attended not less than six cases of labour, three of these to be conducted personally under the direct superintendence *of the practitioner who signs the certificate, who must be* a registered medical practitioner. (*b*) Of having attended, for three months, instruction in Practical Pharmacy; the certificate to be signed by the teacher, who must be a member of the Pharmaceutical Society of Great Britain, or the superintendent of the laboratory of a public hospital or dispensary, or a registered practitioner who dispenses medicines to his patients, or a teacher of a class of Practical Pharmacy (*c*) Of having attended for 24 months the Medical and Surgical practice of a public general hospital containing on an average at least 80 patients available for *clinical instruction and possessing distinct staffs of* physicians and of surgeons (*d*) Of having attended for six months (or three months with three months' hospital clerkship) the practice of a public dispensary specially recognised by any of the above authorities, or the out-patient practice of a recognised general hospital, or of having acted for six months as pupil to a registered practitioner who either holds such a public appointment, or has such opportunities of imparting practical knowledge as shall be satisfactory to the coöperating authorities; this attendance should be made after the student has passed the First and Second Examinations (*e*) *Of having been instructed* by a registered medical practitioner in the Theory and Practice of Vaccination, and of having performed operations under the teacher's inspection, during a period of not less than six weeks

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[4] The diploma of Member of the Royal College of Surgeons of England and the Licence of the Royal College of Physicians of London are no longer granted separately except to students who commenced their professional study prior to Oct. 1st, 1884.

Candidates shall be subjected to three Professional Examinations and they may enter either for the whole of an Examination or for a division thereof.

First Examination.—The First Examination shall embrace the two divisions of (1) Chemistry and (2) Elementary Anatomy and Histology, and shall take place not sooner than the end of the first year, including the period of a winter and a summer session For the whole Examination taken at one time the sum of £5 5*s* must be paid to the inspector of certificates not later than one week preceding it, after which no candidate will be entered After rejection for re entry in all subjects, £3 3*s*; for re-entry after obtaining exemption from re examination in one or two subjects, £2 2*s*; for entering for one division of subjects separately, £3 3*s*; and for each re-entry after rejection, £2 2*s* Any candidate who shall produce satisfactory evidence of having passed an equivalent examination in any of the subjects of the First Examination before any of the *boards specified in* the Regulations will be exempt from examination in such subjects

Second Examination.—The Second Examination shall embrace the three subjects of (1) Anatomy, (2) Physiology, (3) [illegible] [illegible] summer session of the second year of study including two winters and two summers The fees for admission to this examination, payable not later than one [illegible] re examination in one or two subjects, £2 2*s*; for entering for one subject separately, £2 2*s*; and for each re entry therein after rejection, £2 2*s* Any candidate who shall produce satisfactory evidence of having passed an equivalent examination in any of the subjects of the Second Examination before any of the boards specified in the Regulations will be exempt from examination in such subject or subjects

Final Examination.—The Final Examination shall embrace the three divisions of—(1) the Principles and Practice [illegible] Anatomy, and [illegible] Principles and [illegible] and Surgical [illegible] y and Gynæ- [illegible] (which divisions may be entered for separately at different times); and shall *not take place before* the *termination* of the full period of study. The fees for this Examination, payable not later than one week before the examination day, are as follows. For the whole Examination, taken at one time, in the case of candidates who have passed the First and Second Examinations, £15 15*s* of which £10 10*s* shall be returned to unsuccessful candidates. For entering for each of the three divisions of subjects separately, £6 6*s*, and on re-entry after rejection, £2 2*s* in respect of each division or part thereof This rule will also apply to any subsequent rejection. Any candidate admitted to the Final Examination, on *the footing of having passed* in the subjects of the First and Second Examinations at a recognised board, shall, on entering, pay the full fee of £26 5*s*,

All candidates shall be subjected, in addition to the Written and Oral Examinations, to Clinical Examinations in Medicine and Surgery, which shall include the Examination of Patients, Physical Diagnosis, the Clinical Use of the Microscope, Examination of the Urine and Urinary Deposits, Surgical Appliances, Bandages, Surface Markings, &c.

REGULATIONS FOR CANDIDATES WHO COMMENCED STUDY *after* JANUARY 1ST, 1892

In addition to the courses above prescribed candidates are required to attend the following courses Physics three months; Elementary Biology three months; Diseases and Injuries of the Eye, three months, Insanity, three months; Infectious Diseases, three months, and a third year of Hospital Practice with Clinical Instruction (which may include the study of special diseases)

The curriculum lasts for five years; the fifth year should be devoted to clinical work at one or more public hospitals or dispensaries Six months of the fifth year may be passed by the student as a pupil to a registered practitioner possessing such opportunities of imparting [illegible] be deemed satisfactory by the [illegible] The student's regularity of atten[illegible] patient departments of the hospitals and at the post-mortem examinations should be duly ascertained and noted on the certificate

Candidates shall be subjected to four Professional Examinations.

First Examination.—The First Examination shall embrace the following divisions of subjects—(1) Physics, (2) Chemistry, and (3) *Elementary Biology*. The fees payable for admission to the First Examination, shall be for the whole Examination. £5; for each division separately, £2 10*s*.

Second Examination.—The Second Examination shall embrace Anatomy and Physiology including Histology; and candidates may be admitted to this Examination at the end of the second year of medical study The fees payable for admission to the Second Examination shall be—for the whole Examination £5

Third Examination.—The Third Examination shall embrace Pathology and Materia Medica with Pharmacy. The *fees payable for admission to the Third Examination* shall be—for the whole Examination, £5; for re entry in both subjects after rejection, £3

Final Examination.—The Final Examination shall not be passed earlier than the end of the fifth year of study and shall embrace the following subjects.—Medicine, including Therapeutics, Medical Anatomy, and Clinical Medicine; Surgery, including Surgical Anatomy Clinical Surgery, and Diseases and Injuries of the Eye; Midwifery and Diseases of Women and of New born Children; and Medical Jurisprudence and Public Health All candidates shall be subjected, in addition to the Written *and Oral* Examinations, to Clinical Examinations in Medicine and Surgery, which shall include the Examination of Patients, Physical Diagnosis, the Clinical use of the Microscope, Examination of the Urine and Urinary Deposits, Surgical Appliances, Bandages, Surface markings, &c. The fees payable for the Final Examination shall be,—for the whole Examination, £15, for re-entry in all subjects after rejection, £5.

There are six periods of Examination annually, four in Edinburgh and two in Glasgow, and candidates may present themselves at either examining centre irrespective of the place of the previous examination. The Registrar in Edinburgh is Mr. J. Robertson, Solicitor, 54, George-square; and the Registrar in Glasgow, Mr. A. Duncan, LL.D., 242, St. Vincent-street, to whom fees and certificates must be sent.

Note.—In applying for copies of the Regulations students should state whether they commenced medical study before or after Jan. 1st, 1892.

SOCIETY OF APOTHECARIES OF LONDON.

There are two examinations—Primary and Final. The Final Examination is divided into Section I. and Section II. The Primary Examination is held quarterly, on the first Wednesday and on the Monday and Thursday of the same week, in the months of January, April, July, and October. Final Examinations are held monthly.

The Primary Examination consists of two parts. Part I. Elementary Biology; Chemistry, Chemical Physics, including the Elementary Mechanics of Solids and Fluids, Heat, Light, and Electricity; Practical Chemistry; and Materia Medica and Pharmacy. A synopsis indicating the range of the subjects in the examination will be sent with the regulations on application. Evidence of instruction in these subjects must be produced prior to examination. Part II. includes Anatomy, Physiology, and Histology. This examination cannot be passed before the completion of twelve months' Practical Anatomy with Demonstrations, and these subjects cannot be taken separately except in the event of the candidate having previously passed in one. Evidence must be produced of the candidate's course of study. A schedule for the Primary Examination, to be obtained of the Secretary, must be signed by the Dean of the Medical School or other authority. Section I. of the Final Examination consists of three parts. Part I. includes the Principles and Practice of Surgery, Surgical Pathology, and Surgical Anatomy, Operative Manipulation, Instruments, and Appliances. Part II. includes the Principles and Practice of Medicine, Pharmacology, Pathology and Morbid Histology; Forensic Medicine, Hygiene, Theory and Practice of Vaccination; and Mental Diseases. Part III. includes Midwifery, Gynæcology, and Diseases of New-born Children and the Use of Obstetric Instruments and Appliances. Section I. of the Final Examination cannot be passed before the expiration of 45 months after registration as medical student, during which time not less than three winter sessions and two summer sessions must have been passed at one or more of the medical schools connected with a general hospital recognised by the Society. Section II. of the Final Examination consists of two Parts. Part I. Clinical Surgery; Part II. Clinical Medicine and Medical Anatomy. Section II. cannot be passed before the end of the fifth year.

The course of study for the Primary Examination is as follows:—Elementary Biology, not less than three months; Chemistry and Chemical Physics, six months; Practical Chemistry, three months; Pharmacy and Dispensing, three months; Anatomy, six months; Practical Anatomy with Demonstrations, twelve months; Physiology, six months; Histology with Demonstrations, three months. The study of these subjects must be pursued at a Medical School recognised by the Society. Evidence of having received instruction in the subjects of Part I. of the Primary Examination before registration as medical student will be accepted. Instruction in Pharmacy and Dispensing must be given by a registered medical practitioner or by a member of the Pharmaceutical Society by examination or in a public hospital, infirmary, or dispensary.

The course of study for the Final, Section I., Examination includes attendance on the Surgical and Medical Practice (with Post-mortem Examinations) at a hospital connected with a medical school for a period of one winter and one summer session; lectures on the Principles and Practice of Surgery, six months; Practical Surgery, three months; Clinical Surgical Lectures, nine months; Dressership, six months; Performance of Surgical Operations on the Dead Body; lectures on Principles and Practice of Medicine, six months; Pathology, three months; Clinical Medical Lectures, nine months; Clinical Clerkship,[5] six months; Forensic Medicine, Hygiene, and Insanity, three months; Midwifery and Gynæcology, three months; Clinical Instruction in the same, three months; a course of Practical Midwifery; attendance on 20 Midwifery cases. The course of medical study must extend over the above-mentioned period of 45 months.

The course of study for the Final Examination Section II. includes either attendance on the Practice of Medicine and Surgery at a hospital or other institution recognised by the Society for a further period of 12 months, or six months as above and six months as a pupil of a registered practitioner holding a public medical or surgical appointment, or attendance at two special hospitals for six months (three months at each hospital), and for six months at a general hospital, all such hospitals to be recognised by the Society. Evidence shall also be given of practical instruction in Infectious Diseases and in Mental Diseases (at a lunatic asylum or in the wards of an institution containing a special ward set apart for the treatment of mental diseases), and in any two of the following subjects: Ophthalmic Surgery, Laryngology with Rhinology and Otology, Dermatology, and Diseases of Children. No candidate is eligible for the Final Examination who has not completed the curriculum prescribed by the Society, in evidence of which a schedule, to be obtained of the Secretary, must be produced, signed by the Dean of the Medical School or other authority. Prior to Section II. of the Final Examination the candidate must produce certificates: (1) of being 21 years of age; (2) of moral character; (3) of the course of medical study; and (4) of proficiency in vaccination signed by a teacher authorised by the Local Government Board. Candidates intending to present themselves for examination are required to give 14 days' notice. A form for this purpose will be sent on application.

The fee for the Licence is 15 guineas. On and after Jan. 1st, 1902, the fee for the Licence will be 20 guineas. The examination offices are open from 10 A.M. to 4 P.M.; on Saturdays from 10 A.M. to 1 P.M. All letters should be addressed to the Secretary, Court of Examiners, Society of Apothecaries of London, Blackfriars, E.C.

APOTHECARIES' HALL OF IRELAND.

The Licence of this Hall is granted to students who can present certificates of having fully completed the course of study as laid down in the curriculum. The diploma of the Apothecaries' Hall of Ireland entitles the holder to be registered as a practitioner in medicine, surgery, and midwifery, also with the privileges of the Apothecary Licence. There are four professional examinations, the total fees in connexion with which amount to 21 guineas. Ladies are eligible for the diploma. Candidates already on the Register will receive the diploma of the Hall upon passing an examination in the subjects which are not covered by their previous qualifications and on paying a fee of 10 guineas. If medicine or surgery be required two guineas extra will be charged.

The fees payable for each examination are as follows:—first professional, £5 5*s.*; second, £5 5*s.*; third, £5 5*s.*; final examination, £6 6*s.* If a candidate gives three clear days' notice of inability to attend he may present himself at the ensuing examination without any further fee. A candidate is allowed for each professional examination which he has completed at any other licensing body except the final. If he has passed only in some of the subjects in a given examination he has to pay the whole of the fee for that examination. The fees for re-examination are for each subject £1 1*s.*, excepting in the subjects of chemistry, pharmacy, surgery, medicine, second anatomy, and ophthalmology, the fees for which are two guineas each. The fee for the final alone is £15 15*s.* when the other examinations have been taken elsewhere. All examination fees are to be lodged in the Sackville-street Branch of the Royal Bank of Ireland to the credit of the Examination Committee. Applications and schedules, together with bank receipt for the fee, must be lodged with the Registrar, Apothecaries' Hall, 40, Mary-street, Dublin, 14 clear days before the *first* day of examination.

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[5] These offices must be held at a hospital, or other institution recognised by the society.

There are four examinations—first, second, third, and final. The first three are held quarterly on the third Monday in January, April, July, and October; there are only two finals, in January and July. The first examination includes biology, physics, theoretical and practical chemistry, with an examination at the bench. Pharmacy is put down in this examination, but it may be taken at any of the first three examinations. Candidates holding a Pharmaceutical licence are exempt from this subject. Osteology (first anatomy) is also a subject of the first professional examination. The subjects for the second professional are anatomy of the whole body (the examination in this subject is practical), materia medica and therapeutics, physiology and practical histology. The third examination consists of pathology, materia medica if not taken at second examination, medical jurisprudence, and hygiene. The final examination includes medicine, oral and clinical surgery, including operations, clinical and oral, clinical ophthalmic surgery, midwifery, and gynæcology. Written papers are required on all these subjects.

Candidates who desire to obtain the Letters Testimonial of the Apothecaries' Hall in Ireland must before proceeding to the final examination produce evidence of having been registered as a medical student for 57 months, also of having attended courses of instruction as follows:—one course each (winter course of six months) of the following: anatomy (lecture), chemistry (theoretical), midwifery, practice of medicine, physiology or institutes of medicine, surgery, dissections, two courses of six months each. Courses of three months: materia medica, medical jurisprudence, chemistry (practical), practical physiology and histology, operative surgery, physics, clinical ophthalmology, biology, clinical instruction in mental disease, pathology, and vaccination. Medico-chirurgical hospital, 27 months to be distributed, at the student's own discretion, over the last four years of his study. The candidate may substitute for nine months in this hospital attendance six months as a resident pupil. He will be required to present a certificate of having taken notes of at least six medical and surgical cases recorded under the supervision respectively of a physician and surgeon of his hospital. Three months' study of fever—which may be included in his 27 months' hospital attendance—in a hospital containing fever wards, and having taken notes of five cases of fever—viz., either typhus fever, typhoid fever, scarlet fever, small-pox, or measles. Six months' practical midwifery and diseases of women during the winter or summer of the third or the fourth year at a recognised lying-in hospital or maternity. Three months' practical pharmacy in a recognised clinical hospital or a recognised school of pharmacy, or a year in the compounding department of a licentiate apothecary or a pharmaceutical chemist. Each candidate before receiving his diploma must produce evidence that he has attained the age of 21 years. Each candidate must produce evidence of having before entering on medical studies passed a preliminary examination in general education recognised by the General Medical Council and of having been registered by that Council as a student in medicine. Certificates of medical study will not be recognised if the commencement of the course to which the certificate refers dates more than 15 days prior to such registration, except in the subjects of physics or biology. This registration is not undertaken by the Hall, but the student must apply to the Registrar of the General Medical Council that he may be so entered. The details of the course of education required and syllabus of the examinations will be supplied on application to the Registrar at 40, Mary-street, Dublin.

UNIVERSITY OF BRUSSELS.

British and other practitioners holding registrable qualifications are admitted to the examination for the Doctorate of the University of Brussels without further curriculum. It is essentially a *practitioner's* examination and is separate from that intended for the Belgian students who take up the medical curriculum of the University. The fees are—For matriculation, £8 12*s.*; for 1st Part, £4 8*s.*; for 2nd Part, £4 4*s.*; for 3rd Part, £4 8*s.*; for legalisation of diploma, 8*s.*—total, £22. Candidates who have paid in advance the fees for the three examinations, and are unsuccessful in the first, recover the fees paid for the second and third; those who fail in the second recover the fees paid for the third examination. Unsuccessful candidates are allowed to come up again three months after rejection on payment of examination fees only, provided this second appearance be in the course of the same academical year (October 1st to June 30th) otherwise they must renew the payment of the matriculation fee of £8 12*s.* There are three examinations, viz.—1st Part: General Medicine; Pathology and Morbid Anatomy; General Therapeutics; Materia Medica and Pharmacology; Special Therapeutics and Mental Diseases. 2nd Part: Surgery; Midwifery; Hygiene; and Medical Jurisprudence. 3rd Part: Clinical Examination in Medicine at the Hospital; Clinical Surgical Examination; Examination in Midwifery, consisting of obstetrical operations on the mannequin (doll and model of pelvis); Examination in Operative Surgery, consisting of some of the usual operations on the dead subject, such as Amputation, Ligature of an Artery, &c.; Regional Anatomy on the Dead Body, with Dissections; and Ophthalmology. The first and second parts are theoretical and the third is mainly practical and clinical. The time required for the three examinations seldom exceeds ten days, and is usually less. Candidates have the option of passing each part separately or of taking the three together, and the latter is the usual course; also of demanding a written examination on payment of an additional fee of one guinea for each part, a rule of which candidates rarely or never avail themselves. The examinations, which are *vivâ voce*, take place on the first Tuesday in November, December, February, May, and June. Candidates should appear with their diplomas at the Secretary's office not later than 2 P.M. on the day preceding the examination. Most of the examiners speak English and those who do not examine through the medium of an interpreter. Great importance is attached to practical knowledge, but candidates must also possess sound theoretical knowledge, the standard required varying with the subject. Pathological and other specimens are not usually shown. There are in England at present over 600 graduates holding this degree, and an English Association of Brussels Medical Graduates has been in existence many years.

Further information may be obtained from Dr. Walter Reeve, 2, Harewood-place, Hanover-square, W.

THE ARMY, NAVY, AND INDIAN MEDICAL SERVICES.

Consequent upon the issue of the Royal Warrant published in Army Orders dated July 1st, 1898, the Army Medical Staff and the Medical Staff Corps were formed into the Royal Army Medical Corps. Medical officers also have been placed, as regards sick leave of absence on full pay, on the same footing as that laid down for regimental officers. By a Royal Warrant, dated Nov. 10th, 1891, Art. 1208*b* of the Pay Warrant was revised by inserting the words "an officer of our Royal Army Medical Corps" after the words "combatant officer," thus giving medical officers an equal title with combatant officers to reckon time on half-pay towards retirement, when the half-pay has been due to ill-health contracted in the performance of military duty. Under the Royal Warrant of July, 1895, time on half-pay not exceeding a year may under similar circumstances also reckon towards promotion. In the New Royal Warrant it was announced that the Queen had been pleased to approve of the following ranks for the officers of the Royal Army Medical Corps:—Colonel, Lieutenant-Colonel, Major, Captain, and Lieutenant. The Warrant also states that the Medical Staff of the Army shall in future consist of Surgeon-Generals (ranking as Major Generals). Officers of the Royal Army Medical Corps holding appointments in the Household Troops are to be borne as seconded officers on the establishment of the Royal Army Medical Corps. The substantive rank of the Director-General of the Army Medical Service is that of Surgeon General.

Admission into the Royal Army Medical Corps and Indian Medical Services is gained as the result of competitive examination. Under special conditions the admission to the former may take place by nomination under the authority of the Secretary of State for War. The number of nominated candidates for the Royal Army Medical Corps is not to exceed the number of candidates advertised for to compete at the examination for admission to the Army Medical School as surgeons-on probation for the Royal Army Medical Corps. During several sessions of the school the number of nominated candidates has exceeded the number of surgeons-on-probation who have been admitted by examination. The latter, if found qualified at the Netley examination, rank senior to the nominated officers in the army—a just advantage. The candidates are nominated by the Secretary of State for War, who invites such governing bodies of public schools of medicine in the United Kingdom or Colonies as he may think proper to propose probationers. The Secretary of State for War will from time to time fix the order of precedence and the proportion in which the several schools of medicine shall be offered the nomination of candidates. Candidates for both services must, before being admitted to examination, possess a double qualification to practise Medicine and Surgery and be registered under the Medical Act. They are also now required to produce certificates of having acted as a medical clinical clerk for six months, as surgical dresser for another six months, and of having had not less than three months' instruction at an ophthalmic hospital or the ophthalmic department of a general hospital, including a course on errors of refraction. They must also furnish satisfactory certificates of moral character. A candidate for the Royal Army Medical Corps must be between 21 and 28 years of age, in good mental and bodily health, and must sign a declaration upon honour that he is of pure European descent; he must also state whether he holds, or has held, any commission or appointment in the public services; for the Indian Service a candidate must be between 21 and 28 years of age, of sound bodily health, and a natural-born subject of His Majesty. Both are examined as to physical fitness by a Board of Medical Officers The standard of fitness is set forth in Appendix I. of the regulations for admission to the Royal Army Medical Corps. These conditions being satisfied, the candidate is admitted to the competitive examination, which is usually held in London twice a year, in the months of February and August An entrance fee of £1 is required from each candidate admitted to the competition, and is payable at the conclusion of the candidate's physical examination, if he be pronounced fit. No candidate for the Indian Service will be allowed to compete on more than three occasions (At the last competition, for the first time in the annals of the Indian Medical Service, the number of candidates only equalled the number of vacancies advertised) The subjects of examination are divided into *compulsory* and *voluntary*. The former comprise Surgery (1200 marks), Medicine, including Therapeutics and the Diseases of Women and Children (1200 marks), Anatomy and Physiology (600 marks), Chemistry and Pharmacy, and a practical knowledge of Drugs (600 marks). The examination in Medicine and Surgery will be in part practical, and will include operations on the dead body, the application of surgical apparatus, and the examination of medical and surgical patients at the bedside The eligibility of the candidate for admission into the service is determined by the result of this part of the examination. By an Army Order dated May 1st, 1895, no candidate shall be considered eligible who shall not have obtained at least one-third of the marks obtainable in each of the compulsory subjects, and at least one-half of the aggregate of marks for all the compulsory subjects. The *voluntary* subjects are French (200 marks), German (200 marks) Hindustani (200 marks), and Natural Sciences: (*a*) Physics (300 marks); (*b*) Zoology (300 marks); (*c*) Geology and Physical Geography (300 marks); and (*d*) Botany (300 marks). A candidate may not present himself for examination in more than two of the subjects included under the term 'Natural Sciences." A number less than one-third of the marks obtainable in each of the voluntary subjects will not be allowed to count in favour of a candidate who has qualified in the compulsory subjects. Although the results of the examination in voluntary subjects do not affect the question of the eligibility of the candidate for a commission, they influence his position on the list, which is determined by the numbers obtained under the two heads conjointly. A candidate for the Royal Army Medical Corps when submitting his application may also enter for the Indian Medical Service (and *vice versâ*), subject to his satisfying the Secretary of State for India or War that he is eligible under the regulations for that service. The names of the successful candidates for the two services will be placed on one list in order of merit, as determined by the total number of marks each has obtained in both the compulsory and voluntary subjects So far as the number of vacancies will permit, the successful candidates will be allotted, according to their position on the list, to the service for which they have expressed a preference, subject to their having been accepted prior to examination as eligible for that service. After having passed this examination the successful candidates for both services are sent to the Army Medical School at Netley as "surgeons-on-probation," receiving a daily pay of 8*s* and certain allowances, to go through a four months' course of instruction in the special duties required of them in the services; or, in the case of the Royal Army Medical Corps, such a course at the Army Medical School as the Secretary of State shall decide on as sufficient. They are required to attend the Royal Army Medical Corps mess at Netley and to conform to the rules and regulations thereof. The staff of the school consists of four professors, all of them men of high standing in their special departments. The Professorship of Military Medicine is held by Colonel K. Macleod, M.D., I.M S. Colonel W. F. Stevenson, M.B. is Professor of Military Surgery, Major H. R Firth, F.R C S. Eng. of Military Hygiene; and Dr. A. E. Wright, of Pathology. There is an Assistant Professor for each of these subjects who is an officer of the Royal Army Medical Corps. The lectures on Military Surgery include gunshot and other wounds, transport of sick and wounded, duties of army medical officers in the field, on board troopships and transports, recruiting, and other duties incident to military service. Those on Military Medicine treat of tropical and other diseases to which soldiers are exposed in the course of their service, the mortality and invaliding by disease, in peace and war, at home and abroad, the management of lunatics under the conditions of military service, &c. The course of six lectures on Lunacy and Military Asylum work is delivered at the Netley Lunatic Asylum by Lieutenant-Colonel Chester, M B. The course of Hygiene comprises the examinations of water and air, the general principles of diet, with the quality and adulterations of food and beverages, the sanitary requirements of barracks, hospitals, and camps, the consideration of the clothing, duties, and exercises of the soldier, and the circumstances affecting his health, with the best means of preventing disease, and instruction in the mode of preparing the various statistical and other returns required of the medical officer. The Pathological course includes bacteriology and demonstrations in physiological chemistry. The surgeons-on-probation are detailed for duty in the wards of the hospital, under the Professors and Assistant Professors of Medicine and Surgery. They, as a rule, spend two months in the medical and two months in the surgical division of the hospital, and there they are taught practically the details of the management of patients in a military hospital, the registration of their diseases, the duties of invaliding, the modes of filling up the regulation statistical returns and other service documents. The surgeons-on-probation are provided with quarters and are extra members of the mess at Netley. They are required to provide themselves with the regulation undress and mess uniform of a lieutenant, but without the sword, sword-belt, dress trousers, forage cap, patrol jacket, and badge of rank. After having passed through the course of instruction they are required to pass a qualifying examination in the subjects taught in the school, and their position on the list of those recommended for commissions is determined by the combined results of the competitive and final examinations. At the close of each session nine prizes are awarded: the Herbert Prize of £20 to the surgeon-on-probation who has obtained the highest number of marks at the Netley examination; the Parkes Memorial Bronze Medal to the one who gains the highest number of marks in the examination in Hygiene; the de Chaumont prize of books to the one who takes second place in Hygiene; the Martin Memorial Gold Medal for the highest number of marks in the examination on Military Medicine; the Montefiore Medal and £21, awarded for Military Surgery; the Montefiore Second Prize, a revolver to the surgeon-on-probation who obtains the second highest number of marks in this branch; the Maclean prize of books for Clinical Medicine and Surgery and for Ward Work; a prize of books for the highest number of marks gained in Pathology; and the Marshall Webb prize of £5 and a bronze medal for Hospital Administration

At the close of the Netley Session those surgeons-on-probation who have obtained one third of the possible total of marks in each subject and have satisfied the authorities that they possess the [illegible] and character for permanent [illegible] for commissions as Lieutenant [illegible] of the Royal Army Medical Corps who pass out of the Army

Medical School at one qualifying examination will take precedence among each other as lieutenants, as follows —(*a*) Those appointed by competition according to the order of merit as determined by the combined results of the competitive and qualifying examinations, with priority over any joining under paragraph (*b*) (*b*) Those appointed on nomination, according to the number of marks they individually obtain at the final examination at the Army Medical School, but junior to all those appointed by competition [illegible] e of the day of passing out of [illegible] he Lieutenants of the British [illegible] n Netley to Aldershot, where [illegible] course of instruction in company and ambulance drill and equitation The officers of the Indian Medical Service do not go to Aldershot but undergo, whilst at Netley a course of instruction in company and ambulance drill and in other military duties The position of the officers of the Indian Service on the list of Lieutenants is determined by the combined results of the London and Netley examinations, and, as far as the requirements of the service permit, they have the choice of commands in India—i e, Bengal, Punjab Madras, or Bombay—according to their position in that list All officers appointed to the Indian Medical Service are now placed on one list. Though ordinarily employed within the limits of the command to which they are posted, they are liable for employment in any part of India In the *Gazette* dated India Office, August 26th, 1898 it was announced that Her Majesty had deemed it expedient to alter the ranks of the officers of the Indian Medical Service The same military titles as those conferred on the officers of the Royal Army Medical Corps were announced for the officers of the Indian Medical Service

The Royal Army Medical Corps —Every promotion of a medical officer shall be given upon the recommendation of the Commander-in-Chief, with the approval of the Secretary of State Lieutenants, if duly recommended, are promoted to be Captains on completing three years' full-pay service

Captains, if recommended by the Director General, are promoted to be Majors on completing twelve years' full-pay service, of which three must have been passed abroad Before being promoted they will be required to pass an examination, which is intended to test the progress and proficiency of a captain in all those branches of knowledge which are essential to his continued efficiency as a medical officer This examination may be taken at any time after their seventh year of service It will embrace the following subjects (*a*) Surgery and Surgical Anatomy; (*b*) Medicine and Pathology, and (*c*) the theory and practice of Hygiene, especially in relation to military requirements, also the regulations regarding the sanitation of garrisons, quarters, hospitals, &c, as well as of camps and hospitals in the field, and of transports, troop and hospital ships; (*d*) duties of medical officers at home and abroad and at sea, as defined in the regulations, also hospital organisation [illegible] in peace and war, includ [illegible] wounded by land and sea, ([illegible] economy, command, and [illegible] Medical Corps, together with [illegible] of the principles of military law and their practical application (a certificate of proficiency in military law obtained at a garrison class will exempt the holder from examination in the latter)

A certificate will be required from a recognised teacher of surgery in any medical school, at home or abroad, in which operative surgery is taught, showing that the officer has gone satisfactorily through a complete course of operative surgery during the period within which the examination must be taken, and that he is a competent operator

A report on any subject of a practical professional character, to be selected by the officer himself, and certified to be his own composition and in his own handwriting, will also be required Considerable importance will be attached to the literary and scientific merits of this report, which must be furnished before the officer completes twelve years' service

The examinations will be conducted by printed questions which will enter so far into the subject matter of each head selected for examination as to show that the officer's knowledge has been fully tested.

The questions and answers will be forwarded, under a sealed confidential cover, to the Director-General for transmission to the examiners, who will report to the Director General as to the competence of the officer examined.

The examination in Medicine and Surgery will be held by two gentlemen appointed by the Secretary of State; that in Hygiene by the Professor of Hygiene, Army Medical School, Netley; and that in Regulations, Duties, Military Law &c., by an administrative medical officer, nominated for the purpose by the Director General.

Any higher qualification, such as M D, F.R C S, &c, or any diploma in Hygiene and State Medicine, taken after May 1st, 1890, will not exempt Captains from this examination

A Lieutenant in the Royal Army Medical Corps promoted to the rank of Captain on account of distinguished service in the field, shall be eligible for further promotion to the rank of Major, and subsequently to that of Lieutenant-Colonel, when the officer next below him in the rank of Captain or Major respectively becomes eligible by service for promotion to the next higher rank. A Captain so promoted to the rank of Major shall, on the same conditions, be eligible for promotion to the rank of Lieutenant Colonel An officer promoted under this article shall not receive any increase of pay in the rank to which he has been so promoted until he becomes entitled thereto by service

Majors are promoted to be Lieutenant Colonels on completing twenty years' full pay service

A Lieutenant Colonel may be specially selected for increased pay (£1 10s a day) from Lieutenant Colonels who have served at least eight years abroad

The selection of Lieutenant Colonels for advancement to the grade of Colonel is made on the grounds of ability and merit (on the recommendation of the Commander in Chief) In determining which the following points will be considered —The officer to be so selected must have been favourably reported on by the several military officers under whom he may have served, as set forth in their Annual Confidential reports He must be physically fit for general service

A Lieutenant-Colonel, to be eligible for selection as Colonel, must have served abroad at least ten years, of which three must have been in India All promotions from the rank of Lieutenant-Colonel to that of Colonel and from the rank of Colonel to that of [illegible] given for ability and merit, [illegible] Commander in Chief, with the [illegible] State and the grounds of such selection shall be stated in writing In all such cases the amount of service abroad shall be expressly stated All officers under the rank of Colonel are placed on the retired list at the age of fifty five, and those of that rank and of the rank of Surgeon General at the age of sixty, except that in any particular case in which it may be considered necessary for the interest of the public service the age of retirement of a Surgeon General may be extended for a period not exceeding two years From recent promotions which have been made it is evident that Colonels who have passed the age of fifty seven before being selected for the rank of Surgeon General will be passed over in favour of younger officers who can, by reason of age serve a full three years in the rank of Surgeon General The Director General will, unless [illegible] extended, retire on completion [illegible] service in the field a medical [illegible] with the concurrence of the Lords Commissioners of the Treasury, be promoted from any departmental or other rank to that next above it and shall, if promoted to another rank having a fixed establishment, remain supernumerary in that rank until the occurrence of the vacancy to which, in the ordinary course, he would have been promoted The recommendation detailing the services for which the officer may be proposed for promotion shall in such cases be published in the *London Gazette* An officer so promoted shall not receive any increase of pay in the rank to which he has been promoted until he becomes entitled thereto by service In a case of distinguished service in the field for which an officer may merit special reward although there may not be sufficient grounds for his promotion, the Secretary of State shall have the power, with the concurrence of the Lords Commissioners of the Treasury, to grant him a higher rate of pay in his rank, but without alteration of his seniority

Foreign Service —Army Order 85 of June, 1897, states that the periods of service abroad, reckoning from the date of embarkation at home, will (except in the case of a Surgeon-General or Colonel) be five years for all stations abroad (except that on the west coast of Africa), unless such period should be incompatible with the interests of the public service.

Sick Leave.—An officer of the Royal Army Medical Corps may be allowed full pay during sick leave of absence on the same conditions as those laid down for regimental officers.

Service on the West Coast of Africa.—Officers who entered the Royal Army Medical Corps, or volunteered expressly for service on the West Coast of Africa on or after March 1st, 1873, receive double pay while actually serving on the coast. Candidates who present themselves expressly for service in the Royal Army Medical Corps on the West Coast enter under the same qualifications as other candidates, except that they may be admitted up to thirty years of age. After 3 years' actual service on the coast they are eligible for general service. If, however, it be certified by a medical board that any such officer is unfit for further duty on the coast he shall be eligible for general service, though he may not have completed 3 years' service there. For each year's service on the coast an officer is entitled to a year's leave at home on full pay. Each year or portion of a year served on the West Coast reckons double towards voluntary retirement or retired pay, provided that an officer has served 12 months on the coast. An officer volunteering for, or ordered to, the West Coast of Africa receives double pay while actually serving on the coast.

Exchanges.—An officer of the Royal Army Medical Corps shall be permitted to exchange with another officer of such corps, or with a medical officer of the Household Troops, under such conditions and regulations as shall from time to time be made. Exchanges between officers of the Royal Army Medical Corps under the rank of major and medical officers of the Indian Military Forces, and transfers of such officers from either of the above services to the other, shall only be permitted subject to the approval of the Secretary of State for India in Council and on the following conditions:—(1) that the officers have less than seven years' service; (2) that the senior officer exchanging takes the place of the junior on the list and shall not be promoted under Article 359 until the officer next above him has been so promoted; (3) that the junior officer exchanging is placed for seniority next below all medical officers whose commissions have the same date as his own; (4) that the officer transferred is placed for seniority below all medical officers holding the same rank at the time of his transfer, and shall not be promoted under Article 359 until the officer next above him has been promoted; and (5) an officer of the Royal Army Medical Corps who has exchanged or been transferred from the Indian Medical Service shall reckon his previous service towards promotion.

Indian Medical Service.—Officers on appointment are, when possible, provided with passage to India by troopship; when troopship accommodation is not available passage at the public expense is provided by steamer, or a passage allowance granted if preferred. A charge for messing during the voyage is made at the rate of 2s a day. This payment does not include the cost of liquors, which are charged for as extras. Any officer who may neglect or refuse to proceed to India under the orders of the Secretary of State for India within two months from the date of leaving Netley will be considered as having forfeited his appointment, unless special circumstances shall justify a departure from this regulation. A Lieutenant's commission is dated from the day he passes out of the Army Medical School. Lieutenants are promoted to the rank of Captain on completing three years' full-pay service, Captains to the rank of Major after twelve years' full-pay service, and Majors to the rank of Lieutenant-Colonel after twenty years' full-pay service (see Note *, p 659). No examination to qualify for promotion is required. All promotions to higher grades are to be given by selection for ability and merit. In case of distinguished service in the field a medical officer may be at once promoted from any rank to the one next above it, remaining supernumerary in the higher rank until he would have been promoted in ordinary course or until selected for further promotion for which he is eligible. The ages for compulsory retirement are the same as those for the Royal Army Medical Corps. Officers of the Indian Medical Service below the rank of Colonel may be granted: 1. Privilege leave under such regulations as may from time to time be in force. 2. Leave out of India for no longer period than one year, capable of extension to two years' absence from duty, on the following pay:—After arrival in India, on first appointment, £200 a year; after the commencement of the fifth year's service for pension, £250 a year; after the commencement of the tenth year's service for pension, £300 a year; after the commencement of the fifteenth year's service for pension, £400 a year; after the commencement of the twentieth year's service for pension, £450 a year; and after the commencement of the twenty-fifth year's service for pension, £500 a year. 3. Leave in India, but for the period of one year only, on full military pay and half the staff salary of appointment. No extension of leave involving absence from duty for more than two years, whether taken in or out of India, can be granted except on specially urgent grounds and without pay. An officer unable on account of t state of his health to return to duty within the maximu period of two years' absence, unless he is specially grant an extension of leave without pay, is placed on tempora half-pay or the retired list, as the circumstances of the ca may require. An officer is also liable to be placed on hal pay or the retired list should his health require an und amount of leave, whether in or out of India Leave may granted at any time, but solely at the discretion of t Commanders-in-Chief or of the Local Governments in Ind in the case of officers not under the direct orders of Commander-in-Chief. Officers of the Administrative grad may be granted one period of leave not exceeding eig months during their tenure of appointment. An officer leave is required to join at once on being recalled to dut unless certified by a medical board as unfit to do so.

Naval Medical Service.—A candidate must be between t ages of twenty-one and twenty-eight, and must be the so of parents of pure European blood. He must declare h readiness for general service at home or abroad and mus be free from organic or other disease. Candidates wi be examined by the Board in the following compulsor subjects: (*a*) Medicine, including Therapeutics and Disease of Women and Children, 1200 marks; (*b*) Surgery, 120 marks; (*c*) Anatomy and Physiology, 600 marks; an (*d*) Chemistry and Materia Medica, 600 marks. No can didate is considered eligible who does not obtain one third of the maximum marks in each of the com pulsory subjects. The attention of candidates is especi ally drawn to the importance of the section of Opera tive Surgery as a competent knowledge in this subject is essential in order to qualify for a commission Candidates may be examined in the following voluntar subjects: Zoology, 300 marks; Botany, 300 marks; Physics, 300 marks; Geology and Physical Geography, 300 marks (no candidate will be allowed to present himself for examination in more than two of these subjects); the regulations for the examination clearly set forth the scope of the examination in the Natural Sciences; French and German (200 each), 400 marks. A number less than one third of the marks obtainable in each of these voluntary subjects will not be allowed to count in favour of a candidate who has qualified in the compulsory subjects. The appointments announced for competition will be filled up from the list of qualified candidates, arranged in the order of merit, as finally determined by the total number of marks each has obtained in both the compulsory and voluntary subjects, but should it at any time be considered expedient to grant commissions beyond those periodically competed for it will be competent for the Board of Admiralty to admit annually one candidate proposed by the governing bodies of public schools of medicine in the United Kingdom, or attached to such Colonial Universities as they may think proper, the candidate so proposed to be approved by the Director-General of the Medical Department of the Navy and to be certified by the governing body proposing him to be duly qualified according to the regulations in force for the entry of candidates. Candidates from schools at home will be required to pass a physical and test examination in London which will be arranged for by the Medical Director General. Colonial candidates will have to pass a physical and test examination before a Board of Naval Medical Officers on the station. Successful candidates immediately after passing the examination will receive commissions as surgeons in the Royal Navy and will undergo a course of practical instruction in Naval Hygiene, &c., at Haslar Hospital. Three prizes of the approximate value of £10 each will be awarded at the close of each session at Haslar to the students who have shown the greatest proficiency. The seniority of surgeons on entry will be determined by the sum total of the marks they obtain at the London examination and those at the conclusion of the Haslar course, and their names will then be placed in the Official Navy List. Surgeons entered without competition will take seniority next after the last surgeon entered at the same time by competition. Surgeons are promoted to be Staff Surgeons after twelve years from date of entry, provided they pass the requisite examination after completion of eight years' service from the date of entry; and Staff Surgeons to Fleet Surgeons after twenty years' service if recommended by the Director-General. Deputy Inspectors-General are promoted by selection for ability and merit from the Fleet Surgeons, and Inspectors General from the Deputy Inspectors-General having three years' foreign service, or four years' mixed, of which not less than two must have been abroad, or five years' home service in such appointments as preclude foreign service, provided they have not refused to go abroad when called upon to do so. Special promotions will be made, at their lordships' discretion, from Surgeon to Staff-Surgeon and from Staff-Surgeon to the rank of Fleet-Surgeon, in cases of distinguished service or conspicuous professional merit. Inspectors and Deputy Inspectors-General are retired compulsorily at 60 years of age (except that if in any particular case the Lords Commissioners of the Admiralty may consider that the interests of the public service will be materially advanced by the further retention of an Inspector-General on the active list, the age for retirement of such Inspector-General may be extended to 62 years of age) and other grades at 55 years of age, and all ranks at any time if an officer has not served for five years. In calculating service for retired pay time on half-pay [illegible] one-third service on full-pay. [illegible] till the age of 55 years to serve in time of declared national emergency in a rank not lower than that held on retirement.

The following tables, showing the rates of pay and half-pay of the three branches, will probably be acceptable to students who entertain any intention of entering the public service:—

—	At headquarters, inclusive of all allowances other than for travelling.	Exclusive of allowances.
Medical Staff.	Yearly.	Daily.
	£ s. d.	£ s. d.
Director-General, Army Medical Service	1500 0 0	—
Surgeon General (with rank of Major-General) .. ... – ...	1300 0 0	2 15 0
Royal Army Medical Corps.		
Colonel	900 0 0	2 0 0
Lieutenant-Colonel—		
After 20 years' service	650 0 0	1 5 0
After 25 years' service	650 0 0	1 7 6
Lieutenant-Colonel (specially selected for increased pay under Article 362)*	730 0 0	1 10 0
After five years in receipt of £1 10s a day	—	1 13 0
Major or Lieutenant-Colonel ...	650 0 0	1 0 0
After 15 years' service	650 0 0	1 2 6
		Yearly.
Captain or Lieutenant	—	200 0 0
Captain—		
After 5 years' service	—	250 0 0
		Daily
After 10 years' service	—	0 15 0
Surgeon on probation	—	0 8 0

* A lieutenant-colonel in the Royal Army Medical Corps may be specially selected for increased pay from lieutenant-colonels who have served at least eight years abroad.

SCALE OF RETIRED PAY.

Army Medical Staff.

DIRECTOR GENERAL, ARMY MEDICAL SERVICE—

	Yearly. £
After 5 years' service as Director-General, and not less than 30 years' service	1000
After 3 years' service as Director-General, in addition to the retired pay of a Surgeon-General	100

SURGEON GENERAL—

	Daily £ s d
After 3 years' service as such	2 0 0

Royal Army Medical Corps.

COLONEL—	
After 3 years' service as such..	1 15 0
LIEUTENANT-COLONEL—	
After 20 years' service	1 0 0
After 25 ,, ...	1 2 6
After 30 ,, ...	1 5 0
LIEUTENANT-COLONEL, after being in receipt of the increased pay allowed by Article 362 for 3 years—	Daily.
Under 30 years' service	£1 7 6
After 30 ,, ...	1 10 0
MAJOR, after 3 years' service as such—	
After 20 years' service	1 0 0
After 25 years' service if his service reckoning for promotion is insufficient to qualify him for promotion to the rank of Lieutenant-Colonel under Article 359 ...	1 2 6
LIEUTENANT COLONEL, MAJOR, CAPTAIN, OR LIEUTENANT—	Gratuity. £
After 10 years' service	1250
After 15 ,, ...	1800
After 18 ,, ...	2500

The pay of the Director-General of the Army Medical Service is £1500 yearly; his retired pay from £1125 to £830, according to length of service as Director-General.

Under Army Order 63 of May, 1897, officers of the Royal Army Medical Corps attached to a militia unit during preliminary drill and training are entitled to an allowance in aid of mess at the rate of 4s. a day.

An officer who, on voluntary retirement, has served for less than three years in the rank from which he retires is only entitled to the gratuity or retired pay assigned to the next lower rank.

Half pay is also applicable to officers having less than twenty years' service, as follows:—

Lieutenant Colonel, Major, Captain, or Lieutenant:

	Daily.
Under 5 years' service	£0 6 0
After 5 ,, ,, ...	0 8 0
After 10 ,, ,, ...	0 10 0
After 15 ,, ,, ...	0 13 6

Rates of Retirement for Officers not qualified for Retired Pay on Voluntary Retirement.

Retirement on account of medical unfitness, an officer placed on [illegible] previously retired [illegible] five years from the [illegible] tired pay equal to [illegible] d the officer has at [illegible] alf pay of his rank, for such period only, not exceeding five years from the date of the officer's retirement from the army, after five years on half-pay under Article 303, as the Secretary of State shall determine according to the merits of the case.

Pay of officers in India:

	Rs. per mensem.
Lieutenant-Colonel	1150
,, after 25 years	1093
,, ...	1056
Major, after 15 years	825
,, ...	789
Captain, after 10 years	500
,, ,, 6 ,, ...	450
,, or Lieutenant	350

ROYAL NAVY.

Rank.	Daily pay.	Half-pay.	Gratuities and retired pay. Rank.	Gratuity.
	£ s d.	£ s.		
Surgeon	0 11 6	0 6	Surgeon and Staff.	
aft 2 years' f. p in rank	..	0 7	*Surgeon:	
4 ,,	0 13 6	0 8	aft. 8 years' f. p.	£1000
6 ,,	..	0 9	12 ,,	1500
8 ,,	0 15 6	0 10	16 ,,	2250
10 ,,	..	0 11		
Staff Surgeon:				
on promotion	1 1 0	0 12		
aft. 2 years' f. p. in rank	..	0 13		
4 ,,	1 4 0	0 14		
6 ,,	—	0 15		
Fleet Surgeon:			Fleet Surgeon	Daily.
on promotion .. .	1 7 0	0 17	aft. 20 years'	£1 0 0
aft. 2 years' f. p in rank	..	0 18	24 ,,	†1 2 6
4 ,,	1 10 0	0 19	27 ,,	1 5 0
6 ,,	..	1 0	30 ,,	1 10 0
8 ,,	1 13 0	..		
Deputy Inspector General:				
on promotion ..	2 2 0	1 5		1 15 0
aft 2 years' f. p. in rank	..	1 7		
4 ,,	..	1 9		2 0 0
Inspector General .. .	2 15 0	1 18		

* If the health of a surgeon breaks down before he completes eight years' service, even if [illegible] due to climatic causes, [illegible] list, receiving a gratuity [illegible] service. This point should be well noted, as it is a most unjust one.

† Including proportion of half pay time.

The half pay, retired pay, and gratuities on retirement are liable to reduction in cases of misconduct.

When an officer retires or withdraws on a *gratuity* his widow and children will have no claim to pension or compassionate allowance.

The hospital allowances for Medical Officers at home and abroad in lieu of provisions for themselves and servants and for fuel and light are as follows:—

Rank.	At home.	Abroad.
	£	£
Inspector-Generals of Hospitals	85	130
Deputy Inspector Generals	67	112
Fleet Surgeons and Staff Surgeons	53	112
Surgeons	39	108

Medical officers serving afloat receive an allowance of 1*s.* 6*d.* a day in lieu of provisions, fuel, and lights, as laid down in the King's Regulations.

The allowance of 5*s.* a day, in addition to full pay, at present granted to the Fleet Surgeon of a flag ship bearing the flag of a Commander in-Chief on a foreign station, will be given to the senior medical officer of such ship, being a Fleet or Staff Surgeon; and an allowance of 2*s.* 6*d.* a day to the senior medical officer, being a Fleet or Staff Surgeon, of the ship of a Commodore or of a senior officer commanding a foreign station.

Candidates will do well to notice that the regulations issued to applicants do not put any limit on the amount of half-pay service which they may be compelled to undergo.

Surgeons who have been kept away from England and from naval hospitals in consequence of lengthened periods of service abroad may, if the convenience of the service will admit, be allowed to attend metropolitan hospitals for three months to improve their professional knowledge, and while so employed they will be borne on ships' books and receive the ordinary pay of their rank; but the number is not to exceed 20 in each year.

INDIAN MEDICAL SERVICE.[§]

The rate of pay drawn by Lieutenants from the date of passing the final examination at the Army Medical School until arrival in India is 10*s.* a day.

Pay at the above rate is issued in this country up to the date of embarkation, and an advance of two months' pay at the same rate is also made prior to embarkation, which is adjusted in India.

The following are the rates of "Indian pay and allowances" which will be drawn by officers hereafter appointed to the Indian Medical Service:—

Rank.	Years' service.	Indian pay and allowance per mensem.	
		When not holding an appointment carrying higher pay.	
		Rs. a. p.	
Lieutenant-Colonel (Senior)		900 0 0	
Lieutenant-Colonel ..	25 and over	888 12 0	
Lieutenant-Colonel ..	20 "	852 3 7	
Major	15 "	677 6 11	
"	12 "	640 14 6	
		A. When not receiving any staff allowance.	B. When receiving staff allowance in addition.
		Rs. a. p.	Rs. a. p.
Captain	10 "	500 0 0	450 0 0
"	5 "	450 0 0	400 0 0
Captain and Lieutenant	under 5	350 0 0	300 0 0

On first appointment they will only come into receipt of "Indian pay and allowances" from the date of their arrival in India.

Officers holding the principal administrative appointments and substantive military charges of the Indian Medical Service receive at present the following consolidated salaries:—

	Rs. per mensem.	
Surgeon-General	2700 to 2200	
Colonel	from ... 2250 to ... 1800	
Lieutenant Colonel in substantive charge of a native regiment	1000 or 1100 with Rs 90 horse allowance in cavalry regiments.	
Major in substantive charge of ditto	800 with Rs. 90	ditto.
Captain above 5 years' full pay service in substantive charge of a native regiment	600 with Rs. 60	ditto.
Captain or Lieutenant under 5 years' ditto in substantive charge of a native regiment..	450 with Rs 60	ditto.

The salaries of other substantive medical appointments in the Civil and Military Departments are consolidated and vary from Rs. 1800 to Rs. 400 per mensem.

Medical charges are of two kinds—substantive and officiating. The first is held by an officer as his fixed permanent appointment. For this he is entitled to the monthly consolidated pay as above shown. An officiating charge is held by an officer who is acting temporarily in an appointment during the absence of an officer whose substantive charge it is. The officer thus officiating receives not the consolidated pay of the appointment, but the Indian pay allowances of his own grade, plus half the staff pay of the appointment in which he is officiating (plus half the staff pay of his own appointment, if he have one). The staff pay of an appointment is the difference between the Indian pay and allowances and the consolidated pay of the permanent incumbent. The extra allowance for an officiating charge cannot be less than Rs. 100 a month.

Qualified officers of the Medical Service are also eligible for appointments in the Assay Department. The salaries of these appointments are from Rs. 600 to Rs. 2250 per mensem.

Officers are required to perform two years' regimental duty in India before they can be considered eligible for civil employment.

Except in the administrative grades and in certain special appointments officers are not debarred from taking private practice as long as it does not interfere with their proper duties.

Under present arrangements officers who are not statutory natives of India receive exchange compensating allowance, to compensate them for the fall of the value of the rupee. The allowance consists of an addition to their salaries equal to half the difference between their salaries converted at (1) 1*s.* 6*d.* the rupee, and (2) the average market rate for each quarter.

RETIRING PENSIONS AND HALF PAY.

Officers of the Indian Medical Service will be allowed to retire on the following scale of pension, on completion of the required periods of service:—

After 30 years' service for pension	£700 per annum + £350 after 5 years' active employment in India as a Surgeon-General, or + £250 per annum after 5 years' active employment as a Colonel.
" 25 " " "	£500 per annum.
" 20 " " "	£365 "
" 17 " " "	£292 "

Time (not exceeding one year) passed on temporary half pay reckons as service for promotion and pension, in the case of an officer placed on half-pay on account of ill-health contracted in the performance of military duty.

Officers of the Indian Medical Service are liable after retirement on pension before completing 30 years' service, to recall to military duty in case of any great emergency arising, up to 55 years of age.

All officers of the rank of Lieutenant-Colonel and Major are placed on *the retired list at the age of 55, and all Surgeons-General* and Colonels at the age of 60.

Officers not entitled to pension, when placed on temporary or permanent half pay, will be granted the British rate of half-pay of their military rank, as under:—

Rank.	Rates of Half-pay.[||] Per diem.	Per annum.
	s. *d.*	£ *s.* *d.*
Lieutenant-Colonel (Senior)	11 0	200 15 0
Lieutenant-Colonel		
Major	9 6	173 7 6
Captain	7 0	127 15 0
Lieutenant	3 0	54 15 0

INVALID PENSIONS.

An officer who has become incapacitated for further service in India on account of unfitness caused by duty may, after he has been two years on temporary half pay, be granted an Invalid Pension on the following scale:—

	Per annum.
After 16 years' pension service	£272
" 15 " " "	252
" 14 " " "	232
" 13 " " "	212
" 12 " " "	192

WOUND PENSIONS.

Officers are entitled to the same allowances on account of wounds and injuries received in action as are granted to combatant officers of His Majesty's Indian Military Forces holding the corresponding military rank.

FAMILY PENSIONS.

The claims to pension of widows and families of officers are treated under the provisions of such Royal Warrant regulating the grant of pensions to the widows and families of British officers as may be in force at the time being.

The widows and families of officers are also entitled to pensions under the Indian Service Family Pension Regulations, for the benefits of which all officers must, as a condition of their appointment, subscribe from the date of their arrival in India.

HONOURS AND REWARDS.

Officers of the Indian Medical Service are eligible for the military distinction of the Order of the Bath and for other Orders, British and Indian, and for good service pensions. Six of the most meritorious officers are named Honorary Physicians and six are named Honorary Surgeons to His Majesty.

[§] No staff or regimental allowance can be drawn until the lower standard examination in Hindustani has been passed. As many lieutenants have been sent to the frontier immediately on arriving in India they have found it impossible to study and pass this examination, and have consequently been doing regimental and other work for Rs. 350 a month. Lately a concession has been granted to medical officers so situated on the frontier, but the rule is still most illiberal and requires alteration.

[||] Officers cannot retire *in India* on half-pay (No. 46, Feb. 28th, 1895).

METROPOLITAN MEDICAL SCHOOLS.[1]

[illegible]

and are provided with rooms and receive a salary of £80 a year. Two assistant anæsthetists are appointed annually, and receive salaries of £120 and £100 respectively, with rooms. An extern midwifery assistant is appointed every three months, and receives a salary of £80 a year. Two assistant electricians are appointed every six months. The clinical clerks, the obstetric clerks, the clerks to the medical out-patients, the dressers [illegible] the out-patients, and the [illegible] are chosen from the stud[illegible] now free.

A college is attached to the hospital, in which students can reside subject to the college regulations.

The Medical School Buildings include three large lecture theatres, a large dissecting room, a spacious library (containing [illegible] physi[illegible] and [illegible] the m[illegible] for cl[illegible] public health, and biology, giving ample accommodation in every department.

A ground of ten acres has been purchased by the school committee at Winchmore-hill for the use of the Students' Amalgamated Clubs, and all students are expected to become members.

Instruction in Preliminary Science is given to University of London students in chemistry, biology, and physics throughout the year.

Laboratory Instruction for the D.P.H. is provided during the winter and summer sessions, and elementary instruction in Bacteriology is also given throughout the year.

Staff.—Physicians: Sir William Church, Dr. Gee, Sir Dyce Duckworth, Bart., Dr. Hensley, and Sir Lauder Brunton. Consulting Surgeons: Mr. Holden and Sir T. Smith, Bart. Consulting Ophthalmic Surgeon: Mr. H. Power. Surgeons: Mr. Willett, Mr. Langton, Mr. Marsh, Mr. Butlin, and Mr. Walsham. Assistant Physicians: Dr. Norman Moore, Dr. S. West, Dr. Ormerod, Dr. Herringham, and Dr. Tooth, C.M.G. Assistant Surgeons: Mr. Harrison Cripps, Mr. Bruce Clarke, Mr. Bowlby, C.M.G., Mr. Lockwood, and Mr. D'Arcy Power. Physician Accoucheur: Dr. Champneys. Assistant Physician Accoucheur: Dr. Griffith. Ophthalmic Surgeons: Mr Jessop and Mr. Holmes Spicer. Aural Surgeon: Mr. Cumberbatch. Pathology: Dr. Andrewes. Electrician: Dr. L. Jones. Dental Surgeons: Mr. Paterson and Mr. Ackery. [illegible] Mr. Read and Mr. Ackland. [illegible] Mr. E. Willett. Casualty Physicians: Dr. Langdon Brown and Dr. Thursfield.

This hospital receives within its walls nearly 7000 in-patients annually and its out-patients and casualties amount to more than 160,000 annually. It comprises a service of 744 beds; of these 241 are allotted to the medical cases, 336 to the surgical, including orthopædic cases, 35 [illegible] the eye, 34 to dis[illegible] and 70 at the [illegible] departments have been organised for diseases of the eye, ear, larynx, and skin, as well as for Orthopædic and Dental Surgery. Surgical operations every day at 1.30 P.M. Sur-[illegible]. The physicians [illegible] during both the [illegible]al Lectures on all special subjects are also given. The visits of the [illegible]

Brunton. Surgery: Mr. Walsham and Mr. Bowlby. Clinical Surgery: Mr. Willett, Mr. Langton, Mr. Marsh, Mr. Butlin, and Mr. Walsham. Pathology: Dr. Andrewes. Chemistry: Dr. Chattaway. Descriptive and Surgical Anatomy: Mr. Bruce Clarke and Mr. Waring. Biology: Dr. Shore. Physiology: Dr. E. Klein and Dr. Edkins. Superintendents of Dissections: Mr. Bailey, Mr. Mundy, Mr. Rawling, Mr. Douglas, Mr. Harmer, and Dr. Murphy. Demonstrators of Morbid Anatomy: Dr. Garrod Dr. Fletcher, Mr. Power, and the surgical registrar. Demonstrators of Practical Surgery: Mr. Power and Mr. Waring. Operative Surgery: Mr. Power, Mr. H. J. Waring, and Mr. Bailey. Demonstrators of Practical Physiology: Dr. Edkins, Dr. Langdon Brown, and Dr. Bainbridge. Ophthalmic Demonstrators: Mr. Jessop and Mr. Spicer. Lecturer on Physics: Mr. F. Womack. Practical Chemistry: Dr. Chattaway, Dr. Orton, and Dr. Hurtley.

Summer Session.—Materia Medica and Therapeutics: Dr. Calvert. Midwifery and Diseases of Women and Children: Dr. Champneys. Botany: Rev. G. Henslow. Forensic Medicine: Dr. Hensley. Pathology: Dr. Andrewes. Ophthalmic Surgery: Mr. Jessop. Practical Chemistry: Dr. Chattaway, Dr. Orton, and Dr. Hurtley. Comparative Anatomy: Dr. T. W. Shore. Psychology: Dr. Claye Shaw. Public Health: Dr Hamer. Organic Chemistry: Dr. Chattaway. Demonstrators of Operative Surgery: Mr. Power, Mr Waring, and Mr. Bailey. Morbid Anatomy: Dr. Andrewes, Dr. Garrod. Dr. Fletcher, Mr. Power, and the surgical registrar. Diseases of Skin: Dr. Ormerod. Diseases of the Eye: Mr. Jessop and Mr. Holmes Spicer. Diseases of the Ear: Mr. Cumberbatch Orthopædic Surgery: Mr. Bruce Clarke. Diseases of Larynx: Mr. Bowlby. Demonstators of Medicine: Dr. Herringham, Dr. Tooth and Dr. Horder. Demonstrator of Midwifery: Dr. Robinson. Tutor in Public Health: Dr. Warry. Biological Demonstrators: Dr. Shore, Mr. Williams, and Mr. H. R. Kidner. Bacteriology: *Dr. Andrewes. Pharmacy: Dr. Calvert* and Dr. H. Smith Chemical Physiology: Dr. Edkins. Medical Registrars: Dr. Garrod and Dr. Fletcher. Surgical Registrar: Mr. Waring.

CHARING-CROSS HOSPITAL AND COLLEGE.—This hospital contains 180 beds, a certain proportion of which are set aside for the diseases of children and those special to women. General students are admitted to the practice of the Royal Westminster Ophthalmic Hospital. Total fees, 110 guineas if paid in a single sum on entry, or 121 guineas if paid in five instalments; the sons of Registered Medical Practitioners pay 100 guineas in one sum or 110 guineas in five sums; for Dental students, 54 guineas, or 60 guineas in two equal instalments. General students pay proportionately lower fees, and are admitted without additional fee to the courses of Clinical Medicine and Surgery and to the practice of the Royal Westminster Ophthalmic Hospital. They are entitled to compete for the Scholarships, Gold Medal, Huxley, and Pereira Prizes.

Classes for the Preliminary Scientific Examination of the University of London are held at this Medical School. The fee for the whole course, which begins in October, is 15 guineas. There are also special classes for the practical work for the Department of Public Health and a course in the subject of Diseases of Tropical Climates.

Staff.—Consulting Physicians: Sir J. Fayrer, Bart., M.D., and Sir Guyer Hunter, M D. Consulting Obstetric Physician: Dr. J. Watt Black Consulting Physician for Diseases of the Skin: Dr. Sangster. Physicians: Dr. Green, Dr. Bruce, and Dr. Abercrombie. Physicians to Out-patients: Dr. Willcocks, Dr. Murray,[2] and Dr. Mott. Assistant Physician: Dr. Galloway. Consulting Surgeon: Mr. R. Barwell. Surgeons: Mr. Bloxam, Mr. Morgan, and Mr. Boyd. Surgeons to Out-Patients: Mr. Waterhouse and Mr. Wallis. Assistant Surgeon: Mr. Gibbs. Obstetric Physician: Dr. Amand Routh. Assistant Obstetric Physician: Dr. T. W. Eden. Physician for Diseases of the Skin: Dr. Galloway. Aural Surgeon: Mr. Waterhouse. Orthopædic Surgeon: Mr. Wallis. Throat Physician: Dr. Willcocks. Surgeon Dentist: Mr. J. F Colyer.

Lecturers: Winter Session.—Anatomy: Dr. Christopher Addison. Applied Anatomy: Mr. James Cantlie. Bacteriology: Dr. J. W H Eyre. Biology and Comparative Anatomy: Dr. H W Marett Tims. Chemistry and Physics: Dr. H. Forster Morley and Mr. Percy A. E Richards.

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[1] For Scholarships see p. 693 et seq.

[2] Dean of the School.

Dental Surgery: Mr. J. F. Colyer. Medicine: Dr. John Abercrombie and Dr. H. Montague Murray. Ophthalmology: Mr. E. Treacher Collins. Physiology: Mr. B. Moore. Practical Anæsthetics: Mr. C. Carter Braine and Mr. H. Bellamy Gardner. Practical Anatomy: Mr. Christopher Addison. Practical Hygiene: Dr. J. W. H. Eyre, Dr. H. Forster Morley, and Mr. Percy A. E. Richards. Practical Medicine: Dr. James Galloway and Dr. W. Hunter. Practical Midwifery: Mr. T. W. Eden. Practical Physiology: Mr. B. Moore. Practical Surgery: Mr. F. C. Wallis. Psychological Medicine: Dr. Percy Smith. Surgery: Mr. Stanley Boyd. Tropical Medicine: Dr. Patrick Manson.

Summer Session.—Anatomy: Mr. Christopher Addison. Applied Anatomy: Mr. James Cantlie. Anæsthetics: Mr. C. Carter Braine and Mr. H Bellamy Gardner. Dental Surgery: Mr. J. F. C lyer. Forensic Medicine: Dr. James Galloway. Materia Medica and Practical Pharmacy: Dr. F. Willcocks. Midwifery: Dr. Amand Routh. Operative Surgery: Mr. Charles Gibbs. Pathology: Dr. F. W. Mott. Pharmacology and Therapeutics: Mr. F. Willcocks. Practical Anatomy: Mr. Christopher Addison. Practical Chemistry: Dr. H. Forster Morley and Mr. Percy A. E. Richards. Practical Medicine: Dr. James Galloway and Dr. W. Hunter. Practical Physiology: Mr. B. Moore. Practical Surgery: Mr. F. C. Wallis. Public Health: Dr. B. A. Whitelegge and Dr. H. T. Bulstrode. Toxicology: Dr. H. Forster Morley and Mr. Percy A. E. Richards.

ST. GEORGE'S HOSPITAL.—This hospital contains 356 beds, of which 205 are allotted to surgical and 146 to medical cases. One ward is set apart for Diseases peculiar to Women. Children's beds are placed in all the women's wards. Two wards are allotted to ophthalmic cases.

Students may become Perpetual Pupils by payment of £150 on entering, or of £160 in four annual instalments. Perpetual pupils are entitled to perpetual admission to lectures and demonstrations as well as to the entire medical and surgical practice of the hospital; they may compete for all prizes and exhibitions, may become clinical clerks during six months and dressers during another six months, or longer if required, without fee, may attend midwifery practice, and may compete for all hospital and school appointments without extra charge. Four house surgeoncies and four house physiciancies, and the salaried offices of obstetric assistant, senior and junior anæsthetists, medical registrars (2), surgical registrar, curator and assistant curator of the Museum, besides demonstratorships and a number of junior hospital appointments, are open to perpetual pupils. Students not being perpetual pupils are admitted to lectures, demonstrations, and hospital practice on payment of £50 annually for two years and £20 annually for succeeding years. Such students may become Perpetual in their third year if they wish and if their conduct has been satisfactory

Staff.—Consulting Physicians: Sir Henry A. Pitman, Dr. J. W. Ogle, Dr. Dickinson, and Dr. Whipham. Consulting Surgeons: Mr. Holmes, Mr. Pick, and Mr. Haward. Consulting Obstetric Physician: Dr. Barnes. Consulting Ophthalmic Surgeon: Mr. Brudenell Carter. Consulting Aural Surgeon: Sir W. B. Dalby. Consulting Dental Surgeon: Mr. Augustus Winterbottom. Physicians: Dr. Ewart, Dr. Isambard Owen. Dr. Penrose, and Dr. R lleston. Obstetric Physician: Dr. Dakin. Assistant Physicians: Dr. Lee Dickinson, Dr. Cyril Ogle, and Dr. Latham. Assistant Obstetric Physician: Dr. Stabb. Physician to the Skin Department: Dr. Wyndham Cottle. Surgeons: Mr. W. H. Bennett, Mr. Dent Mr. G. R. Turner, and Mr. Sheild. Ophthalmic Surgeon: Mr. Adams Frost. Assistant Surgeons: Mr. Herbert Allingham, Mr. Jaffrey, and Mr. Pendlebury. Assistant Ophthalmic Surgeon: Mr. Grimsdale. Surgeon to the Orthopædic Department: Mr. Jaffrey. Surgeon to the Throat Department: Mr. Sheild. Aural Surgeon: Mr. Bull. Dental Surgeon: Mr. Henry Albert.

Lecturers.—Baillie Lecturer in Physic: Dr. Dickinson. Hunterian Lecturer in Surgery: Mr. Holmes. Clinical Medicine: The Physicians to the Hospital. Clinical Surgery: the Surgeons to the Hospital. Principles and Practice of Physics: Dr. Isambard Owen[3] and Dr. Penrose. Tropical Medicine: Mr. Patrick Manson. Test Examiner in Medicine: Dr. Cyril Ogle. Principles and Practice of Surgery: Mr. Dent[4] and Mr. Turner. Midwifery and Diseases of Women and Children: Dr. Dakin. Midwifery and Diseases of Women and Children: Dr. Stabb. Vaccination: Mr. E. Climson Greenwood. Insanity: Dr. Blandford. Clinical Instructor in Insanity: Dr. Alexander. Ophthalmic Surgery: Mr. Adams Frost. Ophthalmic Surgery: Mr. Grimsdale. Diseases of the Skin: Dr. Wyndham Cottle. Aural Surgery: Mr. Bull. Dental Surgery: Mr. Henry Albert. Practical Medicine: Dr. Latham. Practical Surgery: Mr. Pendlebury. Operative Surgery: Mr. Allingham. Hygiene: Dr. Louis Parkes. Forensic Medicine and Toxicology: Dr. Lee Dickinson. Toxicological Chemistry: Mr. Gardner. Pathology: Dr. Rolleston. Bacteriology: Dr. Slater. Pharmacology and Therapeutics: Dr. Cyril Ogle. Anatomy: Mr. Jaffrey.[5] Physiology and Histology: Dr. Buckmaster. Teacher of Anæsthetics: Dr. Menzies. Teacher of Skiagraphy: Mr. Addyman. Assistant Teachers of Anæsthetics: Dr. Blumfield and Dr. Powell. Curator of the Museum and Demonstrator in Morbid Anatomy: Dr. Fenton. Assistant Curator of the Museum: Dr. Trevor. Assistant Teacher of Bacteriology: Dr. Harold Spitta. Demonstrators in Anatomy: Mr. Howell Evans, Mr. Frazer, and Mr. Barwell. Assistant Demonstrators in Anatomy: Mr. Byam, Mr. Matson, and Mr. Courtney. Demonstrator in Chemistry: Mr. Addyman. Demonstrator in Materia Medica: Mr. Stark. Librarian: Mr. Alfred Lowe.

GUY'S HOSPITAL.—This hospital, founded by Thomas Guy in 1721 for the reception of 400 patients, and enlarged through the aid of a large bequest from the late William Hunt, contains at the present time 690 beds, and, with its extensive buildings and grounds, occupies an area of about six acres. The hospital is divided into Medical, Surgical, Clinical, Ophthalmic, and Gynæcological wards, independently of separate rooms for special cases.

House physicians, house surgeon, assistant house physicians and assistant house surgeons, obstetric residents, gynæcological assistants, clinical assistants, clerks to anæsthetists, surgeons' and assistant surgeons' dressers, surgical ward clerks, clinical clerks, post-mortem clerks, extern obstetric attendants, and dressers and clerks in the special departments are appointed from among the students upon the recommendation of the medical staff, according to merit and without extra payment. The house physicians, of whom there are four, hold office for six months each. The assistant house physicians, who hold office for three months, attend in the out-patient department four afternoons in the week, and see all the cases not seen by the assistant physician of the day. The house physicians have the care of the patients in the medical wards and attend to all emergencies arising in the absence of the physicians. They are provided with board and lodging in the college free of expense. The house surgeons, of whom there are four, hold office for six months each, and are provided with board and lodging in the college free of expense. The Surgical Casualty Department is in charge of two assistant house surgeons. The surgeons' dressers are selected from those students who have completed their third winter session and have been most diligent in the junior appointments. They hold office for three or six months. Six are attached to each surgeon, and during their weeks of special duty they are provided with board and lodging in the hospital free of expense. The obstetric residents, four in number, are provided with board and lodging in the college free of expense.

Higher Examinations.—Classes are held throughout the year for the Preliminary Scientific Examination of the University of London; and special courses of instruction are provided for students preparing for the Primary and Final Fellowship examination and the intermediate M.B. examinations of Oxford, Cambridge, and London. Two courses of Laboratory instruction for candidates for a Diploma in Public Health are given annually.

The College.—The College stands upon a site fronting the east gate of the hospital and is connected with it by a subway. The building serves as a Residential College for Students and at the same time provides accommodation for the Students' Club. The Clubs' Union ground is less than twenty-five minutes' journey from the hospital.

Staff.—Consulting Physicians: Sir Samuel Wilks, Dr. F. W. Pavy, Dr. P. H. Pye Smith, and Dr. J. F. Goodhart, Physicians and Assistant Physicians: Dr. Frederick Taylor,

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[3] Dean of the School.

[4] Treasurer.

[5] Assistant Dean of the School.

Dr. W. Hale White, Dr. G. Newton Pitt, Dr. E. C. Perry, Dr. L. E. Shaw, Dr. J. W. Washbourn, Dr. J. H. Bryant, and Dr. J. Fawcett.[6] Consulting Surgeons: Dr. J. Birkett and Mr. Thomas Bryant. Surgeons and Assistant Surgeons: Mr. H. G. Howse, Mr. R. Clement Lucas, Mr. C. H. Golding-Bird, Mr. W. H. A. Jacobson, Mr. Charters J. Symonds, Mr. W. Arbuthnot Lane, Mr. L. A. Dunn, Mr. A. D. Fripp, and Mr. F. J. Steward. Consulting Obstetric Physician: Dr. H. Oldham. Obstetric Physicians: Dr. A. L. Galabin and Dr. B. Horrocks. Assistant Obstetric Physician: Mr. J. H. Targett. Physician for Mental Diseases: Dr. G. H. Savage. Aural Surgeon: Mr. W. Laidlaw Purves. Dental Surgeons: Mr. F. Newland-Pedley, Mr. W. A. Maggs, and Mr. J. H. Badcock. Ophthalmic Surgeons: Mr. C. Higgens and Mr. W. A. Brailey. Instructor in Anæsthetics: Mr. Tom Bird. Anæsthetists: Mr. G. Rowell, Dr. H. F. Lancaster, Mr. C. J. Ogle, Dr. W. S. Handley, and Mr. R. H. J. Swan Medical Registrar and Tutor: Dr. A. J. Cleveland. Surgical Registrar and Tutor: Mr. G. S. Simpson. Obstetric Registrar and Tutor: Mr. G. Bellingham Smith. Ophthalmic Registrar and Tutor: Mr. A. W. Ormond. Warden of the College: Mr. Dunn. Lying-in Charity: Dr. Horrocks and Mr. Targett.

Lecturers.—Clinical Medicine: the Physicians and Assistant Physicians. Clinical Surgery: the Surgeons and Assistant Surgeons. Medicine: Dr. Taylor and Dr. Hale White. Practical Medicine: Dr. Cleveland. Surgery: Mr. Howse and Mr. Lucas. Operative Surgery: Mr. Fripp and Mr. Steward. Practical Surgery: Mr. Simpson. Midwifery and Diseases of Women: Dr. Galabin. Practical Obstetrics: Mr. Targett. Mental Diseases: Dr. Savage. Ophthalmic Surgery: Mr. Higgens. Dental Surgery: Mr. Newland-Pedley. Aural Surgery: Mr. Laidlaw Purves. Diseases of the Skin: Dr. Perry. Diseases of the Throat: Mr. Symonds. Electro-Therapeutics: Dr. Bryant. Anæsthetics: Mr. Tom Bird and Mr. Rowell. Hygiene and Public Health: Dr. Sykes and Mr. Pakes. Pathology: Dr. Pitt. Morbid Anatomy: Dr. Bryant and Dr. Fawcett. Morbid Histology and Bacteriology: Mr. [illegible] Smith and Mr. Pakes. [illegible] ases: Dr. Fawcett and [illegible] ashbourn and Mr. Pakes. [illegible] Anatomy: Mr. Lane and Mr. Dunn. Practical Anatomy: Mr. Fagge, Mr. Rowlands, and Mr. Swan. Physiology: Dr. Washbourn and Dr. Pembrey. [illegible] Dr. Beddard, and Dr. [illegible] peutics: Dr. Perry. [illegible] Dispenser-Chemistr[illegible] Mr. Wade, Mr. Ryffel, and Mr. Ball. Experimental Physics: Professor Reinold, F.R.S., and Mr. Ball. Biology: Dr. Stevens and Mr. Swan. Psychology: Dr. Savage and Dr. Hyslop.

KING'S COLLEGE.—The hospital contains 217 beds in use The composition fees are £135 if paid in one sum or £148 if paid in four instalments. Resident medical officers have rooms at the hospital and commons free; they are selected by examination and hold their appointment for six months or a year. There are three house physicians, two physician accoucheur assistants, and three house surgeons. Sambrooke registrarships, value £50 per annum, are tenable for two years. Clinical assistants senior and junior of the special departments—ophthalmic, ear, and throat. Senior dressers and dressers, clinical clerks, assistant demonstrators of anatomy and physiology, and prosectors are elected by examination, and in consideration of their former work in the medical school as matriculated students. Classes for the science subjects required by the University of London are held by the Professors of the Science Faculty of King's College, and students avail themselves of their laboratories.

Laboratories.—Chemistry, Physiology, Pharmacology, Bacteriology, State Medicine, Pathology, and Neuro-pathology have special laboratories.

Resident Chambers.—There are chambers at King's College available for a limited number of students; rent, including dinner during terms, from £50 to £60 a year.

Athletic Club.—All students are entitled to the privileges of the Athletic Club, which manages a large recreation ground of the College at Wormwood Scrubbs.

Staff.—Consulting Physicians: Sir A. B. Garrod, Dr. Lionel S. Beale, Dr. W. S. Playfair, Dr. Alfred B. Duffin, and Dr. I. Burney Yeo. Consulting Surgeon: Lord Lister. Physicians: Dr. David Ferrier, Dr. John Curnow, Dr. Nestor Tirard, Dr. Norman Dalton, and Sir Hugh Beevor, Bart. Surgeons: Mr. William Rose, Mr. W. W. Cheyne, Mr. A. B. Barrow, Mr. A. Carless, and Mr. F. F. Burghard. Assistant Physicians: Dr. Raymond Crawfurd[7] and Dr. W. Aldren Turner. Obstetric Physician: Dr. T. C. Hayes. Assistant Obstetric Physician: Dr. John Phillips. Assistant Physician for the Diseases of Children: Dr. George F. Still. Diseases of the Throat: Dr. Greville MacDonald. Assistant Surgeons: Dr. G. L. Cheatle and Mr. P. T. B. Beale. Dental Surgeon: Mr. A. S. Underwood. Assistant Dental Surgeon: Mr. C. E Wallis. Ophthalmic Surgeon: Mr. M. M. McHardy. Assistant Ophthalmic Surgeon: Mr. L. V. Cargill. Aural Surgeon: Mr. Urban Pritchard. Assistant Aural Surgeon: Mr. Arthur H. Cheatle. Assistant Physician for Diseases of the Skin: Dr. A. Whitfield. Pathological Registrar: Dr. Norman Dalton. Physician in charge of Electrical Department: Dr. W. Aldren Turner. Medical Officer in charge of X-ray Department. Dr. F. Harrison Low. Anæsthetist and Instructor in Anæsthetics: Dr. J. F. W. Silk. Senior Medical Registrar and Tutor: Dr. R. M. Leslie. Senior Surgical Registrar and Tutor: Dr. T. Percy Legg. Obstetric Registrar and Tutor: Dr. Hugh Playfair. Sambrooke Registrars: Mr. J C. Briscoe and Mr. M. S. Mayou. Clinical Pathologist: Dr. O. F. F. Grünbaum.

Lecturers.—Anatomy, Descriptive and Surgical: Dr. A. Robinson (Professor) and Dr. G. J. Jenkins (Demonstrator). Phy[illegible] Elementary Biology: Dr. [illegible] T. B. Beale (Demonstra[illegible] e (Demonstrator of Physiology), Mr. P. T. B. Beale (Lecturer in Elementary Biology), and Dr. H. W. Lyle (Lecturer in Animal Biology). Chemistry and Practical Chemistry: Dr. J. M. Thomson (Professor), Mr. Herbert Jackson (Lecturer), and Mr. P. H. Kirkaldy (Demonstrator). Experimental Physics: Dr. W. G. Adams (Professor) and Mr. E. F. Herroun (Demonstrator). Botany (Vegetable Biology): Dr. W. B. Bottomley (Professor), and Mr. E. J. Schwartz (Demonstrator). Medicine (Principles and Practice of): Dr. Nestor Tirard (Professor). Neuro-Pathology: Dr. D. Ferrier (Professor) and Dr. W. A. Turner (Demonstrator). Psychological Medicine: Dr. Ernest W. White (Professor). Surgery (Principles and Practice of): Mr. W. W. Cheyne (Professor). Surgery (Operative): Mr. A. Carless (Teacher). Surgical Pathology: Mr. G. L. Cheatle (Teacher). Materia Medica and Pharmacology: Dr. F. W. Tunnicliffe (Professor). Obstetric Medicine and Diseases of Women and Children: Dr. T. C. Hayes (Professor). Practical Obstetrics: Dr. John Phillips (Lecturer). Diseases of Children: Dr. G. F. Still (Assistant Physician). Pathology: Dr. N. Dalton (Professor). Forensic Medicine: Dr. W. R. Smith (Professor). Hygiene: Dr. W. J. R. Simpson (Professor). State Medicine Laboratory: Dr. W. R. Smith (Director) and Mr. E. Russell (Demonstrator). Bacteriology: Dr. E. M. Crookshank (Professor). Clinical Medicine: Dr. John Curnow. Clinical Surgery: Dr. W. Rose (Professor). Ophthalmic Surgery: Mr. M. M. McHardy Professor). Aural Surgery: Dr. U[illegible] Anæsthetics: Dr. J F. W. Silk. [illegible] Underwood (Professor). Diseas[illegible] Whitfield (Assistant Physician).

LONDON HOSPITAL AND COLLEGE.—The hospital has nearly 800 beds in constant use and no beds are closed. Being the only general hospital for East London—i.e., for a million and a half people—the practice is immense. In-patients last year 12,746; out-patients, 161 762; accidents, 19,944; major operations, 2526. Owing to the enormous number of patients more appointments are open to students than at any other hospital. Receiving-room officers, house physicians, house surgeons, &c.: 60 of these qualified appointments are made annually and more than 150 dressers, clinical clerks, &c., appointed every three months. All are free to students of the College. Holders of resident appointments have free board. Twenty-nine scholarships and prizes are given annually. Five entrance scholarships, £120, £60, £35, £30, £20, are offered in September. Special classes are held for the University of London and other higher examinations. Special entries for medical and surgical practice can be made. Qualified practitioners will find excellent opportunities for studying the rarest diseases. Lectures and classes are held throughout the year to suit the requirements of candidates desirous of obtaining the Diploma in Public Health. These courses are recognised both by the Universities of Oxford and Cambridge and by the Examining Board in England. A reduction of 15 guineas is made to the sons of members of the profession. The new laboratories and class-rooms for Bacteriology, Public Health, Operative Surgery, Chemistry, and Biology are now in full use. The new Clubs Union Rooms, Garden, and Fives Court are now open. The Clubs Union Athletic Ground is within easy reach of the hospital. The Metropolitan and other railways have stations close to the hospital and the college.

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[6] Dean of the Medical School.

[7] Dean of hospital for 1901-2.

[8] Dean of the school.

Staff.—Consulting Physicians: Dr. Hughlings Jackson and Dr. Fenwick. Consulting Surgeons: Mr. Hutchinson, Mr. Couper, Mr. McCarthy, and Sir Frederick Treves. Physicians: Dr. Stephen Mackenzie, Dr. A. E. Sansom, Dr. Gilbart-Smith, Dr. Francis Warner, and Dr. Percy Kidd; Dr. Frederick J. Smith, Dr. W. J. Hadley, and Dr. G. Schorstein (with care of out-patients). Assistant Physicians: Dr. Bertrand Dawson, Dr. Henry Head, and Dr. Robert Hutchinson. Surgeons: Mr. Waren Tay, Mr. C. W. Mansell-Moullin, Mr. Hurry Fenwick, Mr. F. S. Eve, and Mr. J. Hutchinson, jun.; Mr. T. H. Openshaw and Mr. H. P. Dean (with care of out-patients. Assistant Surgeons: Mr. A. B. Roxburgh, Mr. P. Furnivall, and Mr. H. Barnard. Obstetric Physicians: Dr. G. E. Herman and Dr. Lewers (with care of out-patients). Physician to the Skin Department: Dr. Stephen Mackenzie. Consulting Dental Surgeon: Mr Barrett Consulting Anæsthetist: Dr. Hewitt. Surgeons to the Ophthalmic Department: Mr. Waren Tay and Mr. A. B. Roxburgh. Senior Surgeon to the Aural Department: Dr. Edward Woakes. Surgeon to the Aural Department: Mr. T. Mark Hovell. Medical Officer in charge of the Electrical Department: Dr. W. S Hedley. Analyst to the Hospital: Mr. Hugh Candy. Bacteriologist to the Hospital: Dr. W. Bulloch. Dental Surgeons: Mr. Dolamore and Mr. Farmer. Anæsthetists: Dr. Probyn Williams, Mr. Hilliard, and Mr. Clapham.

Lecturers.—Medicine: Dr. Percy Kidd. Clinical Medicine: the Physicians and Assistant Physicians. Surgery: Mr. C. W. Mansell-Moullin. Clinical Surgery: the Surgeons and Assistant Surgeons. Anatomy: Dr. T. H. Openshaw and Dr. A. Keith. Physiology: Dr. Leonard Hill and Dr. J. J. R Macleod. Chemical Physiology: Dr. R. Hutchison. Chemistry: Mr. F. J. M. Page and Mr. Hugh Candy. Pathology—(1) Surgical: Mr. F. S. Eve; (2) Medical: Dr. W. J. Hadley; and (3) General: Dr. W. Bulloch. Midwifery and Diseases of Women: Dr. G. Ernest Herman. Clinical Obstetrics: The Obstetric Physicians Practical Obstetrics: Dr. G. Ernest Herman and Dr. Arthur H. N. Lewers. Forensic Medicine—(1) Public Health: Dr. J. C. Thresh; and (2) Medical Jurisprudence and Toxicology: Dr. Fredk. J. Smith. Public Health and Sanitary Science: Dr. W. Bulloch, Dr. John C. Thresh, and Mr. F. J. M. Page. Mental Diseases: Dr. J. Kennedy Will. Materia Medica and General Therapeutics: Dr. Francis Warner and Dr. Bertrand Dawson. Biology: Dr. P. Chalmers Mitchell and Mr. G. P. Mudge. Experimental Physics: Mr. F. J. M. Page and Mr. Hugh Candy. Ophthalmic Surgery: Mr. A. B. Roxburgh. Aural Surgery: Dr. Edward Woakes. Diseases of the Throat: Mr. T Mark Hovell. Anatomy and Pathology of the Teeth: Mr. H. Dolamore and Mr. F. M. Farmer. Practical Anatomy: Dr Arthur Keith, Mr. H. M. Rigby, and Mr. J. H. Watson. Practical Physiology and Histology: Dr. Leonard Hill and Dr. J. J R. Macleod. Foods and Dietetics: Dr. R. Hutchison. Practical Chemistry: Mr. F. J. M. Page and Mr. Hugh Candy. Operative Surgery: Mr. H. P. Dean. Practical Surgery: Dr. A. B. Roxburgh. Demonstrators of Morbid Anatomy: Dr. F. J. Smith, Dr. W. J. H. Hadley, and Dr. G. Schorstein. Bacteriology: Dr. W. Bulloch and Dr. W. Hunter. Pathological Histology: Dr. W. Bulloch. Therapeutic Electricity and Radiography: Dr. W. S. Hedley. Anæsthetics: Dr. R. J. Probyn-Williams, Mr. H. Hilliard, and Mr. E. W. Clapham. Elementary Clinical Medicine: Mr. Henry Head and Dr. Robert Hutchinson. Medical Tutor: Dr. T. H. Sequeira. Surgical Tutor: Mr. H. L Barnard. Obstetric Tutor: Dr. H. R. Andrews. As Emeritus Professor of Surgery Mr. Hutchinson will give in the Summer Session, and Sir Frederick Treves will give in the Winter Session a course of lectures in Clinical Surgery. The special subjects and the dates will be announced in due course. Dr. Hewitt, as Emeritus Lecturer on Anæsthetics, will give a course of lectures during the first half of the Winter Session. Warden: Mr. Munro Scott.

ST. MARY'S HOSPITAL.—The hospital contains 281 beds, which number will be raised to 381 on completion of the Clarence wing. The situation of the hospital in the centre of the residential districts of Paddington, Bayswater, and North Kensington renders it especially convenient to students who wish to reside in the immediate vicinity, and a register of approved lodgings is kept in the office or the Medical School. All clinical appointments in the hospital are free to students of the Medical School and the resident medical officers are chosen by competitive examination. Six house physicians, six house surgeons, four obstetric officers, and two resident anæsthetists are appointed in each year and receive board and residence in the hospital. Entrance scholarships in Natural Science, one of £145, two of £78 15*s.*, one of £52 10*s.*, and two of £63 (open to students from Oxford and Cambridge), are awarded annually by examination in September.

The New Wing.—The new wing, the ground floor of which, comprising the new out-patient department, was opened in 1898, is about to be completed. This will add to the hospital 100 new beds and will include an additional operating theatre, a new clinical laboratory, and an x-ray department.

The Laboratories.—The Physiological Laboratories have recently been enlarged and the Pathological Departmen further extended with the provision of special laboratorie for the study of bacteriology and pathological chemistry.

Special Tuition.—In addition to systematic courses lectures and demonstrations special tuition is provided f the Intermediate and Final Examinations of the Universitie of Oxford, Cambridge, and London without additional fees.

Preliminary Scientific Course.—Special classes, includin lectures and laboratory work, are held throughout the year.

The composition fee for full students is £140 if paid i one sum or £145 if paid in four instalments. Universit students who have completed their examinations in Anatom and Physiology are admitted on payment of a compositio fee of 60 guineas (£63) paid in one sum or by payment o two annual instalments of 35 guineas (£36 15*s.*) and 3 guineas (£31 10*s.*) respectively. University students wh have not completed their examination in Anatomy an Physiology pay an annual fee of 25 guineas (£26 5*s.*) until they have passed these examinations, and then pay the composition fee. Separate courses of lectures, laboratory work, or hospital practice may be taken. The compositio fees include membership of the amalgamated clubs. Th School Calendar and full information can be obtained fro the Secretary, St. Mary's Hospital Medical School, Paddington, W.

Staff.—Consulting Physicians: Sir Edward Sieveking and Sir William Broadbent. Consulting Surgeons: Mr. H. Spencer Smith, Mr. A. T. Norton, Mr. G. P. Field (Aural), Mr. Howard-Hayward (Dental), and Mr. G. Anderson Critchett (Ophthalmic). Physicians: Dr. W. B. Cheadle, Dr. D. B. Lees and Dr. Sidney Phillips. Surgeons: Mr. Edmund Owen, Mr. Herbert W. Page, and Mr. A. J. Pepper. Physicians in charge of Out-Patients: Dr. R. Maguire, Dr. A. P. Luff, and Dr. H. A. Caley. Surgeons in charge of Out-Patients: Mr. A. Q Silcock, Mr. J. Ernest Lane and Mr. H. Stansfield Collier. Physician-Accoucheur: Dr. Montagu Handfield-Jones. Physician-Accoucheur in Charge of Out-Patients: Dr. W. J. Gow. Physician in charge of Children's Department: Dr. Sidney Phillips. Ophthalmic Surgeon: Mr. H. E. Juler. Surgeon to the Skin Department: Mr. Malcolm Morris. Dental Surgeon: Mr. Morton Smale Aural Surgeon: Dr. G. William Hill. Surgeon to the Throat Department: Dr. Scanes Spicer. Administrator of Anæsthetics: Mr. Henry Davis.

Lecturers.—Clinical Medicine: Dr. W. D. Cheadle and Dr. D. B. Lees. Clinical Surgery: Mr. Edmund Owen and Mr. Herbert W. Page. Medicine: Dr. Sidney Phillips. Surgery: Mr. A. J. Pepper and Mr. A. Q. Silcock. Practical and Operative Surgery: Mr. H. Stansfield Collier. Pathology: Dr. Robert Maguire and Mr. H G. Plimmer. Bacteriology: Mr. H. G. Plimmer and Dr. A. Paine. Pathological Chemistry: Dr. W. H. Willcox. Midwifery and Gynæcology: Dr. M. Handfield-Jones. Materia Medica and Therapeutics: Dr. H. A. Caley.[9] Forensic Medicine: Dr. A. P. Luff. Descriptive and Surgical Anatomy: Mr. J. Ernest Lane. Physiology: Dr. A. Waller and Mr. W. Legge Symes (Assistant Lecturer). Demonstrator: Mr. J. H. Wells. Histology: Mr. W. Legge Symes. Biology: Dr. W. G. Ridewood. Demonstrator: Mr. H B. Lacey. Chemistry and Physics:

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[9] Dean.

Dr. W. H Willcox and Mr. E H. Strange. Hygiene and Public Health: Dr. A. P. Luff and Dr. E J. Steegmann. Mental Diseases: Dr. Theo. B Hyslop. Diseases of the Eye: Mr H. E Juler. Diseases of the Ear: Dr. G. William Hill. Diseases of the Skin: Mr. Malcolm Morris. Diseases of the Throat: Dr. Scanes Spicer. Dental Surgery: Mr Morton Smale. Tropical Diseases: Dr. John Anderson Anæsthetist: Mr. Henry Davis Medical Tutor: Dr. F. H Poynton. Surgical Tutor: Mr. H. Stansfield Collier Obstetric Tutor: Dr. W. J. Gow. Medical Registrar: Dr W. J Harris. Surgical Registrar: Dr. A G. Wilson Electrical Department: Dr. W. J Harris. Curator of the Museum: Dr. R. W. Dodgson. Anatomy: Dr. W. Warren Low and Mr. W. Ashdowne (demonstrators). Chemistry. Mr. E H. Strange (demonstrator). Practical Pharmacy: Mr. E A. Andrews (demonstrator) School Secretary: Mr. B. E. Matthew.

MIDDLESEX HOSPITAL.—The hospital contains 340 beds. There is a special wing for patients suffering from cancer, consisting of four wards, containing 40 beds; here cancer patients are received and attended for a period limited only by the duration of their disease.

Hospital Appointments.—All hospital appointments are allotted to students without any extra fee. Eighteen Resident Appointments are annually filled from the pupils of the hospital, each appointment extending over six months.

Special Classes are held to prepare students for the Inter M.B. (Lond.) Examination and for the Primary Examination for the diploma of F.R.C.S. Eng.

The Hospital and Medical School are fully equipped for the theoretical and practical teaching of all the subjects included in the examinations in Medicine and Surgery in the United Kingdom and for the diploma in Public Health; and ample laboratory and class-room accommodation is provided for the teaching of the various subjects of the curriculum and for original research in Medicine, Pathology, or Bacteriology.

A Residential College to accommodate about 30 students adjoins the hospital. The charge for residence is £8 8*s.*, £7 7*s.*, and £6 6*s.* per term, according to the position of the room Breakfast, luncheon, and dinner are supplied in the College Hall at a very moderate charge.

Fees—The Composition Fee for the entire curriculum is 135 guineas, or 145 guineas if paid in three instalments. The fee for the Dental Curriculum is 54 guineas, or 60 guineas if paid in two instalments. Students who have completed the study of Anatomy and Physiology or passed the London Preliminary Scientific M.B. Examination are received on special terms

Staff.—Consulting Physicians: Dr. Sydney Coupland and Sir R D. Powell. Physicians: Dr. W. Cayley, Dr. J K Fowler, and Dr. W. Pasteur.[10] Obstetric Physician: Dr W. Duncan. Assistant Physicians: Dr. W. E Wynter, Dr A. F. Voelcker, Dr. F. J Wethered, and Dr. H. C Thomson. Consulting Physician to the Skin Department: Dr. R Liveing Physician to the Skin Department: Dr J J Pringle. Assistant Obstetric Physician: Dr. R Boxall Consulting Surgeons: Mr. Nunn and Mr. G. Lawson Surgeons: Mr. Morris, Mr. Clark, and Mr. Gould. Assistant Surgeons: Mr. Bland-Sutton, Mr Murray, and Mr. Kellock Ophthalmic Surgeon: Mr. W. Lang. Aural Surgeon; Mr S Paget. Consulting Surgeon-Dentist: Mr. Turner. Dental Surgeon; Mr. W. Hern. Assistant Dental Surgeon: Mr Nowell. Curator of the Museum and Pathologist Dr Thomson. Registrars: Dr. R A. Young and Mr A Baldwin. Resident Medical Officer: Mr. F. A. Farden. Chloroformists: Mr. Norton, Mr T. G. A. Burns, Mr. H P Noble and Mr Comyns Berkeley

Lecturers—Winter Session: Anatomy: Dr. Thompson Demonstrator: Dr. Gladstone. Biology and Physiology Dr. Young. Demonstrator: Mr Goodall. Chemistry: Dr Kellas. Demonstrator: Mr Froggatt. Medicine: Dr Fowler and Dr. Pasteur. Practical Medicine. Dr. Pasteur. Surgery. Mr. Clark Practical Surgery: Mr. Murray. Operative Surgery: Mr. Kellock. Practical Midwifery: Dr. Boxall Clinical Lectures in Medicine: The Physicians. Clinical Lectures in Surgery: The Surgeons. Clinical Lectures on Diseases of the Ear, Throat, and Nose: Mr. S Paget. Lectures in Ophthalmology: Mr Lang Lectures in Dental Surgery: Mr. Hern. Public Health and Bacteriology: Mr. Foulerton. Summer Session: Pharmacology and Therapeutics: Dr. Wynter. Pathology and Pathological Histology: Dr. Voelcker. Forensic Medicine and Toxicology: Dr. Wethered. Practical Toxicology: Dr. Kellas Public Health and Bacteriology: Mr. Foulerton Tropical Medicine: Dr. Crombie Mental Diseases: Dr. Mickle: [illegible] ingle. Anatomy, Chemistry, [illegible] ession. Tutors—Medicine: [illegible] Kellock; Obstetrics: Dr. [illegible] Mr. Farden.

ST. THOMAS'S HOSPITAL.—The composition fee to Hospital Practice and Lectures may be paid in the following ways:—1. £150 on entrance in one sum. 2. £157 10*s.* in instalments: (*a*) by two payments, £85 on entrance and £72 10*s.* at the beginning of the second year; (*b* [illegible] the beginning of the first year, £ [illegible] second year, and £32 10*s.* at th [illegible] year; and (*c*) by four payments, [illegible] first year, £50 at the beginning [illegible] the beginning of the third year [illegible] ning of the fourth year. Students entering at St. Thomas's for Lectures and Hospital Practice of the second and subsequent years pay £130 on entrance, or three instalments of £52 10*s.*, £42, and £42 Students entering for Lectures and Hospital Practice of third and subsequent years pay a composition fee of £80, or £52 10*s.* on entrance and £31 10*s.* one year subsequently. The fee for attendance on the general subjects required of students in Dental Surgery is for the two years £65, or, by instalments, £55 for the first year and £15 for the second year. If certificates for Dental Practice are also required the special fee for that subject has to be [illegible] d by a joint tic [illegible] terms which may

Staff.—C [illegible] and Dr. Payne. Consulting Surgeons: Sir J. Simon, Mr. S Jones, Mr. J. Croft, and Sir W. MacCormac. Consulting Obstetrical Physician: Dr. Gervis. Consulting Ophthalmic Surgeons: Mr. Liebreich and Mr. Nettleship Physicians: Dr. Mackenzie, Dr. Sharkey, Dr. Acland, and Dr Hawkins.[11] Surgeons: Mr. Clutton, Mr. Pitts, Mr G H. Makins, and Mr. Battle. Assistant Physicians: Dr. Turney, Dr. Perkins, Dr Colman, and Dr Box. Assistant Surgeons: Mr. C. A. Ballance, Mr. H. B. Robinson, Mr. F. C Abbott, and Mr C. S Wallace. Obstetrical Physician: Dr. Cullingworth Assistant Obstetrical Physician: Dr. W. W. H. Tate. Ophthalmic Surgeon: Mr. Lawford. Assistant Ophthalmic Surgeon: Mr. Fisher. Physician for Diseases of Children: Dr. Box. Surgeon for Diseases of the Throat: Mr. H. B. Robinson Surgeon for Diseases of the Skin: Mr. E Stainer. Surgeon for Diseases of the Ear: Mr. Abbott. Physician Electrical Department Dr. Turney. Surgeon Dentist: Mr C. E Truman Resident Assistant Physician: Dr. A E Russell. Resident Assistant Surgeon: Mr. E. M. Corner. Anæsthetists: Mr W. Tyrrell, Mr. E. H. G. Morris, Mr H. Low, and Mr H C Crouch Pharmaceutist: Mr E White. Curator of Museum: Mr. S G Shattock. Superintendent of Clinical Laboratory: Mr. Seligmann. Superintendent of X ray Department: Dr. Blacker.

Lecturers: *Winter Session*—Practical Anatomy Demonstrators: Mr F. G. Parsons, Mr. J H. Fisher, and Dr. Box. Descriptive and Surgical Anatomy; Mr. F. G Parsons and Mr H. B Robinson Chemistry and Chemical Physics: Dr Crossley. Physical and General Anatomy: Dr. J B Leathes. Elementary Biology: Mr. F. G Parsons. Pathology, Pathological Anatomy, and Bacteriology: Dr. Turney, Dr Perkins, and Mr. Shattock. Surgery. Mr. Pitts and Mr. Anderson. Theo [illegible] Payne and Dr Sharkey I [illegible] Mr Ballance and Mr B [illegible] sophy: Mr Dunstan and Mr Le Sueur. Clinical Medicine: The Physicians Surgery: Sir W. MacCormac (Emeritus Lecturer) and the Surgeons in rotation. Clinical Midwifery and Diseases of Women. Dr. Cullingworth. Diseases of the Eye Mr Lawford Clinical Lectures on Throat Disease: Mr H B Robinson Demonstrator in Morbid Histology: Dr Perkins. Physiological Demonstrator: Mr. A. W. Sykes. Obstetrical Demonstrator: Dr. Tate. Elementary Clinical Medicine: Dr Colman, Dr. Perkins, and Dr. Russell. Surgical Classes: Mr. Battle, Mr. Ballance, Mr. Shattock, and Mr. Richardson.

Summer Session.—Anatomical Demonstrator: Mr. F. G.

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[10] Dean of the school.

[11] Dean.

Parsons, Mr. H. B. Robinson, and Mr. J. H. Fisher. Elementary Biology: Mr. F. G. Parsons. Forensic Medicine and Toxicology: Dr. Cory and Dr. Colman. Midwifery: Dr. Tate. Botany: Mr. A. W. Bennett. Chemistry and Practical Chemistry: Mr. W. R. Dunstan and Dr. Crossley. Mental Diseases: Dr. H. Rayner. Public Health: Dr. E. Seaton. Practical and Manipulative Surgery: Mr. Ballance and Mr. Battle. Practical Physiology: Dr. J. B. Leathes. Comparative Anatomy: Mr. Parsons. Diseases of the Eye: Mr. Lawford. Pathology, Pathological Anatomy and Bacteriology: Dr. Turney, Dr. Perkins, and Mr. Shattock. Pharmacology and Therapeutics: Dr. Mackenzie. Operative Surgery: Mr. Makins, Mr. Battle, and Mr. Ballance. Lectures on Clinical Medicine and Surgery are delivered every Wednesday. Special Departments for the Diseases of Women and Children, and for Diseases of the Eye, Skin, Throat, and Ear. Instruction in Electro-Therapeutics by Dr. Turney. Instruction in Dental Surgery by Mr. Truman. Instruction in Vaccination by Dr. Cory.

UNIVERSITY COLLEGE HOSPITAL LONDON.—*Composition fees.*—1. For the entire medical education required by the Examining Board in England and the Society of Apothecaries, 150 guineas if paid in one sum at the commencement of the course; 155 guineas if paid by instalments, as follows—first year, 70 guineas; second year, 55 guineas; third year, 30 guineas. 2. For those students who do not require to attend Chemistry, Pharmacy, and Elementary Biology at a medical school (under the regulations of the Examining Board in England) the fee will be—135 guineas, if paid in one sum; 140 guineas, if paid by instalments, as follows—first year, 60 guineas; second year, 50 guineas; third year, 30 guineas. 3. For the whole course of instruction for the Intermediate Examination in Medicine of the University of London, 60 guineas (paid in one sum). 4. For the course of instruction for the Final M.B. Examination of the University of London, 80 guineas, if paid in one sum; 82 guineas, if paid by instalments, as follows—first year, 50 guineas; second year, 32 guineas. 5. Composition fee for Dental Students, 65 guineas, or exclusive of Chemistry, Practical Chemistry, Physics, and Materia Medica, 50 guineas. 6. Composition fee for the whole course of instruction for the Preliminary Scientific (M.B.) Examination of the University of London, 25 guineas.

Eight house physicians, six house surgeons, four senior and eight junior obstetric assistants and two ophthalmic assistants are selected annually by examination from among the senior students. The house physicians and house surgeons reside in the hospital for a period of six months, and the senior obstetric assistants for three months, receiving free board and lodging.

Several professors and other gentlemen connected with the College receive students to reside with them; and in the office of the College there is kept a register of persons unconnected with the College who receive boarders into their families; among these are several medical gentlemen and clergymen.

Staff.—Consulting Physicians: Dr. H. C. Bastian, Sir W. R. Gowers, Sir J. Williams, Dr. S. Ringer. Physicians: Dr. F. T. Roberts, Dr. G. V. Poore, Sir Thomas Barlow, Bart., Dr. J. R. Bradford, Dr. S. H. C. Martin, and Dr. J. R. Russell. Obstetric Physician: Dr. H. R. Spencer. Assistant Obstetric Physician: Dr. G. F. Blacker. Physician, Skin Department: Dr. H. R. Crocker. Consulting Surgeons: Sir Henry Thompson, Mr. C. Heath, and Mr. S. J. Hutchinson (Dental). Surgeons: Mr. A. E. Barker, Mr. R. J. Godlee, Mr. V. A. Horsley, Mr. B. Pollard, and Mr. Johnson. Assistant Surgeon: Mr. T. R. H. Bucknall. Ophthalmic Surgeon: Mr. J. Tweedy. Assistant Ophthalmic Surgeon: Mr. P. Flemming. Dental Surgery: Mr. S. Spokes. Anæsthetist: Dr. D. Buxton. Surgeon Registrar: Mr. W. B L. Trotter. Resident Medical Officer: Dr. Charles Bolton.

Lectures of the Faculty of Medicine: Winter Session.—Anatomy: Professor G. D. Thane. Dissections by Mr. Flemming, Mr. G. B. M. White, Mr. P. M. Heath, and E. G. Perodeau. Chemistry: Professor Ramsay. Biology: Professor E. A. Minchin. Principles and Practice of Medicine: Dr. G. Vivian Poore Principles and Practice of Surgery: Professor A. E. Barker Practical and Operative Surgery: Mr. B. Pollard and Mr. R. Johnson. Physiology: Professor E. H. Starling. Dental Surgery: Mr. S. Spokes. Morbid Anatomy and Bacteriology: Dr. S. Martin.

Summer Session.—Materia Medica and Therapeutics: Dr. J. R. Bradford. Pathological Anatomy: Dr. S. Martin. Practical Chemistry: Professor Ramsay. Midwifery and Diseases of Women: Dr. Spencer. Medical Jurisprudence: Dr. J. S. R. Russell. Ophthalmic Medicine and Surgery: Professor J. Tweedy. Operative Surgery: Mr. Pollard. Hygiene and Public Health: Professor Corfield, M.D. Practical Physiology and Histology: Professor E H. Starling. Mental Physiology: Dr. Mickle. Principal of the College: G. Carey Foster. LL.D., F.R.S.

WESTMINSTER HOSPITAL.—The hospital contains upwards of 200 beds. There are separate departments for Diseases of the Eye, Ear, Skin, Teeth, and Throat, for Orthopædics, and for Diseases of Women, and a special ward for Children. The Anatomical Museum is open to the students. There are also Pathological and Materia Medica Museums.

A medical and a surgical registrar, each with a salary of £40, are appointed annually. Two house physicians, two house surgeons, and a resident obstetric assistant are appointed for six months after examination, and are provided with rooms and commons; also two assistant house surgeons with commons only. Clinical assistants to the assistant physicians and assistant surgeons, and to the officers in charge of special departments, are appointed from among qualified students of the hospital.

Preliminary Scientific.—Special classes are held in the subjects of this examination—Chemistry, Dr. Hake; Physics, Mr Somerville; Biology, Dr. Sherlock. The extra fee to a general student is 12 guineas.

Intermediate M.B.—Advanced Physiology and Histology, Dr. Gossage; Organic Chemistry, Dr. Hake; Materia Medica, Dr. Purves Stewart.

D.P.H.—The course of Laboratory Instruction may now be taken. Physics Mr. Somerville; Chemistry, Dr. Hake; Bacteriology, Dr. Blaxall. Fee: 12 guineas for three months, 20 guineas for six months.

Bacteriology.—A course in General Bacteriology is given by Dr Blaxall. Fee £5 5*s.*

Staff.—Consulting Medical Staff: Dr. H. B. Donkin. Consulting Surgical Staff: Mr. C. Holthouse, Mr. Richard Davy, Mr. G. Cowell, and Mr. F. C. Macnamara. Consulting Dental Surgeon: Dr. J. Walker. Medical In-patient Staff: Dr. W. H. Allchin, Dr. de Havilland Hall, and Dr. W. Murrell. Obstetric Physician: Dr. W. Rivers Pollock. Surgical In-patient Staff: Mr. C. Stonham, Mr. W. G. Spencer, and Mr. A. H. Tubby. Medical Out-patient Staff: Dr. R. G. Hebb, Dr. W. A. Wills, Dr. A. M. Gossage, and Dr. Purves Stewart. Physician for Diseases of the Skin: Dr. T. Colcott Fox. Assistant Obstetric Physician: Dr. G. H. Drummond Robinson. Surgical Out-patient Staff: Mr. P. R. W. De Santi, Mr. W. Turner. and Mr. E. P. Paton. Surgeon in charge of the Throat Department: Mr. W. G. Spencer. Ophthalmic Surgeon: Mr. G. Hartridge. Surgeon in charge of the Orthopædic Department: Mr. A. H. Tubby. Surgeon in charge of the Ear Department: Mr. P. R. W. De Santi. Dental Surgeons: Mr. C. W. Glassington and Mr. E. Gardner. Administrator of Anæsthetics: Dr. N. W. Bourns and Mr. A. MacLeod. Pathologist and Curator of Museum: Dr. W. S. Lazarus-Barlow. Medical Registrar: Dr. B. Abrahams. Surgical Registrar: Mr. F. Canny Ryall. Pharmacist: Mr. A. E. Tanner. Secretary: Mr. S. M. Quennell.

Lectures.—Clinical Medicine: Dr. Allchin, Dr. Hall, and Dr. Murrell. Clincal Surgery: Mr. Stonham, Mr. Spencer, and Mr. Tubby.[12] Clinical Gynæcology: Dr. Pollock.[13] Medicine: Dr. de Havilland Hall and Dr. Murrell. Diseases of the Skin: Dr. Colcott Fox. Neurology and Insanity: Dr. Charles Mercier. Elementary Practical Medicine: Dr. Wills. Surgery: Mr. Stonham. Ophthalmic Surgery: Mr. Hartridge. Surgery of the Throat and Nose: Mr. Spencer. Orthopædic Surgery: Mr. Tubby. Aural Surgery: Mr. de Santi Dental Surgery: Mr. Glassington. Anæsthetics: Dr. Bourns. Operative Surgery: Mr. Stonham. Surgical Anatomy: Mr. Paton. Minor Surgery: Mr. de Santi. Surgical Pathology; Mr. Paton. Midwifery and Diseases of Women: Dr. Pollock. General Pathology and Morbid Anatomy: Dr. Lazarus-Barlow. Post-mortem Demonstrations: Dr. Lazarus. Barlow. Materia Medica, Therapeutics, and Pharmacology: Dr. Purves Stewart. Demonstrator of Practical Pharmacy: Mr. A. E. Tanner. Forensic Medicine:

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[12] Dean of the School.

[13] Treasurer of the School.

Dr. Hebb and Dr. Pollock. Toxicology: Dr. H. Wilson Hake. Public Health: Dr. S. Monckton Copeman. Bacteriology: *Dr. Blaxall. Anatomy: Mr. Black.* Demonstrators of Practical Anatomy: Mr. Black and Mr. Paton. Physiology: Dr. Gossage.[14] Practical Physiology: Dr. Gossage. Demonstrator of Physiology: Mr. Canny Ryall. Histology: Dr. Gossage. Biology and Comparative Anatomy: Dr. Sherlock. Emeritus Lecturer on Chemistry: Dr. Dupré. Chemistry and Practical Chemistry: Dr. H. Wilson Hake. physics: Mr. H. Somerville. Secretary and Librarian: Mr. W. Fryer.

London (Royal Free Hospital) School of Medicine for Women, 8, Hunter-street, Brunswick-square, W C.—The fee for the whole medical course is £125 in one sum, or £135 in four instalments. This entitles students to attend all necessary lectures and practical classes as well as the medical and surgical practice of the hospital, and to hold clerkships and dresserships in the in-patient and out-patient departments. Students can also attend the in-patient and out-patient practice of the New Hospital for Women. Students *after qualification can hold the post of house physician,* house surgeon, clinical assistant, anæsthetist and assistant anæsthetist, medical and surgical registrar, museum curators and demonstrators in the departments of Anatomy, Physiology, and Chemistry, and two of the resident posts at the Royal Free Hospital, as well as those of the New Hospital for Women, which is officered entirely by medical women.

In addition to the list of Scholarships tabulated in another column three Evans Prizes of £3 3*s*., £2 2*s*., and £1 1*s* are given on the results of the class examination in midwifery, and two Durham Prizes, value £5 and £3, are given on the results of the class examination in gynæcology, and a prize of £5 is awarded in alternate years on the results of the class examination in Midwifery and Gynæcology respectively. The Evans Prize for Operative Midwifery, value £5 5*s*., is awarded yearly. Prizes of £10 each are awarded yearly in Anatomy and Physiology. There is also a small fund from which assistance can occasionally be given to students and to graduates who specially require pecuniary help. Honoraria from the Royce Memorial Fund are given to the assistant anæsthetists at the Royal Free Hospital. Prizes and Certificates of Honour are awarded in each class at the end of the session.

Special classes for the Preliminary Scientific examination of the University of London are held. The teaching in these classes has been greatly extended. The fee for the whole course is 20 guineas. Special courses of instruction in Anatomy, Physiology, and Chemistry are provided for students preparing for the Intermediate M.B. Examination of the University of London. The rebuilding of the School is now completed and the new buildings afford every facility for efficiency of teaching and of practical work in all departments.

Staff.—Physicians: Dr. S. West and Dr. Harrington Sainsbury. Assistant Physicians: Dr. J. W. Carr, Dr. R. H. P. Crawfurd, and Dr. A. G. Phear. Consulting Surgeons: Mr. A. Marsden, Mr. T. H. Wakley, Mr. W. Rose, and Mr. F. J. Gant. Surgeons: Mr. A. B. Barrow, Mr. J. Berry, and Mr. E. W. Roughton. Assistant Surgeons: Mr. W. H. Evans and Mr. T. Percy Legg. Physician for Diseases of Women: Dr. T. C. Hayes. Ophthalmic Surgeon: Mr. H. Work Dodd. Surgeon for Diseases of Throat, Nose, and Ear: Mr. E. W. Roughton. Surgeon for Diseases of Skin: Mr. W. H. Evans. Senior Resident Medical Officer: Mr. Joseph Cuming. Registrars: Miss Dobbie, M.D., and Miss Chadburn, M.B. Dentist: Mr. F. Todd. Anæsthetist: Miss Aldrich-Blake, M.D. Secretary: Mr. C. W. Thies.

Lecturers.—At the school: Anatomy and Practical Anatomy: Mr. Stanley Boyd Physiology and Practical Physiology: Dr. Brodie. Chemistry: Miss C. de B. Evans. Practical Chemistry: Miss Lucy Boole. Physics: Miss E. Stoney. Biology: Mr. Mudge. Materia Medica: Dr. H. Sainsbury. Practice of Medicine: Miss Cock, M.D., and Dr. J. W. Carr. Midwifery: *Mrs. Scharlieb, M.D.* Gynæcology: Mrs. Stanley Boyd. Forensic Medicine and Hygiene: Mrs. Dowson. Practice of Surgery: Mr. Berry. Operative Surgery: Mr. S Boyd. Ophthalmic Surgery: Miss Ellaby. Pathology: Dr. F. W. Andrewes. Mental Pathology: Dr. Mercier. Tropical Diseases: Dr. P. Manson. Operative Midwifery: Miss McCall, M.D. Demonstrator of Practical Toxicology, Mr. Bodmer; of Practical Gynæcology, Miss H. Webb, M.B.; of Anatomy, Miss Stoney, M.D., and Miss Flint, M.B.; of Chemistry, Miss Widdows; of Physiology, *Miss Vernon and Miss Cullis; of Practical Pharmacology,* Mrs. Clarke Kerr. At the Royal Free Hospital: Clinical Medicine: Dr. S. West and Dr. Sainsbury. Clinical Surgery: Mr. Barrow and Mr. Berry. Pathology: Dr. Crawfurd. Surgical Tutors: Mr. Roughton, and Mr. W. Evans. Medical Tutor and Demonstrator of Auscultation: Dr. J. W. Carr. Demonstrator of Practical Clinical Medicine: Miss Vaughan, M.D. Bacteriology: Mr. Roughton.

The Dean of the School is Mrs. Garrett Anderson, M.D.,; the Vice-Dean is Miss Cock, M.D.; the Honorary Secretary is Mrs. Thorne; and the Secretary is Miss Douie, M.B.

METROPOLITAN ANCILLARY SCHOOLS AND HOSPITALS AFFORDING FACILITIES FOR CLINICAL OBSERVATION.

Bethlem Royal Hospital.—This hospital is open for the admission of two Resident House Physicians who have recently obtained their diplomas to practise Medicine and Surgery. They will be permitted to reside in the hospital for a term generally not exceeding six months, commencing June 1st and 1st Dec., and will be provided with apartments, complete board, attendance, washing, and an honorarium of 25 guineas per quarter. They will be under the direction of the Resident Physician, and will be elected by the Committee from candidates whose testimonials appear to be most satisfactory. The students of certain specified London Medical Schools receive Clinical Instruction in the wards of the hospital, and qualified practitioners may attend for a period of three months on payment of a fee. Lectures are also given in connexion with the London Post-graduate Course.

Hospital for Consumption and Diseases of the Chest, Brompton (320 beds).—Four House Physicians reside in the hospital for a period of six months. Pupils are admitted to the practice of the hospital: terms, £1 1*s*. for one month; three months, £2 2*s*.; perpetual, £5 5*s*. Lectures and Clinical Demonstrations are given throughout the year by members of the medical staff. The next course will *commence in October. Clinical Assistants* are appointed to the Assistant Physician in the out-patient department and Clinical Clerks to the Physician in the wards. The hospital has been recognised by the Conjoint Board for England as a place where six months of the fifth year may be spent in clinical work. The medical practice of the hospital is also recognised by the University of London, the Apothecaries' Society, and the Army and Navy and Indian Medical Boards. The hospital contains 321 beds in the two buildings.

Staff.—Consulting Physicians: Dr. E Pollock, Dr. E. S. Thompson, Sir R. D. Powell, Bart., Dr. F. T. Roberts, Dr. J. Tatham, Dr. C. T. Williams, and Dr. J. M. Bruce. Physicians: Dr. T. H. Green, Dr. J. K. Fowler, Dr. P. Kidd, Dr. T. D. Acland, Dr. R. Maguire, and Dr. H. W. G. Mackenzie. Assistant Physicians: Dr. S H. Habershon, Dr. G. Schorstein, Dr. F. J. Wethered, Dr. P. Horton-Smith, Dr. J. J. Perkins, and Dr A Latham Consulting Surgeons: Lord Lister, and Mr. R. J Godlee. Surgeon: Mr. S. Boyd. Dental Surgeon: Mr. W. Rushton. Resident Medical Officer: H. G. Felkin, M D.

City of London Hospital for Diseases of the Chest, Victoria Park.—During the past year 1021 in-patients have been treated in the wards, and the large number of 32,810 cases since the opening of the wards in 1855. The number of out-patients treated during 1899 was 15,260, and 614,207 since the commencement of the institution in 1848. Information as to medical instruction can be obtained on application to Dr. E. Clifford Beale, the Secretary of the Clinical Sub-committee at the hospital.

Staff.—Consulting Physicians: Dr. E. L. Birkett, Dr. J. C. Thorowgood, and Dr. Eustace Smith. Consulting Surgeon: Lord Lister. Physicians: Drs. G. A. Heron, Vincent D. Harris, E. Clifford Beale, Harrington Sainsbury, T Glover Lyon, and Sir Hugh Beevor, Bart. Surgeon: Mr. J. F. C. H. Macready, F.R.C.S. Physicians to Out-Patients: Sir Hugh R. Beevor, Bart., and Drs. W. J. Hadley, E. H. Colbeck, Arnold Chaplin, Hugh Walsham, Wilfred J. Harris, and Oliver K. Williamson. Secretary: Henry T. Dudley Ryder. Secretary of the Medical Committee: Dr. Hugh Walsham.

Central London Throat and Ear Hospital, Gray's Inn-road.—The hospital contains accommodation for 17 in-patients, and has a very extensive out-patient

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department, which is open to all medical practitioners and students for the purpose of clinical demonstration and instruction during the hours of the surgeons' visits. During the past year 8428 out-patients (involving 53,041 attendances) and 240 in-patients were treated. Fee for three months' attendance, 3 guineas; for six months, 5 guineas. A course of lectures on the special diseases treated at this hospital is delivered during the winter months by members of the staff. The date of these lectures is announced in the medical journals prior to their commencement. They are free to qualified practitioners and advanced students of medicine. Considerable attention is given to scientific work, particularly with regard to Bacteriology of the ear and respiratory passages. Operation days: in-patients, Tuesday, at 2 P.M.; out-patients, Tuesday, at 3 30 P.M., and Friday, at 2 P.M. Consulting Surgeons: Mr. Thomas Nunn and Mr. Lennox Browne. Surgeons: Dr. Arthur Orwin, Dr. Dundas Grant, and Dr. Percy Jakins. Physician and Pathologist: Dr. Wyatt Wingrave. Assistant Surgeons: Dr. Holloway, Mr. Nourse, and Dr. Abercrombie. Bacteriologist: Mr. St George Reid. Dental Surgeon: Mr. George Wallis. Anæsthetist: Mr. W. Hotten George. Defects of Speech: Mr. William Van Praagh. In addition the following appointments are open to qualified members of the profession:—Assistant Registrar, tenable for twelve months; and twelve Clinical Assistants, tenable for six months. Secretary: Mr Richard Kershaw.

THE HOSPITAL FOR WOMEN, Soho-square, W.—In connexion with this institution there has been for some years a well-organised Clinical Department, which has been enlarged under the title of the London School of Gynæcology. To meet the want increasingly felt by medical men of an accurate knowledge of the ordinary diseases of women, gentlemen are appointed to act as clinical assistants to the physicians and surgeons seeing out- and in-door patients. The appointments are nominally "open to qualified medical men and to students of medicine after their fourth year," but in the selection of candidates preference is naturally given to gentlemen already engaged in practice. The large number of out-patients affords exceptional opportunities for practical instruction in the use of gynæcological instruments and for the study of diseases peculiar to women. Demonstrations are given in the theatre on Mondays and Thursdays at 2 P.M. Fee for one month £3 3*s*.; for the three months' course and certificate £8 8*s*. Any further information can be obtained by writing to the Dean at the hospital.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road. (80 beds)—This hospital has been enlarged by the addition of a very complete out-patients' department, and also by the erection of a new wing, which provides accommodation for 80 in-patients. Expenditure for 1900, £7702; income (including legacies, £669), £7365. The attendance of out-patients averages 26,000 annually.

Staff.—Consulting Physicians: Dr. Horace Dobell and Professor D W. Finlay. Physicians: Dr. P. J. Hensley, Dr. T. G. Smith, Dr W. H. White, Dr. Oswald Browne, Dr. A. Davies, and Dr. J. Calvert. Assistant Physicians: Dr. B. Dawson, Dr. M Leslie, and Dr. J. H. Drysdale Consulting Surgeon: Mr. J. Hutchinson. Surgeon: Mr W. Turner. Resident Medical Officer: Dr. E. Talbot House Physician: Mr. H. B. Gibbins. Secretary: Mr. J. Harrold.

ROYAL EAR HOSPITAL, Soho. (Founded 1816.)—Courses of instruction of six weeks' duration in Diseases of the Ear and Nose are given by the members of the staff throughout the year. Students can attend one or more surgeons, the fee for each surgeon's course being one guinea. The teaching is of a practical character, and the number of students is limited. The next series of classes will commence on Oct. 1st. For information address the Honorary Secretary of the Medical Board.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway-road, N.—Consulting Physician: Sir S. Wilks, Bart. Physicians: Drs. R. Burnet, E. C. Beale, C. E. Beevor, H. W. Syers, A. Morison, and T. J. Horder. Obstetric Physician: Dr. Blacker. Surgeons: Messrs. J. Macready, H. Allingham, P. T B. Beale, G. B. M. White, and E. C. Stabb. Ophthalmic Surgeon: Mr. A. S. Morton. Ear, Throat, and Nose Surgeons: Mr W. R. H. Stewart and Mr. E. B. Waggett Skin Department: Dr. Whitfield. Dental Surgeon: Mr. C. F. P. Baly. This hospital is now recognised by the Examining Board in England of the Royal Colleges of Physicians and Surgeons as a place of study during the fifth year of the Medical Curriculum. The hospital contains 159 beds, which are now all occupied. The large rectangular and circular wards, each of which contains 20 beds, the operation theatre, out-patient, general and special, and the pathological departments, have all been erected since 1887. They are specially designed with a view of offering the greatest facilities for clinical work, and contain all the most recent and approved hygienic and antiseptic requirements for the proper care of the sick and for the treatment of disease. Medical practitioners are cordially invited to see the general and special practice of the hospital. Clinical assistants (qualified), clinical clerks, and pathological clerks are appointed in the general and special departments and may receive certificates at the end of their terms of office. Further particulars from Peyton T. B. Beale, F.R.C.S., Honorary Secretary Medical Committee, 61, Grosvenor-street, W.

NEW HOSPITAL FOR WOMEN, 144, Euston-road, N.W.—Physicians for In-patients: Miss Cock, M.D., and Miss Walker, M.D. Surgeons for In-patients: Mrs. Scharlieb, M.D., M.S., and Mrs. Boyd, M.D. Physicians and Surgeons for Out-patients: Miss Webb, M.B., Miss Macdonald, M.B., and Miss Aldrich Blake, M.D., M.S. Children's Department: Mrs. Flemming, M.D. Ophthalmic Surgeon: Miss Ellaby, M.D. Assistant Physicians for Out-patients: Miss Vaughan, M.D., Miss Sturge, M.B., and Miss Thorne, M.D. Physician for Maternity Department: Miss Clapham, M.B. Anæsthetist: Mrs. Keith, L.R.C.P. A considerable number of the students hold posts in the New Hospital under the visiting staff, and in return for much valued clinic teaching they do the work assigned to students in th wards of a general hospital. Secretary: Miss M. Bagster.

LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W (Established 1873.)—Physicians: Dr. Fenwick, Dr. Parkinso and Dr. Addinsell. Surgeons: Dr. W. J. Collins, F.R.C S and Mr. H. J. Paterson, F.R.C.S. Dental Surgeon: Mr. Alexander. The hospital contains 110 beds. The in-patien in 1900 were 1282, and the out-patients and casualti numbered 22,339 new cases. The medical and surgic practice of the hospital is open to students and pract tioners. Special departments for Ophthalmology an Gynæcology. Operations: Mondays and Thursdays, 3.30 P. Classes will be held during the winter and summer sessio for students preparing for the final examinations at th Colleges and the Universities. Appointments, vacancies f which are advertised in the medical journals: Medical an Surgical Registrars and Pathologist; Resident Medical Office and Assistant Resident Medical Officer. For particula as to hospital practice and classes apply at the hospital t Dr. W. J. Collins.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPT (Albany Memorial), Queen-square, Bloomsbury.—The hos pital, with the Finchley branch, contains 200 beds and cot The physicians attend every Monday, Tuesday, Wednesda and Friday at 2 P M. In- and out-patient practice an electrical-room treatment at that hour. Physicians: Drs Hughlings Jackson, Buzzard, Bastian, Sir William Gower D. Ferrier, Ormerod (physicians for out-patients), Beevor Tooth, James Taylor, and J. S. Risien Russell. Assistan Physicians: Drs. Aldren Turner and Batten. Surgeons Messrs. Victor Horsley and C. A. Ballance. Ophthalmi Surgeon: Mr. Marcus Gunn. Aural Surgeon: Mr. A. E Cumberbatch. Laryngologist: Sir Felix Semon. Anæsthetist: Dr. R. T. Bakewell. Pathologist: Dr. Collier Registrar: Dr. F. Buzzard. House Physicians: Dr. Singe and Dr. Barnes. The hospital has been recognised b the Conjoint Board for England as a place where part o the fifth year may be devoted to clinical work All communications concerning clinical appointments, lectures and hospital practice should be addressed to the Secretar and Director at the hospital.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL AND MIDWIFERY TRAINING SCHOOL, Marylebone-road, N.W.—Consulting Physician: Dr. George B. Brodie. Consulting Surgeon: Sir William Mac Cormac. Physicians to In-patients: Dr. W. S. A. Griffith, Dr. W. Rivers Pollock, and Dr. W. J. Gow. Physicians to Out-patients: Dr. T. W. Eden, Dr. C. Hubert Roberts, and Dr. Arthur F. Stabb. This hospital, which has been recently again enlarged and in which many important improvements have been carried out, receives 1200 patients annually, besides having a large out-patient department. Medical pupils are received at all times of the year. Pupils have unusual opportunities of seeing obstetric complications and operative midwifery, on account of the very large number of primiparous cases — nearly three-fourths of the total admissions. Clinical instruction is given on the more important cases which present themselves. Certificates of attendance at this hospital are recognised by all Universities, Colleges, and licensing bodies. Pupil midwives and monthly nurses are received and specially trained. Fees: Medical Students, £8 8s. for four weeks; Qualified Medical Practitioners £8 8s. for four weeks. Pupil Midwives, £26 5s for three months (including board and lodging); Pupil Nurses, £15 15s. for twelve weeks (including board and lodging). The new residence for students and qualified practitioners is opposite the hospital, with which it is in telephonic communication. Terms for residence and full board 35s. per week. For further particulars application should be made to Mr. Arthur Watts, Secretary, at the hospital.

THE SEAMEN'S HOSPITAL SOCIETY.—There are two hospitals—the *Dreadnought* Hospital at Greenwich (225 beds) and the Branch Hospital in the Royal Victoria and Albert Docks, E. (50 beds). There are also two Dispensaries, one in the East India Dock-road and the other at Gravesend, which supply patients to the hospitals. The London School of Tropical Medicine, with its laboratories, museum, library, &c, is within the grounds of the Branch Hospital. Honorary medical staff of the hospitals:—Consulting Physician: Dr. Robert Barnes. Consulting Surgeon: Mr. W. Fowler. Physicians: Dr. P. Manson, C M.G., F.R S., Dr. R. Tanner Hewlett, Dr. Guthrie Rankin, Dr. Andrew Duncan. Physician to Out-patients: Dr. Oswald Baker. Surgeons: Mr. W. Johnson Smith, Mr. William Turner, Mr. James Cantlie. Surgeon to Out-patients: Mr. J. Brian Christopherson. Ophthalmic Surgeon: Mr. L. Vernon Cargill. Dental Surgeons: Mr. Kenneth W. Goadby and Mr. J. Warburton Brown. The lecturers in the school are Dr. P. Manson, C M.G., F.R.S., Dr. Andrew Duncan, Dr. Oswald Baker. Dr. L. Westenra Sambon, Dr. J. Galloway, Dr. R. Tanner Hewlett, Mr James Cantlie, Mr. E. Treacher Collins, and Dr. W. J. Simpson. Appointments.—There is a House Physician and a House Surgeon at the *Dreadnought* Hospital, Greenwich, a Senior House Surgeon and House Surgeon at the Branch Hospital, and a Surgeon at each of the Dispensaries. The pay of these officers varies from £50 to £100. Scholarships — The Craggs Research Scholarship of £300 per annum was awarded last year to Mr. G. C. Low. Opportunities are afforded to Medical Graduates who may be desirous of studying Diseases Incidental to Tropical Climates and also Practical Surgery before entering the services or going abroad. In the hospitals of the Society are to be found cases of tropical disease such as may be met with in actual practice in the tropics. There are three courses in the year, each lasting three months, the first beginning Oct 1st. Certificates are granted after examination to those who complete a full course. Resident chambers are available for students who must be post graduates or in the fifth year of their medical studies. The School is under the auspices of His Majesty's Government. Over 140 students have passed through the school since its opening in October, 1899. A free register is maintained at the School, giving the names of gentlemen qualified to take duty as medical officers in the tropics. For terms apply to the Secretary, Mr. P. Michelli, Seamen's Hospital, Greenwich, S.E

THE HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C., contains 200 beds, divided into 102 medical, 73 surgical, and 25 for special and infectious cases, besides 52 beds at the convalescent branch, Highgate. The hospital having been recognised by the Conjoint Board for England as a place where, under the new curriculum, six months of the fifth year may be spent in clinical work, the practice is arranged to meet this need and is open to students who have completed four years of medical study and also to qualified medical men. Appointments are made every three months to six medical clerkships and six surgical clerkships, which are open to students of the hospital. Lectures or demonstrations are given once or twice every week during both winter and summer sessions, which qualified practitioners are invited to attend free of charge. The sessions are of ten weeks' duration, and begin in October, January, and March. Fees for hospital practice, three months, 2 guineas; perpetual, 3 guineas. Prospectuses and further information will be forwarded on application to the Secretary, Mr. Adrian Hope, at the hospital.

Staff.—Consulting Physicians: Dr. J W. H. Dickinson, Dr. W. B Cheadle, and Sir Thomas Barlow. Physicians: Dr. David B Lees, Dr. Francis G. Penrose, Dr. A. E Garrod, and Dr. A. F. Voelcker. Assistant Physicians: Dr. W. S Colman, Dr. F. E Batten, Dr. G F. Still, Dr. F. J. Poynton, and Dr. Robert Hutchinson. Consulting Surgeons: Sir Thomas Smith, Bart, Mr. Howard Marsh, Mr. Edmund Owen, and Mr. John Morgan. Surgeons: Mr. Bernard Pitts, Mr. W. Arbuthnot Lane, and Mr Charles A. Ballance. Assistant Surgeons: Mr. Thomas H Kellock, Mr. H. Stansfield Collier, and Mr. Francis J. Steward. Ophthalmic Surgeon: Mr. W. T. Lister. Aural Surgeon: Mr. Thomas H Kellock. Surgeon-Dentist: Mr. Alexander Cartwright Local Medical Officer for Cromwell House: Dr. A. M. Anderson. Medical Registrar and Pathologist: Dr Hugh Thursfield. Surgical Registrar: Dr. Lewis Wallace Anæsthetist: Dr R. T. Bakewell. Resident Medical Superintendent; Dr. H. A. T. Fairbank. Secretary: Mr. Adrian Hope. Assistant Secretary: Mr. James McKay.

ROYAL LONDON OPHTHALMIC HOSPITAL (Moorfields, 1804-1899), City-road, E C.—138 beds. This hospital, known as Moorfields Eye Hospital, was moved in 1899 to new and larger buildings in City-road. In 1900 there were 1841 in-patients, the out-patients were 36,932, and the attendances were 99,821. Operations are performed daily from 10 A M. to 1 P M., and four surgeons attend on each day. Students are admitted to the practice of the Hospital. Fee for six months, £3 3s.; perpetual, £5 5s. Courses of instruction on the following subjects are given at the Hospital periodically: (1) the use of the ophthalmoscope; (2) errors of refraction; (3) external diseases of the eye; and (4) surgical anatomy of the eye. Systematic instruction is also given in the laboratory of the hospital on the pathology of the eye. Perpetual students are admitted to the lectures free Students of the hospital are eligible for the offices of house surgeon or clinical and junior assistants Junior assistants are appointed every three months. Any further information will be furnished by Mr. Robert J Bland, Secretary.

Staff.—Physicians: Dr. S Mackenzie and Dr. J. Taylor. Consulting Surgeons: Mr J Hutchinson, Mr. G Lawson, Mr. J Couper, and Mr. E Nettleship Surgeons: Mr. W. Tay: Mr. J Tweedy, Mr. R M. Gunn, Mr. W. Lang, Mr. A. Q. Silcock, Mr. J. B. Lawford, and Mr. A S. Morton. Assistant Surgeons: Mr. E T. Collins and Mr. W. T. H. Spicer House Surgeons: Mr. D N. Maclennan and Mr. W. E. Smith Curator and Registrar: Mr. C D. Marshall.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, King William-street, West Strand —The hospital contains 36 beds Patients, who number 11,000 annually, are seen at 1 P.M., and operations performed daily at 2 P M. The following are the days of attendance of the surgeons: Mr. Hartridge and Mr. Grimsdale, Mondays and Thursdays; Mr Frost and Mr Roll, Tuesdays and Fridays; and Mr. Dodd and Mr. Griffith, Wednesdays and Saturdays. The practice of the hospital is open to practitioners and students Fees for six months, £3 3s.; perpetual, £5 5s. Students of the hospital are eligible for the post of house surgeon and clinical assistant Special demonstrations and lectures will be given during the session, commencing in October; for details see weekly journals. Clinical Assistants (who must be duly qualified) to the Surgeons are appointed for periods of six months. Secretary: Mr. T. Beattie-Campbell.

ROYAL EYE HOSPITAL, St. George's circus, Southwark, S E —There are 40 beds and 2 cots. There were upwards of 54,507 attendances in the Out-patient Department last year, and the new patients number over 18 000 yearly. Operations are performed and out-patients are seen daily at 9 A M. and 2 P M The following are the days of attendance:—Afternoons: Mr. M. M. McHardy, Tuesdays and Thursdays; Dr W. J. Collins, Mondays and Wednesdays; Mr. L V. Cargill, Tuesdays and Saturdays; and Mr. R. Doyne, Mondays and Fridays. Mornings: Mr. E Brooksbank James, Mondays, Wednesdays, and Fridays; Mr. A W. Ormond, Tuesdays, Thursdays, and Saturdays Qualified practitioners and students are admitted to the practice of the hospital upon the recommendation of the medical staff. Tuition is given daily in the out-patient department, beginning at 2 P.M. The students need not necessarily possess a registrable qualification. They work under the guidance of the surgeons and clinical assistants, and may become eligible for clinical assistantship, house-surgeonship, and registrarship, as vacancies arise. Fees: £2 2*s*. for 3 months, £3 3*s*. for 6 months, and £5 5*s*. perpetual. Qualified students of the hospital are eligible for the offices of registrar and house surgeon, and may be appointed clinical assistants upon the recommendation of the medical staff for a term of 6 months, and are eligible for re-election. Courses are held on Ophthalmoscopy, Refraction and Diseases of the Eye, fee, £1 1*s*. for each course, but perpetual students may attend each course once without extra fee. Pathology Class, £1 1*s*. extra to cover cost of materials. Tutorial or coaching classes for the various examinations arranged as far as possible to suit candidates. The classes will begin in October, if there are sufficient applications.

CENTRAL LONDON OPHTHALMIC HOSPITAL, Gray's Inn-road, W.C.—This hospital has 28 beds and possesses facilities for clinical teaching daily. Classes of instruction in the use of the Ophthalmoscope and in the measurement and correction of Errors of Refraction will be given on Thursdays, commencing October (see advertisement).

Staff.—Consulting Physician: Sir D. Duckworth. Surgeons: Mr. T. B. Archer, Mr. Ernest Clarke, and Mr. A. P. L. Wells. Assistant Surgeons: Mr. H. Parker, Mr. M. N. Maclehose, and Mr. W. T. Lister. Physician: Mr. Charles O. Hawthorne. House Surgeon: Mr. A. Duncan, Dentist: Mr. E. P. May. Secretary: Mr. J. N. Bryant.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, Leicester-square, W.C.—The out-patient practice is open to the medical profession at the following times: Every day, from 2 to 4 P.M., and every evening (except Saturday) 6 to 8. Specially selected Clinical Demonstrations, also demonstrations on the different diseases presenting themselves in the out-patient department, followed by Lectures, will also be given.

Staff.—Consulting Surgeons: Dr. F. R. Heycock. Surgeons: Mr. F. S. Edwards, Mr. E. H. Fenwick, Mr. R. Harrison, and Mr. P. J. Freyer. Resident Medical Officer: Mr. I. Hunter. Secretary: Mr. I. H. Beattie.

ST. PETER'S HOSPITAL FOR STONE AND URINARY DISEASES, Henrietta-street, Covent-garden. Established 1860. New Hospital opened, 1882.—Honorary Surgeons: Mr. F. Swinford Edwards, Mr. E. Hurry Fenwick, Mr. Reginald Harrison, and Mr. P. J. Freyer. Pathologist: Mr. E. Hurry Fenwick. The hospital contains 24 beds for men, 2 beds for women, and 1 private ward. Consultations are held and operations are performed each Wednesday and Friday at 2 P.M. Medical practitioners and students are invited to the clinical instructions which are given in the wards and out-patient department daily, and to the operations in the theatre on Wednesdays and Fridays at 2 P.M. Average beds occupied daily, 20; average out-patients seen daily, 100.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Glamis-road, Shadwell, E.—Physicians: Dr. Eustace Smith, Dr. J. A. Coutts, Dr. Dawson Williams, and Dr. T. H. Arnold Chaplin. Surgeons: Mr. R. W. Parker, Mr. L. A. Dunn, and Mr. H. Betham Robinson. Assistant Physicians: Dr. Morley Fletcher, Dr. E. Graham Little, and Dr. A. M. Gossage. Assistant Surgeon: Mr. Cuthbert S. Wallace. Pathologist and Registrar: Dr. Clive Riviere. Medical Officer for the Casualty Department: Mr. Kenneth R. Hay. Resident Medical Officer: Dr. Percy S. Blaker. House Physician: Mr. E. W. Fairfax. House Surgeon: Mr. Leslie Kingsford. Secretary: Mr. Thomas Hayes. The hospital maintains 107 cots, and on an average 259 out-patients are seen daily. Clinical instruction is given by the physicians and surgeons to the hospital, which is recognised by the Conjoint Board for England as a school of medical teaching for students in the fifth year of the curriculum. All particulars may be obtained on application to the Secretary. Two clinical clerkships for qualified or unqualified students are open every three months, subject to re-appointment if desired. Clinical assistants (qualified men only) are from time to time appointed in the out-patient department. Any additional information may be obtained on applying to Mr. H. Betham Robinson or to Mr. Thomas Hayes, the Secretary.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark-bridge-road, S.E.—Consulting Physicians: Dr. W. S. Playfair, Dr. J. F. Goodhart, and Dr. Frederick Taylor. Physicians: Drs. Nestor Tirard and Frederick Willcocks. Physicians to Out-patients: Drs. George Carpenter and W. Soltau Fenwick. Consulting Surgeons: Messrs. H. G. Howse, R. Clement Lucas, and F. S. Eve. Surgeons: Messrs. A. H. Tubby and F. C. Abbott. Surgeons to Out-patients: Messrs. Walter Edmonds and C. H. Fagge. Dental Surgeon: Mr. R. Denison Pedley. Senior Resident Medical Officer: Mr G. A. Roberts.

VICTORIA HOSPITAL FOR CHILDREN, Chelsea, S.W.—The hospital contains 42 beds (18 beds were taken out as a precaution against infection by increasing superficial area) and has a large out-patient department (over 1000 weekly); the home at Broadstairs has 50 beds. Consulting Physicians: Sir Wm. Broadbent, Bart., Sir Francis Laking, and Dr. Ridge Jones. Consulting Surgeons: Mr. Cowell and Mr. Pickering Pick. Physicians: Drs. Montague Murray, Walter Carr, Humphry D. Rolleston, William Cecil Bosanquet, F. Whittaker Tunnicliffe, and William James Fenton. Surgeons: Messrs. D'Arcy Power and Raymond Johnson. Surgeons to the Out-patients: Messrs. H. F. Waterhouse and Rupert H. Bucknall. Ophthalmic Surgeon: Mr. C. Devereux Marshall. Dental Surgeon: Mr. O. E. Wallis. Anæsthetists: Dr. Paul Frank Moline, Dr. C. J. Harrison, and Dr. Corbould. House Surgeon: Mr. D. D. Turner. House Physicians: Drs. A. E. Craven and G. O. Lambert. Secretary: Mr. H. G. Evered. Out-patients are seen as under:—Medical and Surgical Cases: Mondays and Thursdays, 9.30 A.M. and 1.30 P.M.; Thursdays and Fridays, 1.30 P.M.; Wednesdays, 9.30 A.M. Dental Cases: Saturdays, at 9 A.M

WEST LONDON HOSPITAL, Hammersmith-road, W.—This hospital has 160 beds, all of which are at present in use About 2050 in-patients and 32,000 out-patients, whose attendances number 75,000, are treated annually. Physicians: Drs D. W. C. Hood, F. G. D. Drewitt, and Seymour Taylor Physician for Diseases of Women: Dr. J. A. Mansell Moullin Surgeons: Messrs. C. B. Keetley, F. Swinford Edwards, and S. Paget. Surgeon (with charge of out-patients): Mr. L. A Bidwell. Surgeon for Diseases of the Eye: Mr. H. P Dunn. Assistant Physicians: Drs. A. P. Beddard, E. A. Saunders, and H. Davis. Assistant Physician for Diseases of Women: Dr. G. H. Drummond Robinson. Assistant Surgeons: W. McAdam Eccles and Mr. A. Baldwin. Surgeon-Dentist: Mr. H. Lloyd Williams. Physician-in-Charge of Throat and Nose and Aural Department: Dr. J. B. Ball Surgeon-in-Charge of Orthopædic Department: Mr. C. B. Keetley. Pathologist: Mr. E. A. Saunders. Dermatologist: Dr. P. S. Abraham. Administrators of Anæsthetics: Messrs. T. Gunton Alderton and Rickard W. Lloyd. Assistant Administrator of Anæsthetics: Messrs E. W. Lewis and G. P. Shuter. Electrician: Dr. H. Davis. Secretary: Mr. R. J. Gilbert. Attached to the hospital is the West London Post-graduate College. The practice of the Hospital is reserved exclusively for qualified men, no junior students being admitted. Instruction is given in the medical and surgical out-patient rooms daily, and demonstrations are given in the wards on certain fixed days. Post-graduate lectures and demonstrations are given daily except Saturdays; notice of the commencement of each course is advertised in the medical journals. Special Classes are held in Diseases of the Throat and Nose, Skin, Ear, and in Anæsthetics. The accommodation for post-graduates consists of a large lecture room together with reading and writing rooms, &c. The hospital has a fully-equipped pathological laboratory at which instruction can be given in elementary bacteriology. The fees for hospital practice, including lectures, are £3 3*s*. for 3 months or £7 7*s*. for one year. The certificate of the hospital is accepted by the Admiralty and War Office in cases of study leave. Further information can be obtained on application to the Dean Mr. L. A. Bidwell, at the hospital.

NORTH-EASTERN HOSPITAL FOR CHILDREN, Hackney-road, Bethnal-green, N.E. For the sick children of the poor under 12 years of age. Established 1867. City Offices: 27, Clement's-lane, E.C—57 beds. During the past year 778 in-patients and 18,264 out-patients (representing 62 931 attendances) were relieved, 232 of the in-patients being under two years of age. Consulting Physicians: Drs. A. E. Sansom, W. Cayley, F. C. Turner, and W. Pasteur. Consulting Surgeons: Messrs. Jonathan Hutchinson, Waren Tay, R. J. Godlee, Bilton Pollard, and H. Percy Dean. Physicians: Drs. W. A. Wills, James Taylor, J. H. Sequeira, and J. Porter Parkinson. Surgeons: Messrs. A. B. Roxburgh and Douglas Drew. Ophthalmic Surgeon: Mr. Sydney Stephenson (Wednesday, 9.30 A.M.). Dental Surgeon: Mr. John W. Pare (Tuesday, 9.30 A.M., and Friday, 2.30 P.M.). Matron: Miss E. W. Curno. Secretary: Mr. T.

Glenton-Kerr. The surgeons attend on Wednesdays and Saturdays at 2 P.M.; the physicians daily at 2 P.M. Applications for permission to attend the practice of the hospital should be addressed to the secretary.

NORTH-WEST LONDON HOSPITAL, Kentish Town-road.—Consulting Physician: Dr. Donald W. C. Hood. Physician: Dr. Harry Campbell. Surgeon: Mr. Frederic Durham. Assistant Physicians: Drs. W. Knowsley Sibley, G. A. Sutherland, and [vacant]. Assistant Surgeons: Messrs. M. P. Mayo Collier, J. Jackson Clarke, and George Templeton. Physician for Diseases of the Skin: Dr. J. Herbert Stowers. Obstetric Physician: Dr. John Shaw. Ophthalmic Surgeon: Dr. W. J. Collins. Dental Surgeon: Mr. G. Russell. The hospital, which was established in 1878, provides 53 beds. The average number occupied last year was 48. It is a general hospital. There are two spacious wards for men and women respectively. The children's wards contain 18 cots. There are two Resident Medical Officers—an honorarium at the rate of £50 per annum attaches to each post. Operation day, Thursday at 2 30 o'clock. Further particulars from the secretary at the hospital.

PROVINCIAL MEDICAL SCHOOLS AND HOSPITALS HAVING SPECIAL CLASSES AND FACILITIES FOR CLINICAL STUDY.[1]

THE UNIVERSITY OF BIRMINGHAM (FACULTY OF MEDICINE).—An Ingleby Scholarship is annually awarded to the candidate obtaining highest marks in Obstetric Medicine and Surgery and *Diseases* of Women and Children at the final M.B. examination. One or more Sydenham Scholarships are offered annually of the value of 40 guineas each. The orphan sons of former students of the Birmingham Medical School have priority of election. No Sydenham scholars are elected whose age exceeds 23 years on the day of election. The Scholarships are held for three years, subject to good behaviour. A Sands Cox Scholarship is offered annually of the value of 40 guineas. It may be held for three years, one-third being paid each year, subject to good behaviour. Queen's Scholarships of the value of £10 10*s.* are awarded at the end of the University examinations. The Russell Memorial Prize is awarded annually after examination in Nervous Diseases. There are Faculties of Arts, Science, and Medicine. The medical courses qualify for the diplomas of all Licensing Bodies and for the degrees in Medicine and Surgery of British Universities The Dental School, in conjunction with the General, Queen's, and Dental Hospitals, affords a complete curriculum for all Dental diplomas. The Library contains upwards of 25 000 volumes. Syllabuses containing full information as to the various courses of instruction, lecture days and hours, fees, scholarships, &c., will be forwarded on application to the Dean of the Medical Faculty. The Medical Session opens on Oct. 1st. There are no changes in the staff.

THE GENERAL AND QUEEN'S HOSPITALS, BIRMINGHAM.—The practices of these hospitals are amalgamated for the purpose of Clinical Instruction under the direction of the Birmingham Clinical Board by whom all schedules will be signed and all examinations conducted. The hospitals have a total of upwards of 450 beds. 7000 in-patients and 90 000 out-patients are treated annually. The following appointments are open to past students. At the General Hospital: two resident medical officers, salary £70 a year (a degree in medicine is necessary); one resident surgical officer, salary £100 a year; one resident pathologist, salary £100 a year; two non-resident casualty assistant physicians, salary £50 a year; two non-resident surgical casualty officers, salary £50 a year; two non-resident anæsthetists, salary £50 a year; four house surgeons, office tenable for six months without salary; two assistant house physicians, tenable for six months without salary; one resident medical officer at the Jaffray Branch Hospital salary £150 a year; and one resident assistant at the Jaffray Hospital (post vacant early in April, July, October, and January, tenable for three months) At the Queen's Hospital in connexion with the Birmingham University: three qualified house physicians (posts vacant in March, September, and December, tenable for 12 months at a salary of £50); three qualified house surgeons (posts vacant in March, September, and December, tenable for 12 *months at a salary of £50); one qualified obstetric* and ophthalmic house surgeon (post vacant in March and September, tenable for six months), salary £20; and one unqualified resident dresser (post vacant on the first day of January, April, July, and October, tenable for three months).

Staff of General Hospital: Consulting Physicians: Sir W. Foster and Sir W. Wade. Physician: Dr. E. Rickards, Dr. R. Saundby, Dr. R. M. Simon, and Dr. S. Wilson. Surgeons: Mr T. F. Chavasse, Mr. G. Barling, Mr. W. F. Haslam, and Mr. G. Heaton. Obstetric Physician: Dr. E. Malins. Ophthalmic Surgeon: Mr. D. C. Lloyd-Owen. Assistant Physicians: Dr. T. S. Short and Dr. J. W. Russell. Assistant Surgeons: Mr. A. Lucas and Mr. L. P. Gamgee. Assistant Obstetric Physician: Dr. T. Wilson. Anæsthetists: Dr. S. Haynes and Dr. W. J. McCardie. Casualty Assistant Physicians: Dr. J R. Charles and Dr. S. H. Perry. Surgical Casualty Officers: Mr. A. D. Heath and Mr. A. P. Satchell. Dental Surgeon: Mr. D. Whittles. Surgical Radiographer: Dr. F. Hall Edwards.

Staff of Queen's Hospital.—Consulting Physicians: Sir J. Sawyer and Dr. Suckling. Consulting Surgeons: Mr. F. Jordan and Mr J. St. S. Wilders. Physicians: Dr. Carter, Dr. Foxwell, and Dr. Kauffmann. Surgeons: Mr. B. May, Mr. J. Lloyd, and Mr. F. Marsh. Ophthalmic Surgeon: Mr. Priestley Smith. Obstetric Officer: Dr. Purslow. Physician for Out-patients and Pathologist: Dr. Stanley. Casualty Surgeons: Mr. J. T. J. Morrison, Mr. J. H. Clayton, and Mr. C. A. L. Green. Assistant Ophthalmic Surgeon: Mr. Wilfred Allport.

UNIVERSITY COLLEGE, BRISTOL (FACULTY OF MEDICINE).—It is now arranged that Students of the College shall be admitted to the Clinical Practice of the Bristol Royal Infirmary and the *Bristol General Hospital conjointly* and consequently both these institutions are open to all Students. The Infirmary and the Hospital comprise between them a total of 470 beds; and both have very extensive out-patient departments, special departments for the Diseases of Women and *Children*, and of the *Eye*, Ear, and Throat, besides large outdoor Maternity Departments and Dental Departments. Students may also attend the practice of the Bristol Royal Hospital for Sick Children and Women, containing 104 beds, and that of the Bristol Eye Hospital, with 28 beds. The total number of beds available for clinical instruction is 602. Very exceptional facilities are thus offered to Students for obtaining a wide and thorough acquaintance with all branches of Medical and Surgical work. Each Student has the opportunity of personally studying a large number of cases and of acquiring practical skill in diagnosis and treatment.

Courses of Lectures.—Medicine: Professors E. Markham Skerritt, M.D. Lond, B S, B A, F.R.C P., and J. E. Shaw, M B, C.M. Surgery: Professors C A Morton, F.R.C S., and James Swain, M D., M S. Lond., F R.C S. Anatomy: Professor Edward Fawcett, M B. C.M. Edin. Practical Anatomy: Demonstrators, Dr. J. O. Symes and Mr. T. Carwardine. Physiology and Histology: Professor A. F. Stanley Kent, M.A., F.L S., F.G.S. Chemistry: Lecturer, Professor Sydney Young, D Sc., F.R S. Public Health: Lecturer, Dr. D. S. Davies. Midwifery and Diseases of Women: (Vacant). Medical Jurisprudence: Lecturers, Dr. R. Eager and Dr. G. Parker. Pathology and Morbid Anatomy: Professor J. Michell Clarke. Operative Surgery: Lecturer, Mr. J. Paul Bush. Practical Medicine: Lecturer, Dr. J. E. Shaw. Practical Surgery: Lecturer, Dr. R. G. Poole Lansdown. Practical Midwifery: Lecturer, Dr. W. C. Swayne. Materia Medica and Practical Pharmacy and Pharmacology and Therapeutics: Lecturer, *Dr. A. B. Prowse.* Biology: Lecturer Professor S H. Reynolds. Practical Chemistry: Lecturer, Professor Sydney Young. Practical Bacteriology: Lecturer, Professor A F. Stanley Kent, M.A., F.L.S., F.G S. Comparative Anatomy: Lecturer, Professor C. Lloyd Morgan, F.R.S. Dental Anatomy and Physiology: Lecturer, Professor A. F. Stanley Kent, M.A. F.L.S., F.G S. Dental Surgery: Lecturer, Mr. W. R. Ackland. Dental Mechanics and Dental Metallurgy: Lecturer, Dr. C. A. Hayman. Composition fee for lectures, 65 guineas or 55 guineas. Composi*tion fee for Dental Lectures, 55 guineas.* Special six months' course for Diploma in Public Health. 1. Lectures on Public Health: Dr. D. S. Davies. 2. Bacteriology: Professor A. F. Stanley Kent, M.A., F.L.S., F.G.S. 3. Laboratory Course of Hygienic Chemistry: Mr. F. W. Stoddart. 4. Demonstrations on the Various Acts, Orders, By-laws, &c.: Mr. J. C. Heaven. 5. Practical Outdoor Sanitary Work: Dr. D. S. Davies. Fee for the entire course 30 guineas.

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[1] For Scholarships see page 693 et seq.

ROYAL INFIRMARY, BRISTOL (Established 1735).—270 beds. Honorary and Consulting Physicians: Dr E. Long Fox and Dr. W. H. Spencer. Honorary and Consulting Surgeon: Mr. E. C. Board Honorary and Consulting Ophthalmic Surgeon: Mr. F. Richardson Cross Physicians: Dr. R. Shingleton Smith, Dr. Henry Waldo, Dr. J. E Shaw, and Dr. Arthur B. Prowse. Surgeons: Mr. A. W. Prichard, Mr. W. H. Harsant Mr. J. Paul Bush, and Mr. G. Munro Smith. Ophthalmic Surgeon: Dr. Ogilvy. Obstetric Physician: Dr. Walter C. Swayne Dental Surgeon: Mr. W R. Ackland. Assistant Physicians: Dr. P Watson Williams and Dr. F. H. Edgeworth Assistant Surgeons: Dr. James Swain and Mr. T. Carwardine. Pathologist: Dr Theodore Fisher Bacteriologist: Professor A. F. Stanley Kent, M.A. Skiagraphist: Mr. James Taylor. House Surgeon: Mr. H. F. Mole. House Physician: Dr. E. H E. Stack. Resident Obstetric Officer: Mr F. A. Coates. Anæsthetist and Junior House Surgeon: Mr. E. C Mackay. Casualty Officer: Mr. H. E. G. Boyle.

BRISTOL GENERAL HOSPITAL —Honorary and Consulting Surgeons: Mr. Robert W. Cue, Dr George F. Atchley, Mr. Nelson C. Dobson, and Mr. F. Poole Lansdown. Honorary and Consulting Physician Accoucheurs: Drs. Joseph G. Swayne and A. E. Aust Lawrence. Physicians: Drs E. Markham Skerritt, Alfred J. Harrison, and J. Michell Clarke. Surgeons: Messrs. Charles F. Pickering, W. M. Barclay, and C. A. Morton and Dr. R. G. Poole Lansdown. Physician Accoucheur: Dr. W. H C. Newnham. Physician to the Throat and Nose: Dr. Barclay J. Baron Ophthalmic Surgeon: Mr. Cyril H. Walker. Assistant Physicians: Dr. George Parker and Dr. J. O. Symes. Assistant Surgeon: Dr J. Lacy Firth Assistant Physician Accoucheur: Mr. F. C. Rayner. Anæsthetist: Mr. J. Freeman. Dental Surgeon: Mr T. Taylor Genge. Pathologists: Dr. J. Michell Clarke and Dr. J. Lacy Firth. Bacteriologist: Dr. J. O. Symes. House Surgeon: Mr. H. P. Kyle. Assistant House Physician: Mr. A. F. Martin. Assistant House Surgeon: Mr. S. R. Williams. Casualty House Surgeon: Mr. J. W. Malim.

Clinical Scholarships and Prizes.—These are open for competition only to "Perpetual" Clinical Students. 1. Open Scholarships and Prizes:—(*a*) University Entrance Scholarship of £50 and Haberfield Entrance Scholarship of £27 10*s*. (*b*) Tibbitts Surgical Prize, £9 9*s*.; and two Martyn Pathological Prizes of £10 each. (*c*) A Gold Medal and a Silver Medal given by the Committees of the two institutions. 2. Restricted to students who have done the necessary qualifying work at the Bristol Royal Infirmary: Suple Medical Prize (consisting of a Gold Medal, value 5 guineas, and 7 guineas in money); Suple Surgical Prize (consisting of a Gold Medal, value 5 guineas, and 7 guineas in money); Clark Prize, value £11 11*s*.; Crosby Leonard Prize in Clinical Surgery, value £7 7*s*; and Augustin Prichard Prize in Surgical Anatomy, value £7 7*s*. 3. Restricted to students who have done the necessary qualifying work at the Bristol General Hospital:—Clarke Scholarship, a surgical scholarship of the value of £15; Sanders Scholarship a scholarship of the value of £22 10*s*.; and the Marshall Prize, value about £10.

Resident Appointments.—There are five resident appointments at the Infirmary and four in the Hospital, and the Dressers reside in rotation, free of expense. The Maternity students also have rooms provided in the institutions.

Fees.—Medical Practice: three months, 4 guineas; six months, 7 guineas; one year, 12 guineas; perpetual, 20 guineas. Surgical Practice: three months, 4 guineas; six months, 7 guineas; one year, 12 guineas; perpetual, 20 guineas. Medical and Surgical Practice together in one payment: six months, 12 guineas; one year, 20 guineas; perpetual, 35 guineas. Dental Surgical Practice: one year, 7 guineas; perpetual, 12 guineas. The above fees include Clinical Lectures. Clinical Clerkship: 5 guineas for six months. Dressership: 5 guineas for six months. Museum fee: 3 guineas (composition on entrance), or 1 guinea annually. Dispensing Fee: 2 guineas. Students from other schools or qualified medical men wishing to attend Clinical Practice for short periods and not requiring certificates for such attendance may do so for the following fees:—Medical and Surgical Practice conjointly: one month, 2 guineas; two months, 3 guineas; three months, 4 guineas; and six months, 7 guineas.

Further information may be obtained on application to the Dean of the Faculty.

OXFORD: RADCLIFFE INFIRMARY.—At this infirmary instruction is given in connexion with the Oxford University Medical School. Clinical lectures are given by the Lichfield Clinical Lecturers in Medicine and Surgery. Also tutorial instruction and demonstrations are given in special Regional Anatomy (medical and surgical), methods of Medical Diagnosis, and Surgical Manipulation. Demonstrations of Elementary Pathology are given in the post-mortem room and at the Pathological department of the museum by the Regius Professor of Medicine or his Deputy. Practical Pharmacy is taught in the Infirmary Dispensary. The whole course of study at the museum and infirmary combined is intended for students until they have passed the Second Conjoint Examination or the First Oxford M.B. The infirmary contains 146 beds.

CAMBRIDGE: ADDENBROOKE'S HOSPITAL.—Clinical Lectures in Medicine and Surgery, in connexion with Cambridge University Medical School, are delivered at this hospital twice a week during the academical year; and practical instruction in Medicine and Surgery in the wards and out-patients' rooms is given by the physicians and surgeons daily, during the vacations as well as term-time. Instruction is also given in the special methods of medical and surgical investigation. Clinical Clerks and Dressers are selected from students according to merit and without payment. The composition fee for pupilship is 8 guineas.

UNIVERSITY COLLEGE, CARDIFF, SCHOOL OF MEDICINE.—The winter session will commence on Monday, Oct. 7th. All classes are open to both men and women students who may spend three out of their five years of medical study at Cardiff. The courses of study are recognised as qualifying for the Preliminary Scientific and Intermediate Examination in Medicine in the University of London and for the corresponding examinations in the other Universities. Students who are preparing for these examinations may compound for their courses by paying a fee of £57 10*s*., while a composition fee of £40 includes all the necessary courses for the first and second examinations for the Diploma of the Conjoint Board. In all cases the composition fees may be paid by instalments. Hospital instruction is given at the Cardiff Infirmary. The attention of students about to matriculate is drawn to the numerous entrance scholarships and exhibitions, varying in value from £10 to £30 per annum, offered for competition at University College, Cardiff, in September next, most of which may be held by medical students. Full particulars of the examination for these may be obtained by application to the Registrar. In the department of Public Health recently established instruction is given qualifying for the D.P.H. examinations Further information may be obtained from Professor A. Francis Dixon, Dean of the Faculty of Medicine.

Lecturers.—Physics: Professor A. L. Selby. Chemistry: Professor C. M. Thompson. Biology: Professor W. N. Parker and Dr A. H. Trow. Anatomy: Professor A. F. Dixon. Physiology: Professor J. B. Haycraft. Materia Medica and Therapeutics: Dr. D R. Paterson. Bacteriology: Dr W. G. Savage. Public Health and Hygiene: Dr. E. Walford and Dr. W. Williams.

CARDIFF INFIRMARY.—*Staff:* Consulting Physicians: Dr. W. T. Edwards and Dr. W. Taylor. Physicians: Dr. C. T. Vachell and Dr. F. W. Evans. Surgeons: Mr. A. Sheen, Mr. T. Wallace, and Mr. P. R Griffiths. Assistant Physicians: Dr. H. R. Vachell, Dr. D. R. Paterson, and Dr. A. E. Taylor. Assistant Surgeons: Mr. A. W. Sheen, Mr. J. L Thomas, and Mr. H. G. Cook. Ophthalmic Surgeon: Mr. J. T. Thompson. Assistant Ophthalmic Surgeon: Mr. H. C. Ensor. Dental Surgeon: Mr. J. C. Oliver.

UNIVERSITY OF DURHAM COLLEGE OF MEDICINE, Newcastle-upon-Tyne.—The following Scholarships and Prizes are awarded annually:—Four University of Durham Scholarships, value £25, tenable for four years, for proficiency in Arts, awarded to full students in their first year. The Dickinson Scholarship, value interest of £400, and a Gold Medal, for Medicine, Surgery, Midwifery, and Pathology. The Tulloch Scholarship, value the interest of £400, for Anatomy, Physiology, and Chemistry. The Charlton Scholarship, value the interest of £700, for Medicine. The Gibb Scholarship, value the interest *of £500, for Pathology. The Goyder Memorial Scholarship* (at the Infirmary), value the interest of £325, for Clinical Medicine and Clinical Surgery. The Luke Armstrong Memorial Scholarship, value the interest of £680 for Comparative Pathology. The Stephen Scott Scholarship in Surgery, value the interest of £1000. Heath Scholarship: The late George Yeoman Heath, M.D., D.C.L., F.R.C.S., President of the University of Durham College of Medicine, bequeathed the sum of £4000 to found a Scholarship in Surgery, the interest to be awarded every second year; the next award will be in 1902. The Gibson Prize, interest on £225, in the department of Midwifery and Diseases of Women and Children. At the end of each session Prizes of Books are awarded in each of the regular classes. Assistant Demonstrators of Anatomy, receiving each an honorarium of £5, Prosectors, and Assistant Demonstrators of Physiology and Pathology are elected yearly. Pathological Assistants, Assistants to the Dental Surgeon, Assistants in the Eye Department, Throat and Ear Department, and Skin Department, Clinical Clerks, and Dressers are appointed every three months.

NEWCASTLE-UPON-TYNE ROYAL INFIRMARY.—Physicians: Drs. Drummond, Oliver, Limont, and Murray. *Assistant Physicians: Drs. Beattie and Bolam. Surgeons:* Dr. Hume, Mr. Rutherford Morison, Mr. Ridley, and Mr. Martin. Assistant Surgeons: Mr. H. B. Angus, Mr. J. V. W. Rutherford, Mr. Richardson, and Mr. Leech. Pathologist: Dr. Beattie. Dental Surgeon: Mr. R. L. Markham. Skin Department: Dr. Limont. Eye Department: Mr. Wardale. Throat and Ear Department: Mr. Ridley. Anæsthetist: Dr. W. D. Arnison. Surgical Registrars: Mr. John Clay and Mr. G. G. Turner. Psychological Out-patients: Dr. McDowall. The infirmary contains 280 beds. Clinical Lectures are delivered by the Physicians and Surgeons in rotation. Pathological Demonstrations are given by the Pathologist as opportunity offers. Practical Midwifery can be studied at the Newcastle Lying-in Hospital. Instruction is given in Psychological Medicine at the Northumberland County Asylum, Morpeth. A Special Course of Instruction is given in the City Hospital for *Infectious Diseases* by the Superintendent, the City Officer of Health, Mr. H. E. Armstrong.

LEEDS GENERAL INFIRMARY AND MEDICAL DEPARTMENT OF THE YORKSHIRE COLLEGE.—The Leeds General Infirmary has accommodation for 482 in-patients, medical and surgical, including 46 beds at a "semi-convalescent home" in the country. During the last year 6375 in-patients and 37,688 out-patients were treated. Clinical teaching takes place daily in the wards, and Clinical Lectures are given in Medicine and Surgery by the Physicians and Surgeons. There are Medical, Surgical, Ophthalmic, Aural, and Electrical Departments, in each of which special instruction is imparted to students A Gynæcological and Extern Obstetric Department, together with Laryngeal and Skin Clinics, are in operation. The Public Dispensary, the Hospital for Women and Children, the Fever Hospital, and the West Riding Lunatic Asylum are other medical institutions which are made use of by the Leeds students Five years ago the new buildings of the Medical School were opened by their Royal Highnesses the Duke and Duchess of York. Erected on a commanding site, close to the Infirmary, the new School of Medicine contains complete accommodation for the training of medical students upon the most approved modern methods. A very fine dissecting-room, extensive *laboratories for Physiology and Pathology*, with the most recent improvements in fittings and apparatus, ample lecture-room accommodation, a large Library, and separate Museums for Pathology and Anatomy—these are some of the most striking features of the new buildings. Careful provision for the convenience of students, in the shape of a common-room, a refectory, &c., has also been made a feature of the school. The classes in Systematic and Practical Chemistry, Physics and Biology, are held in the Science and Arts Department of the College, in College-road. Two Entrance Scholarships are offered: one, of the value of 64 guineas, covering admission to all requisite lectures; and the other, of the value of 40 guineas, covering the cost of admission to the medical and surgical practice of the infirmary. Several valuable prizes are given at the end of each session. The following appointments at the infirmary are annually open to students (for some of them, *however, a registered legal qualification is required*); senior and 5 junior anæsthetists, pathological curator, resident medical officer, resident surgical officer, resident casualty officer, resident ophthalmic officer, appointed for 12 months, and eligible for re-election; resident obstetric officer and 4 house surgeons, for 12 months; 3 house physicians, for six months; 30 physicians' clerks, for six months; 32 surgeons' dressers, for six months; 16 ophthalmic and aural surgeons' dressers, for three months; 12 gynæcological ward clerks, for three months; 16 gynæcological out-patient clerks, for three months; 24 assistant physicians' clerks, for three months; 24 assistant surgeons' dressers, for three months; 8 out-patient ophthalmic and aural dressers; 32 dressers in the casualty room, for three months; 32 post-mortem clerks, for three months.

There are appointments open to students in other medical institutions in the town and also in the West Riding Lunatic Asylum.

UNIVERSITY COLLEGE, LIVERPOOL (VICTORIA UNIVERSITY): MEDICAL FACULTY.—New medical buildings are at present in course of erection, comprising departments of Anatomy, Surgery, Anatomical Museum, and Laboratory and Lecture-room accommodation for the School of Dental Surgery, Materia Medica, Toxicology, &c. These adjoin the Physiological and Pathological Laboratories, which were recently built and equipped by the generosity of the Rev. S. A. Thompson-Yates at a cost of over £30,000. These laboratories include theatres for physiology and pathology, laboratories for Microscopic, Physical, and Chemical Physiology, for Morbid Anatomy, Bacteriology, and Chemical Pathology, special rooms for research, &c., private rooms, *students' common room, and lavatories. The Chemical* Laboratories have been extended so as to provide *inter alia* more complete accommodation for medical students and those engaged in laboratory work for diplomas in Public Health. The Chair of Hygiene has secured adequate permanent accommodation in Ashton Hall, an institute adjacent to the College which contains ample class-room and laboratory accommodation for study and research. The museums of Anatomy, Pathology, and Materia Medica are furnished with complete provision for the needs of students and have recently been reorganised and revised. The museum of Hygiene accommodated in Ashton Hall has been recently established on the lines of the Parkes Museum. It contains meteorological instruments and numerous models and specimens Under the supervision of the Professor of Hygiene a course of lectures on Sanitary Science is given during the winter suitable for candidates for sanitary inspectors' certificates.

Royal Infirmary.—The Royal Infirmary, which adjoins the School, contains 300 beds with 40 special beds for the treatment of Diseases of Women. The Lying-in, Eye and Ear, Women's, Children's, Dental, and Skin Hospitals are in the immediate vicinity and their practice is open to the students of the Medical Faculty.

Fees.—The composition fees are:—£24 15s. for Preliminary Scientific Classes; £60 for the Medical Classes *required for* the Victoria, London, and other University degrees; and £70 for all the classes required for the diplomas of the Conjoint Boards. The medical composition fees are payable in two instalments at intervals of 12 months. The fee for hospital attendance at the Royal Infirmary is 40 guineas, also payable in two annual instalments.

Appointments.—Four house surgeons, three house physicians, and one house surgeon to the Thornton Wards are appointed for six months after (if necessary) competitive examination. Candidates must have a legal qualification There are also one resident and one extra casualty officer. Clinical clerks for each physician, dressers for each surgeon, and clerks to the Thornton Wards for Diseases of Women are appointed every three months. Post-mortem clerks are appointed for six weeks; all students are required to perform this duty before the schedule for the Final Examination is signed.

Fellowships and Scholarships.—Fellowships, scholarship and prizes of over £600 are awarded annually. (*a*) A Holt Fellowship in Pathology and Surgery of the value of £100 for one year is awarded annually by the medical faculty to a senior student possessing a medical qualification. The successful candidate is required to devote a year to tutorial work and investigation in the pathological department. (*b*) A Holt Fellowship in Physiology is awarded under similar conditions of the value of £100 for one year. (*c*) A Robert Gee Fellowship in Anatomy, awarded under similar conditions, also of the value of £100 for one year. (*d*) An Alexander Fellowship for Research in Pathology of the annual value of £100, renewable. (*e*) A Johnston Colonial Fellowship in Pathology and Bacteriology (£100 a year, renewable). (*f*) A John W. Garrett International Fellowship in Physiology and Pathology (£100 a year, renewable). (*g*) Two Lyon-Jones Scholarships of the value of £21 each for two years are awarded annually—a junior scholarship, open at the end of the first year of study to Victoria University students, in the subjects of the First M.B. Examinations, and a senior scholarship, open to all students in the school at the end of the second or third year of study, on the subjects of Anatomy, Physiology, and Therapeutics. (*h*) The Derby Exhibition of £15 for one year is awarded in Clinical Medicine and Surgery in alternate years. Students may compete in their fourth and fifth years. In 1901 the subject will be Clinical Surgery. (*i*) The Torr Gold Medal in Anatomy and the George Holt medal in Physiology, the Fletcher prize in Physiology (£3 3*s*. in books), the Kanthack Medal in Pathology, the Robert Gee Book Prize, of the value of £5, for Children's Diseases, and numerous Class Prizes are awarded annually.

Entrance Scholarships.—Four Robert Gee Entrance Scholarships of the value each of £25 for one year are offered annually for competition. The holder is required to take out the Course for the University Degree in Medicine.

Communications should be addressed to the Dean, Professor Paterson, M.D., University College, Liverpool.

School of Dental Surgery.—A new mechanical laboratory has recently been erected at the Dental Hospital; it is adequately equipped with all modern appliances and is under the charge of a skilled mechanic. The fees for dental education are £50 (payable in two instalments) for the Medical School curriculum; £21 payable on entrance for two years' Dental Hospital practice; £10 10*s*. for General Hospital practice (two winters). A limited number of apprentices are taken at the hospital: fee (for three years), £105. Numerous scholarships and prizes are offered: (*a*) A Fletcher Scholarship of £21 in Mechanical Dentistry; (*b*) a Phillips Scholarship of £10 10*s*. in Dental Surgery; a Councell Prize for Dental Mechanics (£5 5*s*. in books); Ash's Essay Prize (£2 2*s*.), &c.

The School of Tropical Medicine, Liverpool.—The Liverpool School of Tropical Medicine, inaugurated in 1899, is managed by a committee of appointed representatives from University College, Liverpool, the Royal Southern Hospital, the Liverpool Chamber of Commerce, and the Steamship Owners' Association. Major Ronald Ross, F.R.S., late I.M.S., is the Superintendent and Lecturer in Tropical Medicine, and the school has already done excellent work in attempting to eradicate malaria in certain colonial stations.

Prospectuses and further information may be had on application to the Registrar, University College, Liverpool.

MEDICAL DEPARTMENT OF OWENS COLLEGE (VICTORIA UNIVERSITY).—This medical school is located in a large building, which forms a part of Owens College. It is provided with large dissecting-rooms, physiological laboratories, private laboratories, and work-rooms, besides lecture-rooms, a museum, and a library. In order to give the fullest possible opportunities for teaching and investigation in the departments of Anatomy, Physiology, Pathology, and Materia Medica, an extension of the school buildings has recently been made. The greater part of the new buildings is devoted to the departments of physiology, pathology, toxicology, anatomy, and public health. The physiological department occupies more than half of the new buildings, and includes a large lecture theatre, accommodating 350 students, with preparation and diagram rooms adjacent to it, and a research laboratory fitted with the necessary apparatus for the use of advanced students, research scholars, or practitioners of medicine undertaking the investigation of some special subject. In the new pathological laboratories ample provision is made for the teaching pathology and bacteriology and for the prosecution of original research. In the toxicological department there is a large laboratory, capable of accommodating 50 students, lighted from both sides and also from the roof, completely equipped with all that is necessary for the practical teaching of toxicology; also a small laboratory for private research, containing the apparatus and fittings necessary for investigations in toxicological chemistry. In the public health department suitable laboratory accommodation is provided for the study of sanitary chemistry, physics, and practical bacteriology in the departments of chemistry and physics and in that of pathology. A large room is provided in the new buildings for a museum of apparatus, models, plans, and other sanitary appliances for the practical instruction of the students, together with a special library of works on State medicine, hygiene, vital statistics, and sanitary engineering. In addition, a large lecture theatre for general purposes, accommodating 250 students, has been provided, and the existing accommodation for students is supplemented by the provision of a larger common room. The more strictly practical departments of medical study are taught partly in the Medical School and partly in the Royal Infirmary, as well as in a fever hospital, a lunatic asylum, and a convalescent home. Medical and Surgical Clinical Classes are conducted in the infirmary, and separate instruction is afforded in the elements of Medical and Surgical Physical Diagnosis, in Obstetric Medicine, Ophthalmic Surgery, and Pathological Anatomy by the different members of the staff of the Medical School and Infirmary. The following entrance scholarships are offered for award to persons of either sex proposing to enter a medical course of study at the College:—Seaton.—One of £40, tenable for two years. Subjects: Greek and Latin Translation at sight, and Prose Composition. Credit given for knowledge of Mathematics (Geometry and Algebra); Elements of English Language, Literature, and History; French and German. Rogers.—One of £40, tenable for two years. Subjects as in Seaton. Dalton.—Two of £40, tenabl for two years. Subjects: Geometry (Euclid I.—IV., and VI., or the subjects thereof); Algebra (as far as the Binomial Theorem, inclusive). Plane Trigonometry (to Solution of Triangles); Elementary Analytical Geometry; Conic Sections. Credit given for knowledge of Classics, Elements of English Language, Literature, and History; French and German. Cartwright.—£35 per annum, tenable for three years. Subjects as in Dalton. Hulme.—£35, tenable for three years. Subjects: English Language (Grammatical Structure and Outlines of its History); English Literature (an essay on some subject of English literature); and Modern History (Outlines of English History and Geography); with at least two of the following: Latin (Translation at sight, Grammar, and Easy Composition); Greek (ditto); French (ditto); German (ditto). Credit given for knowledge of Mathematics (Geometry and Algebra). James Gaskill.—£40, tenable for two years. Subjects: Mathematics, Geometry (the substance of Euclid I.—IV. and VI.), Algebra (as far as the Binomial Theorem, inclusive), Plane Trigonometry (to Solution of Triangles), Elementary Mechanics, Chemistry. Credit given for knowledge of Classics, Elements of English Language, Literature, and History, and French and German. Manchester Grammar School.—£18 per annum, tenable for three years. The examinations for all these scholarships are held in the month of June. Kay-Shuttleworth (Sir James Phillips).—£30 per annum, tenable for three years. Subjects: Mathematics, Elementary Mechanics, Chemistry. Dauntesey Medical Scholarships.—Two Scholarships of £35 each are open to all students preparing for a medical course who shall not have attended lectures or Laboratory courses on human anatomy or physiology, or a purely medical or surgical course in the Owens College or any other Medical School in the United Kingdom. Candidates will be examined in Zoology, Botany, and Chemistry. Medals are awarded on the results of the various class examinations at the end of each session. A Platt Physiological Scholarship of £50 a year for two years is offered annually to the competition of persons whether previously students of the College or not. Two Platt Exhibitions, of the value of £15 each, to be competed for by first and second year students in the class of Physiology, and a Sidney Renshaw Exhibition in Physiology of the value of £15 to be competed for by second year students in Physiology. A Professor Tom Jones Memorial Exhibition of the value of £25, a Dumville

Surgical Prize of £15 a Turner Medical Scholarship of £20, and a John Henry Agnew Scholarship in Diseases of Children of £30 are offered annually for competition. A Professor *Tom Jones Memorial Scholarship of £100* is awarded triennially, a Bradley Memorial Scholarship in Clinical Surgery of the value of £20 and Medical and Surgical Clinical Prizes, each of the value of 6 guineas, are open to competition each year for the best reports (with comments) of cases which have occurred in the wards of the infirmary. The session commences on Oct. 1st.

Manchester Royal Infirmary (291 beds).—*Consulting Physicians: Drs. Frank Renaud, H. Browne,* and Henry Simpson. Consulting Surgeons: Messrs. George Bowring, Walter Whitehead, and James Hardie. Physicians: Drs. J. Dreschfeld, Graham Steell, Thomas Harris, and J. S. Bary. Assistant Physicians: Drs. A. T. Wilkinson and Ernest S. Reynolds. Consulting Obstetric *Physician: Dr. Lloyd Roberts. Obstetric Physician:* Dr. Archibald Donald. Surgeons: Messrs. F. A. Southam, *G. A. Wright. William Thorburn, and Joseph Collier.* Assistant Surgeons: Messrs. J. E. Platt, W. P. Montgomery, and J. W. Smith. Consulting Ophthalmic Surgeon: Dr D. Little. Ophthalmic Surgeon: Dr. Hill Griffith. Aural *Surgeon: Dr. William Milligan Consulting Dental Surgeon:* Mr. G. W. Smith. Dental Surgeon: Mr. W. A. Hooton. Pathological Registrar: *Dr. F. C. Moore.* Medical Registrar: Dr. T. N Kelynack. Surgical Registrar: Mr T. Gregory. Director of the Clinical Laboratory: Dr. W. E. Fothergill. Assistant Director of the Clinical Laboratory: Dr. C H. *Melland. Administrators of Anæsthetics:* Mr. Alexander Wilson and Mr. J. T. Smith. Assistant Medical Officer for Out Patients: Dr. C. E. Preston. Assistant Surgical Officer for Out Patients: Mr. E. W. Floyd. Medical Officer for Home Patients: Dr. A C. Sturrock. General Superintendent and Secretary: Mr. W. L Saunder. The *Winter Session commences Oct. 1st.*

The Royal Hospital, Portsmouth (founded 1847)—The number of beds is 150 During the year 1900 there were 1303 in-patients and 9191 out-patients. Physicians: Dr. James Watson and Dr. John Phillips. Surgeons: Dr. J Ward-Cousins, Dr. A. Lloyd Owen, and Mr. Henry Rundle. Assistant Physicians: Dr. D. P. McEldowney, Dr. C. C. Claremont, and Dr. L Cole Baker. Assistant Surgeons: Mr C. P. Childs, Mr. A. B Wright, and Mr J. A. M. Forde House Surgeon: Mr. W. W. Deans. Assistant House Surgeon. Mr. N. O. Beaumont. The hospital is a preparatory School of Medicine and Surgery; the attendance of pupils at this Hospital is recognised by the Examining Boards.

University College, Sheffield—Department of Medicine.—The Medical School has been incorporated by Royal Charter with Firth College and the Sheffield Technical School, under the title of University College, Sheffield An entrance scholarship of the value of £110 is awarded annually to the best candidate (if of sufficient merit) in Mathematics, Elementary Physics, Inorganic Chemistry, Latin, and English. Prizes for Clinical Medicine and Surgery of 10 guineas are offered by the Clinical Committee. Kaye Scholarship *(being the interest on £900)* for second-year students native of Sheffield is awarded annually under certain regulations. Prizes in books and certificates are awarded annually. The medical school is provided with anatomy theatre, dissecting-room, physiological laboratory, museum, library, and class rooms. New premises have been acquired *near the College for the Pathological Museum* and Laboratory and a Bacteriological Laboratory which has been completely equipped through the generosity of "a Sheffield citizen." The courses of instruction for the D.P.H. Public Health are recognised by the Royal College of Surgeons and Cambridge University. The physiological department has been entirely reconstructed and equipped in memory of the late President of the school, Mr. Wm. F. Favell The department consists of a lecture and demonstration theatre, laboratory, preparing-room, and galvanometer room, all of which are equipped with the most modern apparatus. Each student has his own laboratory bench, with gas, water, electric light, and the requisite apparatus. The course of lectures and instruction is adapted to meet the requirements of the various examining bodies. The Sheffield Royal Infirmary contains 240 beds, including Ophthalmic and Dermatological departments and post-mortem theatre, with microscopes and all the appliances for clinical research. The Sheffield Royal Hospital contains 125 beds and Dental and Ophthalmic departments, and is recognised by the examining bodies. *Perpetual fee for hospital practice* £45 in one payment; or by two instalments: £26 on entering for hospital practice, and 22 guineas within twelve months afterwards. Composition fee for lectures and practical courses 60 guineas; or in two instalments: 35 guineas at commencement of medical study and 30 guineas at beginning of the second year. Students are also admitted to the practice of the Jessop Hospital for Diseases of Women, to the Borough Fever Hospitals, and the South Yorkshire Asylum. The completely *equipped dental department has been recognised by* the examining bodies. Dr. C J. Patten has been appointed Professor of Anatomy in place of Dr. Christopher Addison. Mr. J. W. Wilfred Stokes has been appointed Demonstrator of Anatomy. Dr. Burgess has been appointed Professor of Medicine in place of Dr. Dyson appointed Emeritus Professor. Mr. A. M. Connell appointed Assistant Lecturer and Demonstrator on Pathology. Dental Department: Mr. J. Lee Pike lecturer on *Dental Mechanics,* Mr. F. G. Mordaunt Dental Anatomy and Physiology, Mr. F. Harrison Dental Surgery and Pathology, Mr. A. McWilliam Dental Metallurgy. Dental Hospital Practice in the Sheffield *Royal Hospital. Clinical Surgery,* F. J. Birks. Clinical Medicine, F. J. Birks and C. W. Smith. Simon Prize in Pathology £10, F. J. *Birks.* Entrance Scholarship, —Finch. The Winter Session will commence on Tuesday, Oct 1st, when the Introductory Address will be delivered by Sir Thomas Barlow, Bart.

Jessop Hospital for Women, Gell street, Sheffield.—The hospital is devoted to Diseases Peculiar to Women. There is also an Obstetric Department for the admission of a small number of cases. A staff of midwives connected with the hospital attend lying-in women at their own homes, and, in case of need, are assisted by the members of the *medical staff. Out-patients are attended daily.* Students can attend the practice of the hospital and be supplied with cases of midwifery. Communications should be addressed to the Secretary, York Chambers, York-street, Sheffield

Royal Devon and Exeter Hospital, Exeter.—Medical *and Surgical Staff: Consulting Physician: Dr. Drake.* Physicians: Drs. H. Davy and William Gordon. Consulting Surgeons: Messrs. A. J Cumming, T. W. Caird, and James Bankart. Surgeons: Messrs J. D. Harris, E. J. Domville, Charles E. Bell, and A C Roper. House Surgeon: Mr. P. H. Stirk. Assistant House Surgeon: Mr. Ernest J. *Manning. Junior Assistant House Surgeon:* Mr. William E. Bird. *The hospital contains 218 beds (including special* children's wards) and has a good library, museum, dissecting room, and post-mortem room. Attendance on the practice of this hospital qualifies for all the examining boards. Arrangements can be made by which students can attend Midwifery *on application to the House Surgeon.* There is also a *Private Nursing Staff* attached to the Hospital. For particulars as to fees, &c, apply to the Matron. A new wing has recently been added.

West of England Eye Infirmary, Exeter.—Physician: Dr. William Gordon. Surgical Staff: Messrs. Bankart and Tosswill. Assistant Surgeon and Registrar: Mr. Roper. Secretary: Mr. Ernest W. Toby. The infirmary contains 50 beds. Students of the Exeter Hospital can attend the practice of the Eye Infirmary. Patients for the year ending Michaelmas, 1900 2469. Total number of patients since the opening of the Infirmary in 1808 100,169. Days of admission: *Mondays, Tuesdays, and Fridays,* at 11 A.M.

Kent and Canterbury General Hospital.—Opened for the reception of patients April 26th, 1793. 59,348 in-patients and 104,200 out-patients have been admitted since the hospital was opened. The hospital contains 108 beds. Pupils of the staff are admitted to the practice of the hospital and have the use *of the library* of the *East Kent* and Canterbury Medical Society for £7 7*s*. Operation day, Thursday, 11 A.M. Physician: Dr. Henry Alex. Gogarty. Consulting Surgeon: Mr James Reid. Surgeons: Messrs Frank Wacher, T. Whitehead Reid, J. Greasley, and Sydney Wacher. Dentist: Mr R S N. Faro. House Surgeon: Mr. W. Ewart. *Assistant House Surgeon:* vacant. *Secretary:* Mr. Arthur J Lancaster Over 700 in-patients, 2000 out-patients and casualties, and 500 dental cases are attended in a year.

Royal Infirmary, Liverpool —The buildings of the new Royal Infirmary were completed and occupied as recently as 1890. They stand on the old site, adjacent to the College, but enlarged by the purchase of a fine frontage in Pembroke-place and with the Nurses' Home spread over some four acres of ground. Externally, they form a handsome and imposing group of buildings. Every available open-air space has been taken advantage of to secure good airing grounds for the patients, and the beauty of the buildings has been not a little enhanced by the numerous balconies, colonnades, and flat roofs adapted to the same purpose for both patients and resident staff. Internally no point in modern sanitary science has been omitted There are 295 beds exclusive of the Lock Hospital. The wards—some parallelograms, some circular—have walls of glazed bricks and floors of waxed oak blocks laid on an iron and cement substratum. Three operating theatres and a clinical lecture theatre have been provided and important alterations are in progress which will add still another operation room and bring them all up to the most modern requirements of surgery. There is an electrical room and provision for special kinds of baths. The out-patient department comprises rooms for the treatment and study of minor medical and surgical maladies, for diseases of the eye skin, larynx, nose, and teeth, as well as a gynæcological department. There is also a Lock Hospital. A room has been allotted to the clinical tutors, in which bacteriological investigations are made, whilst each physician and surgeon has a private room in connexion with his wards, where his clerks and dressers may write up and tabulate cases and investigate morbid products. The pathological department, which is daily becoming of more importance in medical education, has had much pains expended upon it, so as to give proper facilities for the study of morbid anatomy. It is hoped that the facilities for clinical work will be such as not merely to enable the present students to learn the practical parts of their profession thoroughly, but to attract students from overcrowded institutions where the number of pupils is far in excess of the opportunities for the bedside study of disease. There are eight house physicians and surgeons and two casualty officers (one resident) who are selected every six months from amongst the qualified students of the school. In no hospital in the country is the resident staff so comfortably lodged. Each is provided with a bedroom and a private sitting-room in addition to the music-room and dining-room, where all meet in common; a Students' Club Room is also set aside for their exclusive use. Dr. James Barr, Secretary of Medical Board, 72, Rodney-street, Liverpool.

Staff.—Consulting Physician: Dr. Waters. Physicians: Dr. Glynn, Dr. Caton, and Dr. Barr. Assistant Physicians: Dr. Bradshaw and Dr. Abram Consulting Surgeons: Mr. Hakes and Mr. Bickersteth. Surgeons: Sir W. M. Banks, Mr. R Parker, and Mr. F. T. Paul. Gynæcological Surgeon: Dr. Grimsdale. Assistant Surgeons: Mr. R. A. Bickersteth, Mr. G. G Hamilton, and Mr. W. T. Thomas. Oculist: Mr Bickerton. Laryngologist: Dr. Hunt Dermatologist: Dr. L Roberts. Dental Surgeon: Mr. Phillips. Pathologist: Dr. Boyce. Chloroformists: Mr. Fingland and Mr. Bailey. Lock Department—Surgeon: Mr. Bernard.

Liverpool Royal Southern Hospital.—Within convenient distance of the School of Medicine and contains 200 beds. There are special wards for accidents and Diseases of Children, and there are also beds appropriated to the Diseases of Women. Clinical teaching is given in the hospital and arrangements have been made to render it both thorough and systematic The members of the staff visit the wards daily and clinical lectures are given every week. Tutorial classes are also held each day at which the junior students are instructed in the methods of diagnosis and the seniors are prepared for their final examinations. The pathological department has a good laboratory attached in which the students receive practical instruction. Recently a bacteriological laboratory has been added, where students are able to obtain a practical knowledge of bacteriology in relation to medicine. In addition to the usual clinical and post-mortem clerkships, which are open to all students, the resident post of Ambulance Officer is awarded every three months to the student whom the board may consider most suited to hold it. A Scholarship of £20 is competed for annually, which has attached to it some clinical and pathological duties; and three prizes of £5 each are yearly offered for the best series of clinical reports. Fees: Perpetual £26 5*s.*; one year £10 10*s.*; six months £7 7*s.*; three months £4 4*s.* A limited number of resident pupils can be received. Terms (exclusive of fees for Hospital Practice), £15 15*s.* per quarter. The practice of the hospital is recognised by all examining bodies. For further particulars apply to the Dean, Mr. George P. Newbolt, 42, Catharine-street, Liverpool.

Staff.—Honorary Consulting Physician: Dr. John Cameron. Honorary Consulting Surgeon: Mr. Robert Hamilton. Honorary Physicians: Dr. W. Carter, Dr. W. Williams, and Dr. C. J. Macalister. Honorary Surgeons: Mr. Wm. Alexander, Mr. Robert Jones, and Mr. Geo. P. Newbolt. Honorary Consulting Physician for Tropical Diseases: Major Ronald Ross. Honorary Dermatologist: Mr. F. H. Barendt. Honorary Consulting Ophthalmic Surgeon: Mr. R. Williams. Honorary Consulting Aural Surgeon: Mr. C G. Lee. Honorary Consulting Laryngologist: Mr. W. Permewan. Honorary Medical Officer x Rays Department: Mr. C. Thurstan Holland. Pathologist: Dr. Lyn Dimond. Honorary Anæsthetist: Dr. J. G Martin. Honorary Dental Surgeon: Mr J. Royston. House Surgeon: Mr J. Gerald Sheahan. Junior House Surgeons: Dr. W. E. Herbert and Dr. J. W. Wrightson.

Liverpool Northern Hospital.—The new hospital, under the title of the David Lewis Northern Hospital, is now open and accommodation provided for 180 patients. There is a special ward for the treatment of children. An x ray and photographic department has been established, and an installation of the light treatment for lupus is in course of erection. These departments are under the charge of Dr. Arthur Walker, by whom instruction will be given. Clinical instruction will be given by the physicians and surgeons during the summer and winter sessions. Clinical clerkships and dresserships are open to all students without additional fees. Consulting Physician: Dr. E. H. Dickinson, M.A. Consulting Surgeon: Dr. W. Macfie Campbell. Physicians: Dr. T. Bushby and Dr. W. B. Warrington. Surgeons: Mr. Chauncy Puzey, Mr. Damer Harrisson, and Mr. R. W. Murray. Fees for hospital attendance: Perpetual, £26 5*s.*; one year, £10 10*s*; six months, £7 7*s.*; three months, £4 4*s.*; Practical Pharmacy, £2 2*s.* Students can enter to the medical or the surgical practice separately on payment of half the above fees. Arrangements can be made for a limited number of resident pupils.

Norfolk and Norwich Hospital (220 beds).—Non-resident Pupils admitted. Fees: For three months, £3 3*s.*; for six months, £5 5*s.*; as permanent pupil, £8 8*s.* Consulting Physicians: Sir P. Eade, M.D., and Sir Frederic Bateman, M.D. Consulting Surgeons: Mr. W. Cadge and Dr. Beverley. Physicians: Dr. Barton, Dr. Burton-Fanning, and Dr. Long. Surgeons: Mr. Williams, Mr. H. S. Robinson, and Mr. S. H. Burton. Assistant Surgeons: Mr. D. D. Day and Mr. H. A. Ballance. Dental Surgeon: Mr. H. F. White, House Surgeon: Mr. A. L. Vaughan. House Physician: Mr. S. G. Champion. Secretary: Mr. F. G. Hazell.

Northampton General Infirmary (established 1743; rebuilt 1793).—The number of beds is 163. Out-pupils are received, and have every opportunity of acquiring a practical knowledge of their profession. Instruction is also given in Anatomy and Materia Medica and Practical Pharmacy. Non-resident pupils are taken at a fee of £10 10*s.*

North Staffordshire Infirmary and Eye Hospital, Hartshill, Stoke-on-Trent.—The New Infirmary, opened in 1869 is built on the pavilion plan, has accommodation for over 200 patients, including Children's wards special Ovarian wards, and a special department for the treatment of Diseases of the Eye. In-patients last year, 1977; out-patients, 10,812. The attendance of pupils at this infirmary is duly recognised by all the examining boards; and there are unusual facilities for acquiring a practical knowledge of the profession. Physicians: Dr. A. M. McAldowie and Dr. S. King Alcock. Surgeons: Mr. W. D. Spanton and Dr. G. Stokes Hatton. Assistant Physicians: Dr. Hubert Nicholls and Mr. John Russell. Assistant Surgeons: Dr. Wheelton Hind and Mr. Reginald Alcock. Ophthalmic Surgeon: Mr. Herbert H. Folker. Assistant Ophthalmic Surgeon: Mr. J. F. Arlidge. Dental Surgeon: Mr. A. Baines House Surgeon: Mr. H. Hartley. House Physician: Mr. T. O'Neil. Secretary and House Governor: Mr. Albert E. Boyce, F.I.S.

Wolverhampton and Staffordshire General Hospital (founded 1845; beds, 230)—A preparatory school of Medicine and Surgery. The pupils have the advantage of seeing the whole of the practice of the physicians and surgeons and are trained in clinical work by the medical and surgical staff. The attendance of pupils at this hospital is recognised by all the examining boards.

Staff.—Consulting Physician: Dr W. Millington Consulting Surgeon: Mr C A. Newnham Physicians: Dr H. Malet and Dr. C A MacMunn Surgeons: Mr T. V Jackson, Mr J O'B Kough, and Mr W H T. Winter Assistant Surgeons: Mr A H Hunt and Mr. E Deanesly. Assistant Physician: Dr J A Codd.

SUSSEX COUNTY HOSPITAL (190 beds).—During the year [illegible] been treated. The total number [illegible] on the books during 1900 was [illegible] rds ample facilities for students, possessing a large out-patient department, a library, and a well-appointed museum The hospital does not take resident pupils, but out-pupils may attend the practice of the hospital for any period not exceeding two years on payment in advance of such a fee, not exceeding 20 guineas, as the Committee of Management shall direct.

Staff.—Physicians: Dr W A Hollis, Dr H S Branfoot, and Dr E Mackey Assistant Physician: Dr J F G Dill, Dr. E Hobhouse, and Dr E F Maynard Consulting Surgeons Mr. F A Humphry and Mr H P Blaker Surgeons Mr W Turner, Mr T J Verrall, and Mr R Black Assistant Surgeons. Mr H F Jowers, Mr. F J Paley, and Mr A Buck

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury and Gartside street.—The hospital contains 140 beds The medical staff visit the hospital daily at 10 A.M. Clinical instruction is given by the medical staff at the Hospital and Dispensary. Out-patients are seen daily at 9 A.M. at the Dispensary, Gartside-street, Manchester. Physicians: Drs Ashby and Hutton Surgeons: Mr. G A. Wright and Mr [illegible] geon: Mr J. Howson Ray. [illegible] Honorary Aural Surgeon: [illegible] ry Dental Surgeon: Mr. C H Preston. Resident Medical Officers: Mr. M C Thackray and Mr E F. Hill Medical Officer at the Dispensary: Mr H. Osborne During 1900 there were 1283 in-patients, and 13,801 out-patients were under treatment at the Dispensary.

THE MANCHESTER CLINICAL HOSPITAL FOR WOMEN AND CHILDREN, Cheetham-hill road, Manchester.—The hospital is situated near the centre of the town and contains 70 beds Out-patients are seen daily at 9.30 A.M. and the wards are visited at 11 A.M. Secretary, Mr. H. Teague, 38, Barton arcade, Manchester

SCOTLAND.

MEDICAL SCHOOLS WITH FULL CURRICULUM [1]

SCHOOL OF MEDICINE OF THE ROYAL COLLEGES, Edinburgh.—The number of students varies much in the classes and subjects It is within the limit to say that about 1300 students avail themselves each year of the opportunity of attending the school. The lectures qualify for the University of Edinburgh and other Universities, the Royal Colleges of Physicians and Surgeons of Edinburgh, London, and Dublin, the Faculty of Physicians and Surgeons of Glasgow, and other Medical and Surgical and Public Boards.

The anatomy rooms and laboratories will open on Tuesday, Oct 1st On Tuesday, Oct. 15th, the lectures will commence.

In accordance with the statutes of the University of Edinburgh one-half of the qualifying classes required for graduation may be attended in this school, in addition to the class of Practical Materia Medica and the classes of Clinical Medicine and Clinical Surgery. The regulations require that the fee for any class taken for graduation in Edinburgh shall be the same as that for the corresponding class in the University. The whole education required for graduation at the University of London may be taken in this school.

The following Order of Study is recommended as a guide to the student for a five years' course, though not enjoined:—First Year: Biology, Physics, Anatomy, Practical Anatomy, Chemistry, and Practical or Analytical Chemistry. Second Year: Anatomy, Practical Anatomy, Physiology, Practical Physiology, Surgery, and Materia Medica—the last either in this or the Third Year—and Hospital. Third Year: Practice of Medicine, Clinical Surgery, Practical Pharmacy, Clinical Medicine, Pathology, and Hospital. Fourth Year: Surgery or Clinical Surgery, Midwifery and Diseases of Women and Children, Practice of Medicine or Clinical Medicine, Medical Jurisprudence, Practical Midwifery, Operative Surgery, and Hospital Fifth Year: Classes on Special Subjects, Hospital, and Dispensary Practice.

The appointment of Resident Physician to the wards in the Royal Infirmary under the care of the Ordinary Physicians is open to those members of their clinical class who have clerked in their wards for at least six months. Six Residentships are appointed during the year for a period of six months each. Resident Surgeons are also appointed by the Ordinary Surgeons to the Hospital. In all respects the students are taught under regulations similar to those at the University of Edinburgh and the other Universities of Scotland, and they receive similar certificates at the close of each session. Moreover, the University and College authorities in Edinburgh and the governing board of the school call upon each recognised lecturer to supply them at the close of each session with a statement giving the number of students attending the class, the number of lectures or prelections delivered during the session, the class examinations held, and the general mode of conducting the class. The courses on special non qualifying subjects have for the last quarter of a century formed a marked feature of the school. Indeed, such medical subjects could be studied in Edinburgh only in this school until lately, when the University of Edinburgh appointed from the school lecturers on Diseases of the Eye, Insanity, and Diseases of Children to take charge of classes intra-murally. A list of the classes and lecturers will be found below. Special courses of instruction for dental students and for women are also included in the curriculum of this school The classes of the school are conducted in several separate buildings, such as at Surgeons' Hall, Minto House, Nicolson-square, and the New School, Bristo-street.

Lecturers and fees.—Winter Session: Anatomy, Practical Anatomy, and Demonstrations, Drs Ryland Whitaker and R. J. A Berry (£3 5s and £4 4s); Chemistry (Practical, &c), Mr. King, Mr I. Macadam, and Mr Gemmell*; Physiology (Institutes of Medicine), Dr. Noël Paton (£3 5s); General Pathology, &c, Drs. Bruce, Russell, Shennan, and Stuart McDonald (£3 5s); Botany, Mr. R. Turnbull; † Biology, Mr. R. Turnbull and Mr. A. T. Masterman; Zoology, Mr Masterman; Bacteriology, Dr Taylor Grant; Practice of Physic. Drs. James, Affleck, Bramwell, Gibson, Philip, Graham Brown, R A. Fleming, and G Lovell Gulland (£3 5s.); Surgery Messrs Caird, Hodsdon, Shaw Maclaren, Thomson, Wallace, and Miles (£3 5s); Materia Medica, &c, Drs Craig,† and Lockhart Gillespie (£3 5s); Midwifery, &c, Drs. Hart, Murray, and Haultain (£3 5s); Medical Jurisprudence, &c, Dr. Littlejohn and Dr. Aitchison Robertson (£3 5s); Natural Philosophy, Dr. Turner (£3 5s); Hospital Practice (Edinburgh Royal Infirmary): Physicians, Drs Affleck, Smart, James, and Croom; Surgeons, Drs. Maclaren and MacGillivray, Mr. Cotterill and Mr Caird (perpetual ticket, £12 12s); Clinical Medicine, Drs Affleck, Smart, James, Byrom Bramwell, and Croom (Diseases of Women) (£3 5s); Clinical Surgery, Dr. Maclaren, Dr Macgillivray, Mr Cotterill, and Mr. Cathcart (£3 5s.); Diseases of Children, the staff of the Sick Children's Hospital (£2 2s); Diseases of the Skin, Dr. Stirling† (£2 2s), Diseases of the Chest, Dr. Philip† (£2 2s.); Vaccination, Drs. Husband,† Buist,† and Cadell (£1 1s); Diseases of Ear, Nose, and Throat, (£2 2s.); Diseases of the Eye, Dr. G. Mackay,† and Dr. Sym† (£2 2s); Gynæcology, Drs Croom (Systematic), Brewis (Clinical), and Berry Hart (Advanced), (£2 2s); Summer Session Practical Anatomy and Demonstrations, Drs. Ryland Whitaker and R J. A. Berry (£2 2s); Practical Physiology, Dr. Paton (£3 3s); Biology, Mr. Turnbull and Mr Masterman‡ (£3 3s); Botany, Mr. Turnbull; Practical Chemistry and Analytical Chemistry, Messrs King, I Macadam, and Gemmell§; Practical Bacteriology, Dr Shennan and Dr. Taylor Grant; Diseases of the Eye, Dr. Mackay‡ (£2 2s); Diseases of the Skin, Dr Stirling (£2 2s); Medical Psychology and Insanity, Sir J. Batty Tuke (£2 2s.); Medical Jurisprudence, Drs Littlejohn and Aitchison Robertson; Gynæcology, Drs. Brewis and Haultain (£2 2s); Midwifery, Drs. Croom, Hart, Barbour, and Ferguson (£3 5s); Operative Surgery, Messrs. Caird,

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[1] For Scholarships see p. 703, et seq

Hodsdon, Shaw, McLaren, Alexis Thomson, and David Wallace (£3 3*s*); Practical Pathology, Drs. Bruce, Russell, and Shennan (£3 3*s*); Physics, Dr. Turner ‡ (£3 3*s*.); Practical Medicine and Physical Diagnosis, Drs. James, Gibson, Philip, Fleming, and Lovell Gulland (£3 3*s*.); Practice of Medicine, Drs. Bramwell, Gibson, and Philip (£3 3*s*.); Medical Electricity, &c., Dr. Turner (£2 2*s*.); Diseases of the Circulation, Dr. Gibson (£2 2*s*.). Neurology, Dr. Bruce; Diseases of the Nervous System, Dr. Graham Brown; Practical Bacteriology, Dr. Shennan and Dr. Taylor Grant.

Special Classes for Women, Winter Session: Practical Anatomy and Demonstrations, Dr. Ryland Whitaker (£4 4*s*.); Chemistry (Lectures and Practical), Mr. Ivison Macadam (£3 5*s* and £3 3*s*); Practice of Physic, Drs. Philip and Graham Brown (£3 5*s*.); Surgery, Mr. Thomson and Mr. McLaren (£3 5*s*); General Pathology, Dr. Russell (£3 5*s*); Physiology (Institutes of Medicine), Dr. Noël Paton (£3 5*s*.); Practical Pathology, Dr. Bruce, &c. (£3 5*s*.); Materia Medica, &c., Dr. Craig (£3 5*s*); Clinical Medicine, Dr. Bramwell, Royal Infirmary (£3 5*s*.); Clinical Surgery, Royal Infirmary (£3 5*s*.); Physics, Dr. Dawson Turner (£3 3*s*); Biology, Mr. Turnbull (£3 3*s*); Diseases of Children, the staff of the Sick Children's Hospital (£2 2*s*.); Vaccination Dr. Husband and Mr. Cadell (£1 1*s*); Practical Gynæcology, Dr. Brewis (£2 2*s*.). Summer Session: Practical Anatomy, Dr. Ryland Whitaker and Mr. Hardie (£2 2*s*); Practical Chemistry, Mr. Ivison Macadam (£3 3*s*); Materia Medica, &c., Dr. Craig (£3 3*s*); Operative Surgery and Surgical Anatomy, Mr. Alexis Thomson and Mr. McLaren (£3 3*s*.); Materia Medica and Therapeutics, vacant (£3 3*s*); Midwifery and Diseases of Women, Dr. R. Milne Murray (£3 5*s*.); Medical Jurisprudence and Public Health, Dr. Harvey Littlejohn (£3 5*s*.); Clinical Medicine and Clinical Surgery, Royal Infirmary (£3 5*s*.); Practical Physiology and Histology, Dr. Paton (£3 3*s*); Practical Pathology, Dr. Russell (£3 3*s*); Biology, Mr. Turnbull (£3 3*s*.); Physics, Dr. Dawson Turner (£3 3*s*); Diseases of Children, the Staff of the Sick Children's Hospital (£2 2*s*); Ophthalmology, Dr. Mackay (£2 2*s*.); Insanity, Sir J. Batty Tuke (£2 2*s*.); Practical Gynæcology, Dr. Brewis (£2 2*s*.).

The minimum cost of the education in this School of Medicine for the Triple Qualification of Physician and Surgeon from the Royal Colleges of Physicians and Surgeons of Edinburgh and the Faculty of Physicians and Surgeons of Glasgow, including the fees for the Joint Examinations, is about £150, payment of which is distributed over the period of study.

Further particulars regarding the school, also its calendar, may be had on application to Mr. R. N. Ramsay, the Secretary, 24, Forrest-road, Edinburgh.

* Lectures, £3 5*s*.; Practical, £3 3*s*.; Analytical, £2 a month, or £5 for three months. † Also in Summer Session. ‡ Also in Winter Session. § Practical, £3 3*s*.; Analytical, £2 a month, or £5 for three months.

N.B.—Where two or more lecturers appear as teaching the same subjects their lectures are not conjoined, but each gives an independent course.

ANDERSON'S COLLEGE MEDICAL SCHOOL, Glasgow.—This medical school was founded in the year 1800. It has given thirteen professors to the University of Glasgow. The following courses are given, which qualify for all the licensing boards and for the Universities of London, Durham, Ireland, Edinburgh, and Glasgow (the latter two under certain conditions):—In winter: Anatomy, Professor A. M. Buchanan, M.A., M.D.; Chemistry, Professor J. Robertson Watson, M.A.; Physics, Professor Peter Bennett; Botany, Professor B. G. Cormack, M.A., B Sc.; Zoology, Professor Geo. Bell Todd, M.B.; Physiology, Professor W. Ernest Thomson, M.A., M.D.; Surgery, Professor T. Kennedy Dalziel, M.B.; Practice of Medicine, Professor R. S. Thomson, M.D., D.Sc. Diseases of Women, Professor John Edgar, M.A., B.Sc., M.D.; Materia Medica, Professor R. Barclay Ness, M.A., M.B.; Ophthalmic Medicine and Surgery, T. Spence Meighan, M.D.; Aural Surgery, J. Galbraith Connal, M.B.; Diseases of Throat and Nose, John Macintyre, M.B. In summer: Anatomy, Practical Anatomy and Osteology, Practical Chemistry, Physics, Zoology, Practical Materia Medica and Pharmacy, Practical Physiology, Operative Surgery, Botany, Ophthalmic Medicine and Surgery, also Medical Jurisprudence (Professor Carstairs Douglas, B.Sc., M D.), and Mental Diseases (Dr. Carswell), and Aural Surgery. The Chemical Laboratory is open daily from 10 to 6. The Dissecting-room is open in winter from 9 A.M. to 6 P.M., and in summer from 6 A.M. to 6 P.M. The students are assisted in their dissections by the Professor and Demonstrators, by whom frequent examinations and demonstrations on the parts dissected are conducted. The supply of subjects for dissection is ample, and students are consequently provided with parts as soon as they may be ready for them. The Dissecting-room is provided with a complete series of dissected specimens, mounted in plaster of Paris, illustrating the anatomy of the human body. Candidates for the licence in Dental Surgery can obtain the full medical curriculum in Anatomy, Chemistry, Physiology, Surgery, Practice of Medicine, and Materia Medica. The courses special to Dentistry are conducted at the Glasgow Dental Hospital and School.

The new buildings are situated in Dumbarton-road, immediately to the west of the entrance to the Western Infirmary, within two minutes' walk of it, and four minutes' walk of the University. Extensive accommodation is provided for Practical Anatomy, Practical Chemistry, Practical Physiology, Practical Pharmacy, and Operative Surgery. There are also provided a large library and reading-room and a students' recreation-room.

Fees.—For each course of Lectures (Anatomy, Ophthalmic Medicine and Surgery, Aural Surgery, Diseases of Throat and Nose, and Mental Diseases excepted), first session, £2 2*s*.; second session (in Anderson's College), £1 1*s*.; afterwards free. For Practical Classes (except Anatomy)—viz., Chemistry, Botany, Zoology, Physiology, Pharmacy, and Operative Surgery—first session, £2 2*s*.; second session, £2 2*s*. Reduced joint fees in Zoology and in Botany, for Lectures and Practical Class when taken in same summer session, £3 3*s*.; for either course separately, £2 2*s*. Anatomy Class Fees: Winter, first session (including Practical Anatomy), £4 4*s*.; second session (including Practical Anatomy), £4 4*s*.; third session, £2 2*s*. To those who have had the necessary courses of Practical Anatomy the fee will be £1 1*s*. Summer, Lectures and Practical Anatomy, £2 12*s*. 6*d*.; Lectures alone, £1 11*s*. 6*d*.; Practical Anatomy alone, £1 1*s*.; Osteology and Practical Anatomy, £2 12*s*. 6*d*.; Osteology alone, £1 11*s*. 6*d*. Students who have attended classes at other schools, and who desire to pursue their studies at Anderson's College Medical School, will be admitted to such classes as they may have attended elsewhere at the reduced fees. Ophthalmic Medicine and Surgery (including Hospital Practice), Aural Surgery, Diseases of Throat and Nose, and Mental Diseases, £1 1*s*. Matriculation Fees: Winter, 10*s*. to those taking out two or more classes; 5*s*. to those taking out only one class. The fee of 10*s*. represents a combined fee for the winter and summer sessions. Summer, 5*s*., except to those who have paid a fee of 10*s*. for the Winter Session.

Royal Infirmary.—Fees: Hospital Practice and Clinical Instruction, first year, £10 10*s* ; second year, £10 10*s*.; afterwards free. Six months, £6 6*s*.; three months, £4 4*s*.; Pathology, both courses, £3 3*s*. Vaccination Fee, £1 1*s*.

Western Infirmary. — Fees: Hospital Practice and Clinical Instruction, first year, £10 10*s*.; second year, £10 10*s*.; afterwards free. Six months, £7 7*s* ; three months, £4 4*s*. Pathology, first course, £3 3*s*.; second course, £2 2*s*. Practical Pathology, first course, £3 3*s*., second course, £2 2*s*. Vaccination Fee, £1 1*s*.

Eye Infirmary.—Fee: Hospital Practice and Clinical instruction, six months, £1 1*s*.

Certificates of attendance on the lectures at Anderson's College Medical School are received by the Universities of London, Durham, Ireland, Edinburgh, and Glasgow (the latter two under certain conditions); by the Royal Colleges of Physicians of London and Edinburgh; by the Royal Colleges of Surgeons, England, Edinburgh, and Ireland; by the Royal College of Physicians of Ireland; by the Faculty of Physicians and Surgeons of Glasgow; by the Society of Apothecaries, London; and by the Army, Navy, and East India Boards. Communications relating to the Medical School to be addressed to the Secretary of the Medical Faculty, Anderson's College Medical School, Dumbarton-road, Partick, Glasgow. Communications relating to the Preliminary Examination in General Education to be addressed to Mr. Alexander Mackay, LL.D, Educational Institute Office, 40, Princes-street, Edinburgh. Communications relating to the Triple Qualification to be addressed to Mr. Alexander Duncan, LL.D., Faculty Hall 242, St. Vincent-street, Glasgow. Communications relating to the Dental School to be addressed to Mr. D. M. Alexander, 97, West Regent-street, Glasgow

The Kerr Bursary in Anatomy (value £10) is open to students of the Junior Anatomy Class during Winter Session 1901-1902.

ST. MUNGO'S COLLEGE AND GLASGOW ROYAL INFIRMARY.—This College was incorporated in 1889. The Glasgow Royal Infirmary was founded in 1791. The Faculty of Medicine of the College occupies new buildings erected for the purposes of a medical school, adjoining and communicating with the Royal Infirmary. The Laboratories, Museums, and Lecture-rooms are equipped and adapted to modern scientific requirements. Recent additions consist of Public Health, Practical Zoology, and Bacteriological Laboratories. The Royal Infirmary, which is at the service of the College for the purpose of clinical and practical instruction, is one of the largest general and special hospitals in the kingdom. It has nearly 600 beds, and will almost immediately have considerably over 600. It has special wards for Diseases Peculiar to Women, for Venereal Diseases, Erysipelas, Burns, and Diseases of the Throat and Nose. At the Dispensary special advice and treatment are given in diseases of the Eye, Ear, Teeth, and Skin, Women, Throat and Nose, in addition to the large and varied number of ordinary medical and surgical cases—over 46,000 per annum—which in a great industrial centre daily require attention. Students of the College and Hospital get the benefit of dispensary experience free of charge. All appointments are open There are five Physicians' and seven Surgeons' Assistants, who board in the hospital free of charge and act in the capacity of House Physicians and House Surgeons. These appointments are made for six months and are open to gentlemen who have a legal qualification in Medicine or Surgery, and preference is given to the students of this College and Hospital. Clerks and Dressers are appointed by the Physicians and Surgeons. From the large number of cases of acute disease and accidents of varied character received into this hospital these appointments are very valuable. In the Pathological Department assistants are also appointed. The session will open with an [illegible] Institution in West Regent-street having been amalgamated with the Royal Infirmary the usefulness of this department is very much increased, and greater opportunities are afforded to students for the practical study of Diseases of the Eye. Dr. Ramsay, the ophthalmic surgeon, attends the Royal Infirmary every Monday, Wednesday, and Friday at 12 noon, and daily at the Institution in West Regent-street from 1 to 2 o'clock. Students can attend both without payment of any additional fee. Lectures are delivered twice a week during the winter session. Fee for the course, £2 2*s*.

The fee for each class is £2 2*s*, except for Anatomy, Winter Session, which is £4 4*s*. Pathology £4 4*s*, Zoology £4 4*s*., Botany £3 3*s*. Practical Physiology, £3 3*s*., and for Physics, which is £2 4*s* 6*d*., and certain extra classes, for which the fee is £1 1*s*. The hospital fee (including clinical lectures) is £21 for a perpetual ticket. The classes in St. Mungo's College and in the Glasgow Royal Infirmary are for male students exclusively. The fees for all the lectures, including hospital attendance, necessary for candidates for the Diplomas of the English or Scotch Colleges of Physicians and Surgeons amount to £72. Further particulars can be obtained from a syllabus which can be obtained free on application to the Dean, 86, Castle-street, Glasgow.

GLASGOW WESTERN MEDICAL SCHOOL.—This School is situated in University-avenue, close to the University and Western Infirmary. Lectures and Demonstrations are given on Chemistry, on Physics, on Zoology, on Anatomy, on Surgery, on Physiology, on Midwifery and Gynæcology, on Pathology, on Medicine, and on the Eye.

Class Fees.—For each course of Lectures the fee is £2 2*s*. or in some cases £1 1*s*. There is no matriculation fee.'

QUEEN MARGARET COLLEGE, University of Glasgow.—Queen Margaret College was founded in 1883 by the Glasgow Association for the Higher Education of Women (instituted in 1877), and handsome buildings and grounds near the University were presented to the College in 1884 by Mrs. John Elder. In 1890 a School of Medicine for women was added to its Arts Faculty. In 1892, when the Universities Commissioners issued an ordinance empowering the Scottish University Courts to make provision for the instruction of women, the Council of the College and Mrs. Elder transferred to the University the College, its buildings, grounds, and endowments, on condition that these should be devoted to the maintenance of University classes for women only. The College then became the women's department of the University of Glasgow; its classes are taught by professors of the University and other lecturers appointed by the University Court, and it is governed by the University Court and Senate. The curriculum, regulations, and fees are the same as those of the male students, and the University degrees are open to women on the same conditions as to men. They have access to the University Museum and can borrow books from the University Library, besides having a library of reference in Queen Margaret College. The number of students enrolled in session 1900-1901 was 350, of whom 73 were studying medicine and the rest arts or science. The School of Medicine is a special feature of the College and gives full preparation for the medical degrees of the University. In July, 1894, for the first time in the history of any Scottish university, women students graduated in medicine at the "capping" in Glasgow University. 63 women have now taken the degree of M.B., C.M. or M.B., Ch.B. of the University of Glasgow. Excellent facilities for clinical work are given in the Royal Infirmary and other hospitals. By a gift of £5000 granted for the purpose by the Bellahouston Trust the University Court was enabled to add to the College a large building for the study of Anatomy and Physiology, which was opened in October, 1895. The Arthur Scholarship is open every third year to students of first year; other Bursaries are open in Arts and Medicine; and by an ordinance of the Universities Commissioners women are admitted to certain University bursaries, scholarships, and fellowships. A house of residence for the students of the College coming from a distance was opened by the Queen Margaret Hall Co., Limited in October of 1894.

UNIVERSITY COLLEGE Dundee.—This College is one of the constituent colleges of the University of St. Andrews. The complete medical curriculum can be taken in Dundee. For classes, fees, &c, see under University of St Andrews.

ROYAL INFIRMARY.—The Infirmary contains 300 beds, including special wards for the Diseases of Women, Children, Eye, Ear and Throat, and Lock cases. There is also a Maternity Department, in- and out-door. There were during last year 10 517 out-patients and 6676 home patients. The Royal Infirmary offers exceptional facilities for practical work to students. Appointments: Four qualified Resident Medical Assistants are appointed every six months. Clinical Clerks and Dressers are attached to the Physicians and Surgeons, and students are appointed as assistants in the Pathological Department. There are in connexion with the clinical courses Tutorial Classes in Medicine and Surgery. Instruction is also given in Practical Pharmacy and Materia Medica and in Practical Dentistry. Full information can be obtained from Dr. Fraser, Medical Superintendent.

ROYAL ASYLUM.—Lectures on Mental Diseases and clinical instruction in connexion with University College, Dundee (University of St. Andrew's), are given at the University and at the Royal Asylum by Dr. Rorie. There are two paid qualified Resident Assistants and two unpaid Resident Clinical Assistants. The last Summer Session began on April 24th, 1901, and the course consisted of 12 Lectures at University College and 14 Clinical Lectures and Demonstrations at the Royal Asylum Geo. McNeill gained First Prize and L. D. Gairdner gained Second Prize. Present Medical Assistants: Wm Tuach M.B., Ch.B., and W. L. G. Anderson, M.B, Ch B Clinical Assistant: Mr. Leslie. The next session will begin on April 24th, 1901.

ABERDEEN ROYAL LUNATIC ASYLUM.—Contains, with hospital attached to main institution and Agricultural Branch, about 950 beds. Medical Superintendent: Dr. William Reid. Assistant Physicians: Dr. J H. Mackay, Dr. Arthur L. Sutherland, and Dr. L B Green. Clerk, Treasurer, and Factor. Mr. J. B. Findlay. Clinical instruction is given to students during three months in summer.

ABERDEEN ROYAL INFIRMARY.—Contains 240 beds. Consulting Physician: Dr. P. Blaikie Smith. Physicians: Dr. Angus Fraser, Professor Finlay, and Dr. George M. Edmond. Assistant Physicians: Drs. John Gordon, A. H. Lister, and Ashley W Mackintosh. Consulting Surgeons: Professor Alexander Ogston, Drs. J. C. O. Will and R. J. Garden. Surgeons: Drs. J. McK. Booth, J. S Riddell, and John Marnoch. Assistant Surgeons: Drs. W. Sinclair, H. M. W Gray, and John W. Milne Ophthalmic Surgeon: Dr. C. H. Usher. Gynæcologist: Professor W. Stephenson.

Pathologist: Professor David James Hamilton. Assistant Pathologist: Dr. G. M. Duncan. Dental Surgeon: Dr. J. M. P. Crombie. Anæsthetist: Dr. J. J. Y. Dalgarno. Assistant ditto: Dr. W. R. Pirie. Medical Electrician: Dr. J. R. Levack. Clinical Registrar and Lecturer on Diseases of the Skin: Dr. J. F. Christie. Medical Superintendent: Dr. Charles Angus. Clerk and Treasurer and Factor for the Hospital Lands: Mr. John B. Findlay.

HOSPITALS AFFORDING FACILITIES FOR CLINICAL OBSERVATION.

ROYAL INFIRMARY, Edinburgh.—Beds are set apart for clinical instruction by the professors of the University of Edinburgh. Courses of Clinical Medicine and Surgery are also given by the ordinary physicians and surgeons. Special instruction is given in the medical department on Diseases of Women, Physical Diagnosis, and on Diseases of the Skin; and in the surgical department on Diseases of the Eye, the Ear, the Larynx, and the Teeth. Separate wards are devoted to Venereal Diseases, Diseases of Women, Diseases of the Eye, the Ear, and the Skin, and also to cases of Incidental Delirium or Insanity. Three wards are specially set apart for Clinical Instruction to Women Students. Post-mortem examinations are conducted in the anatomical theatre by the pathologist and his assistants, who also give practical instruction in Pathological Anatomy and Histology. The fees for hospital attendance are as follows—viz.: Perpetual ticket, in one payment, £12; annual ticket, £6 6*s.*; six months, £4 4*s.*; three months, £2 2*s.*; monthly, £1 1*s.* Separate payments amounting to £12 12*s.* entitle the student to a perpetual ticket. No fees are paid for any medical or surgical appointment. The appointments are as follows:—1. Resident physicians and surgeons are appointed, and live in the house free of charge. The appointment is for six months, but may be renewed at the end of that period by special recommendation. 2. Non-resident house physicians and surgeons are appointed for six months. The appointment may be renewed for a like period by special recommendation. 3. Clerks and dressers are appointed by the physicians and surgeons. These appointments are open to all students and junior practitioners holding hospital tickets. 4. Assistants in the Pathological Department are appointed by the pathologist.

Staff: Medical Department.—Consulting Physicians: Dr. George W. Balfour, Dr. Claud Muirhead, and Dr. J. O. Affleck. Consulting Gynæcologist: Dr. J. Halliday Croom. Professors of Clinical Medicine: Dr. T. R. Fraser, Dr. W. S. Greenfield, and Dr. John Wyllie. Ordinary Physicians and Lecturers on Clinical Medicine: Dr. Andrew Smart, Dr. Alex. James, Dr. Byrom Bramwell, and Dr. Geo. Gibson. Gynæcologists: Professor A. R. Simpson and Dr. D. Berry Hart. Physician for Diseases of the Skin: Dr. Allan Jamieson. Medical Electrician: Dr. Dawson Turner. Assistant Physicians: Dr. Alex. Bruce, Dr. R. W. Philip, Dr. William Russell, Dr. Murdoch Brown, Dr. G. Lovell Gulland, Dr. J. J. Graham Brown, Dr. Francis D. Boyd, and Dr. A. Fleming. Assistant Gynæcologists: Dr. A. H. F. Barbour, Dr. Milne Murray, and Mr. N. T. Brewis. Assistant Physician for Diseases of the Skin: Dr. Norman Walker. Assistant Medical Electrician: Dr. Hope Fowler. Medical Registrar: Dr. A. Lockhart Gillespie.

Surgical Department.—Consulting Surgeons: Dr. P. H. Watson, Mr. Joseph Bell, Mr. A. G. Miller, and Dr. P. H. Maclaren. Consulting Dental Surgeon: Dr. John Smith. Consulting Ophthalmic Surgeon: Dr. Argyll Robertson. Regius Professor of Clinical Surgery: Mr. Annandale. Professor of Surgery: Mr. Chiene. Ordinary Surgeons: Dr. C. W. MacGillivray, Mr. J. M. Cotterill, and Mr. C. W. Cathcart. Ophthalmic Surgeons: Mr. George A. Berry and Dr. George Mackay. Surgeon to Ear and Throat Department: Dr. P. MacBride. Assistant Surgeons: Mr. F. M. Caird, Mr. Hodsdon, Mr. J. Shaw M'Laren, Mr. D. Wallace, Mr. Alexis Thomson, Mr. Alexander Miles and Mr. J. W. Dowden. Assistant Ophthalmic Surgeons: Dr. William George Sym and Dr. J. V. Paterson. Assistant Surgeon to the Ear and Throat Department: Dr. R. M'Kenzie Johnston. Dental Surgeon: Mr. William Guy. Pathologist: Dr. D. A. Welsh. Assistant Pathologists: Dr. Stuart M'Donald and Dr. Theodore Shennan. Surgical Registrar: Dr. Scott Carmichael. Superintendent: Colonel W. P. Warburton, M.D., C.S.I.

ROYAL HOSPITAL FOR SICK CHILDREN, Sciennes-road, Edinburgh.—This hospital, which has been recently built, contains 120 beds, and is fitted with every modern improvement. A fully-equipped out-patient [illegible] (medical and surgical) is conducted [illegible] adjoining the hospital. Systematic co [illegible] which qualify for graduation in the E [illegible] and elsewhere, are given from time to time throughout the year by the staff. Students may enter at any time. Full particulars can be obtained from the Registrar at the hospital.

EYE, EAR, AND THROAT INFIRMARY OF EDINBURGH, 6, Cambridge-street, Lothian-road.—The Infirmary has been entirely re-arranged and greatly improved by recent structural alterations and the electric light introduced; also the electric power is used for illumination and cauterising purposes in all departments. Clinical Lectures and Instruction are given in this institution, which is open at 1 o'clock daily for outdoor patients for Eye Diseases; Mondays, Thursdays, and Saturdays at 12 noon, and Tuesdays and Fridays at 4 P.M. for outdoor Ear Nose and Throat Patients. Special Practical Ophthalmoscopic Classes by arrangement. Patients whose diseases require operations or more than ordinary care are accommodated in the house. Consulting Surgeon: Dr. Joseph Bell. Surgeons: Dr. G. Hunter Mackenzie, Dr. William George Sym, Dr. Logan Turner, Dr. Malcolm Farquharson, Dr. John Cumming, and Dr. J. V. Paterson. Dental Surgeon: Mr. G. W. Watson. Treasurer and Secretary: Mr. J. P. Watson, W.S., 13, Hill-street.

GLASGOW WESTERN INFIRMARY.—This hospital adjoins the University of Glasgow. Number of beds upwards of 420. Special wards are set apart for Diseases of Women and for Affections of the Skin. In the out-patient department there are special cliniques for Diseases of Women and for Diseases of the Throat, Ear, and Teeth. The Clinical Courses are given by the Physicians and Surgeons, each of whom conducts a separate class, and students require to enter their names at the beginning of the session for the class which they propose to attend. Special instruction is given to junior students by tutors or assistants, and clinical clerks and dressers are selected from the members of the class. All the courses of clinical instruction are recognised by the University of Glasgow and the other boards in the kingdom. In the Pathological Department the course is both systematic and practical, also post-graduate courses, and extends through the winter and following summer; these are likewise recognised by the University for graduation. Ten resident assistants are appointed annually, without salary, from those who have completed their course. The fee for the hospital practice, including the various courses of clinical instruction, is 20 guineas in one payment, or in two equal instalments for the first and second year; for six months, 7 guineas; and for three months, 4 guineas.

Staff.—Honorary Consulting Physicians: Dr. G. P. Tennant and Sir W. T. Gairdner, K.C.B. Visiting Physicians: Professor T. McCall Anderson, Dr. J. Finlayson, Dr. S. Gemmell, and Dr. R. Stockman. Physicians for Diseases of Women: Professor M. Cameron and Dr. W. L. Reid. Assistant Physicians: Dr. J. Alexander, Dr. W. G. Dun, Dr. R. S. Thomson, and Dr. G. Dickson. Dispensary Physicians: Dr. R. B. Ness, Dr. W. MacLennan, Dr. W. R. Jack, Dr. H. E. Jones, Dr. Hugh Galt, and Dr. Jas. Carslaw. Dispensary Physicians for Diseases of Women: Dr. R. Kirk, Dr. G. A. Turner, Dr. J. M. M. Kerr, and Dr. E. H. L. Oliphant. Honorary Consulting Ophthalmic Surgeon: Dr. T. Reid. Honorary Consulting Surgeon: Dr. Geo. Buchanan. Visiting Surgeons: Dr. A. Patterson, Sir Hector C. Cameron, Professor W. Macewen, Professor J. C. Renton, and Dr. T. T. Beatson. Assistant Surgeons: Dr. T. K. Dalziel, Dr. J. H. Nicoll, Dr. D. Macartney, Dr. R. Kennedy, and Dr. A. A. Young. Dispensary Surgeons: Dr. G. B. Buchanan, Dr. J. Morton, and Dr. G. H. Edington. Extra Dispensary Physicians: Dr. H. E. Jones, Dr. H. Galt, and Dr. J. Carslaw. Dispensary Aural Surgeon: Dr. T. Barr. Dispensary Throat Surgeon: Dr. J. W. Downie. Vaccinator: Dr. J. W. Nicol. Pathologist: Professor R. Muir. Assistant Pathologist: A. R. Ferguson. Dental Surgeon: W. D. Woodburn. Medical Superintendent: Dr. D. J. Mackintosh.

ROYAL HOSPITAL FOR SICK CHILDREN, Glasgow, situated at Garnethill.—This Hospital was opened in December, 1882, and is now available to medical students for clinical instruction in the diseases peculiar to childhood. The hospital includes 80 beds for non-infectious cases only. A specially designed Dispensary, or Out-patient Department, was opened in October, 1888 Classes are formed both at [illegible] beginning of the University [illegible] be enrolled at any time. [illegible] to both Hospital and [illegible] to the House Surgeon, [illegible] Surgeon: [illegible] Rowan, [illegible] Walker, [illegible] and John Gilchrist, M B, C M Pathologist: Hugh Walker, M B, C.M. Electrician: John Gilchrist, M B, C M, House Surgeons: Thomas Kirkwood, M B, C M., and Alexander Garrow, M B, Ch B This institution is the Ophthalmic Department of the Royal Infirmary. A post graduate course is given by Dr. [illegible] mber and December [illegible] mmer session to stude [illegible] d in winter to studen [illegible] who take the class.

GLASGOW EYE INFIRMARY, Berkeley street and Charlotte-street.—This institution, the largest of its kind in Scotland, was founded in 1824 The Infirmary now consists of two large buildings—that in Berkeley-street being occupied as the Infirmary proper, and that in Charlotte-street (new buildings opened June, 1894) as a dispensary The Infirmary is devoted exclusively to the treatment of Diseases of the Eye, and is intended primarily to provide treatment, and, when necessary, board and lodging, for those who are unable to do so for themselves The average number of new patients for the last ten years has been 16,103 8 and the total number of cases treated in 1900 was 20 802. The Medical Staff is as follows —Surgeons: Thomas S Meighan, M D., A. Freeland Fergus, M.D., William Robertson, M D, Andrew Wilson, M.B, C M, James Hinshelwood, M A, M.D, Leslie Buchanan, M D. Assistant Surgeons: A. Lewis M'Millan, M D; W. Ernest Thomson, M A, M.D.; Henry L G. Leask, M D; W. Cochrane Murray, M.B, C M.; Brownlow Riddell, M.D, James D. Cochran, M.B, Ch B. Pathologist: Leslie Buchanan, M.D House Surgeon: Arthur J. Ballantyne, M.B, Ch B. Assistant House Surgeon: John Strathern, M.B., Ch B.

Regulations as to Attendance of Students—(1) Gentlemen may attend as students on payment to the treasurer of the following fees:—For six months £1 1*s*, twelve months £2 2*s* (2) All students when duly entered in the Infirmary Register may attend the clinical instruction of any or every member of the medical staff on production of their tickets. The days on which the surgeons respectively attend to receive patients may be ascertained at the Infirmary. Students have the privilege of being present in the Dispensaries at such hours as are arranged. They may enter the wards along with the surgeon whose clinique they are attending when he visits his patients They may also be present at operations under the sanction of the surgeon operating, but no student may enter the wards or operating-room except under the aforesaid regulation Students may be allowed the use of the journals and case-books for examination on applying to the House Surgeon. The wards and dispensary are recognised by the University of Glasgow for the purpose of instruction in ophthalmology for graduation in medicine Secretary and acting Treasurer: William George Black, 88, West Regent street. Medical session begins April.

IRISH SCHOOLS OF MEDICINE.[1]

QUEEN'S COLLEGE SCHOOL OF MEDICINE Belfast.—Ten Junior Scholarships have been founded in the Faculty of Medicine of the annual value of £20 each. Two are tenable by matriculated students, of the first, second, third, fourth, and fifth years of their course respectively. The examinations for Scholarships take place at the commencement of the session. Class Prizes are awarded at examinations which take place at the close of the session. The Exhibitions, &c., of the Royal University of Ireland are also open to students. Lectures in Medicine at Queen's College, Belfast, will commence on Oct. 16th and end on March 22nd. The Summer Medical Classes will begin on May 1st, except Botany, which begins on April 2nd. The new Chemical Buildings contain, in addition to a large class room for elementary practical chemistry, laboratories for qualitative and quantitative analysis, rooms for water and gas analysis, dark room for photographic purposes, balance room, &c, provided with all modern appliances. Special facilities are given to those who wish to pursue original research. The Anatomical Department contains a large and well-lighted, dissecting-room, a lecture room, a professor's and demonstrator's room, a bone room, and a laboratory for micros [illegible] medical museum is in [illegible] department (opened in [illegible] lighted class room for [illegible] fitted with motor and [illegible] lantern projection; (2) a laboratory for chemical physio- [illegible] (4) a dark-room; (5) private [illegible] trifuge room. The pathologi- [illegible] tment opportunity is afforded for research in pathology and bacteriology. The department is in touch with most of the hospitals in Belfast, and there is an ample supply of material for investigation by graduates in morbid histology, clinical pathology, and the bacteriology of infectious diseases. A course in pathology or bacteriology is given to graduates and members of this class have an opportunity of seeing the methods employed in the various investigations carried out in the department for the Public Health Committee of the corporation in connexion with water supply, sewage disposal, meat and milk supply, the diagnosis of cases of infectious diseases, &c The certificate issued to members of the class in bacteriology qualifies for the D P H degree. The pharmaceutical laboratory is fitted and equipped for the work of practically instructing students in the compounding and dispensing of medicines. Clinical instruction is given at the Royal Hospital, the medical staff of which is as follows:—Physicians: Professor Whitla, Professor Lindsay Dr H L McKisack, and Dr W Calwell Obstetrical Physician and Gynæcologist. Professor Byers Assistant Gynæcologist: Mr. H. Monypenny Surgeons: Dr J W. Browne, Dr T K. Wheeler, Mr A B Mitchell, and Professor Sinclair. Assistant Surgeons: Mr Robert Campbell and Dr T S Kirk Assistant Physician Dr W. B. McQuitty. Ophthalmic and Aural Surgeon: Dr J. Nelson Pathologist Dr J. L. Smith The Ulster Hospital for Diseases of Women and Children, the Maternity Hospital, the Ophthalmic Hospital, the Ulster Eye, Ear, and Throat Hospital, the Hospital for Sick Children, and the District Lunatic Asylum are open to students A pamphlet containing full information can be had free on application to the Registrar, Queen's College, Belfast.

QUEEN'S COLLEGE SCHOOL OF MEDICINE, Cork—The building is provided with a very large, well-ventilated dissecting-room, w[illegible] and pharmacent[illegible] and pathologica[illegible] and obstetrical [illegible] appointed physical, chemical, and biological laboratories, and a large natural history museum in the adjoining building, and part of the College ground is laid out as a botanical garden The plant houses are well filled with plants and are open to the students in the class of Botany.

Fees—For Practical Anatomy and for Practical Chemistry, £3 each course; for Anatomy and Physiology, £3 first course, and £2 for each subsequent course. Other medical classes, £2 first course, and £1 each subsequent course

Eight scholarships (value about £30 each), as well as several exhibitions and class prizes, are open to students in their first four years and the Blayney Scholarship, value £35, and a Senior Exhibition to students in their fifth year.

Students can attend the North and South Infirmaries, the Cork Union Hospital, the Cork Fever Hospital, the County and City of Cork Lying in Hospital, the Cork Maternity, the County and City of Cork Hospital for Diseases of Women and Children, the Cork Eye Ear, and Throat Hospital, and the Cork District Lunatic Asylum.

Staff—Physicians Dr. D D Donovan and Dr. E. Magner. Surgeons: Dr Cotter, Dr. C Y Pearson, Dr N. J. Hobart, and Dr D J O'Mahony Assistant Physician: Dr. R B.

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[1] For Scholarships see page 7[illegible]5 et

Dalton. Assistant Surgeons: Dr. J. Dundon and Dr. R P. Byrne. Pathologist: Dr. R. B. Dalton. House Surgeon: Dr. D. Murphy. Surgeon Dentist: Mr. H. O'Keeffe.

The South Charitable Infirmary has the following medical staff.—Physicians: Dr. P. T. O'Sullivan and Dr. N. I. Townsend. Surgeons: Dr. H. R. Townsend, Dr. H. Corby, and Dr. T. G. Atkins. Ophthalmic Surgeon: Dr. A. W. Sandford. Extern Physician: Dr. D. J. O'Flynn. Extern Surgeon: Dr. R. P. Crosbie. House Surgeon: Dr. E. V. Cantillon. Dentist: Mr T. C Butterfield.

HOSPITALS AFFORDING FACILITIES FOR CLINICAL OBSERVATION.

ADELAIDE MEDICAL AND SURGICAL HOSPITALS, Peter-street. Dublin.—Fee for nine months' hospital attendance, £12 12*s*.; six months, £8 8*s*. Summer, three months, £5 5*s*.

Staff.—Physicians: James Little, M.D., M.R.I.A.; Wallace Beatty, M.D., F.R.C.P.I.; H. T. Bewley, M.D., F.R.C.P.I. Surgeons: F. T. Heuston, M.D., F.R.C.S.I.; T. E Gordon, M.B., F.R.C S.I. Obstetric Surgeon: W. J. Smyly, M.D., F.R.C.P I. Ophthalmic Surgeon: H. R. Swanzy, M.B., F.R C.S.I. Throat Surgeon: S Horace Law, M.D., F.R C.S.I. Pathologist and Bacteriologist: J. Alfred Scott, M.D. F R.C.S.I. Assistant Physician: G. Peacocke, M.D., F.R.C.P. Assistant Surgeon: K. E. Levison-Gower Gunn, M.D., F.R.C.S. House Surgeon: O. R Millar, M.B., B.Ch.

A resident surgeon is elected yearly and three resident pupils half yearly. At the termination of the session prizes in Clinical Medicine and Surgery and in Obstetric Medicine will be awarded.

Hudson Scholar, 1901, Ernest Henley.

Hudson Scholarship.—In addition to the junior prizes, the Hudson Scholarship, £30 and a gold medal, as well as a prize of £10, together with a silver medal, will be awarded at the end of the session for proficiency in Clinical Medicine and Medical Pathology, Clinical Surgery and Surgical Pathology, Pathological Histology, Surgical Appliances, including instruments and bandaging, Ophthalmology and Gynæcology.

The certificates of attendance are recognised by all the Universities and licensing bodies in the United Kingdom. Further particulars may be obtained from Mr. F. T. Heuston.

COOMBE LYING-IN HOSPITAL AND GUINNESS DISPENSARY FOR THE TREATMENT OF DISEASES PECULIAR TO WOMEN, Dublin.—This hospital contains nearly 70 beds and consists of two divisions, one of which is devoted to lying-in cases and the other to the treatment of the diseases peculiar to women. The maternity department is one of the largest in Ireland, 3000 cases being annually treated either as intern or extern patients. A regular course of lectures is delivered in the hospital, and clinical instruction is given daily at the bedside There are two large dispensaries connected with the institution, at one of which instruction is given on the General Diseases of Women and Children, and in the other on the Diseases Peculiar to Women. There is accommodation for a limited number of intern pupils, who enjoy exceptional advantages of acquiring a practical knowledge of this branch of their profession. Two Resident Pupil Midwifery Assistants and one Clinical Clerk are elected half-yearly from among the pupils of the hospital. Certificates of attendance at this hospital are accepted by all licensing bodies, and the diploma is recognised by the Local Government Board as a full legal midwifery qualification. Fees (six months' course): extern pupils, 8 guineas, half payable in advance; intern pupils, 18 guineas for six months' residence. If pupils enter as interns by the month the fees are £4 4*s*. for first month, and £3 3*s*. for each succeeding month. Intern pupils enjoy very special advantages, which can be learned on application. Registration fee on entrance, 10*s*. 6*d*. Students can enter for attendance at any time. Further particulars may be had on application to the Master or the Registrar at the hospital.

Staff.—Consulting Physicians: Sir John T. Banks, Sir John W. Moore, and Dr. J. M. Redmond. Consulting Surgeons: Dr. F. T. Heuston and Dr. F. W. Kidd. Pathologist: Dr. E. J. McWeeney. Pathological Analyst: Sir C. A. Cameron. Master: Dr. T. G. Stevens. Assistants to the Master: Dr. Thomas Neill and Dr. Trevor N. Smith. Registrar: Fred. A. Heney.

SIR PATRICK DUN'S HOSPITAL.—Fees for attendance of students—nine months, £12 12*s*; winter session, £8 8*s*.; summer session, £5 5*s*. The hospital is open to extern students as well as to the students of Trinity College, and the certificates are recognised by all the licensing bodies in the kingdom. Dr. Taylor, Secretary to the Medical Board, will give any further information.

Staff.—Consulting Physician: Sir John Banks. Physicians: Dr. John Mallet Purser, Dr. Walter George Smith, Dr. John Magee Finny, Dr. Arthur Vernon Macan. Assistant Physician: Dr. Henry C. Drury. Surgeons: Dr. Edward H. Bennett, Dr. Charles B. Ball, Dr. Edward H. Taylor. Pathologist: Dr. Alexander C. O'Sullivan. Assistant Surgeon: Dr. R. H. Kennan. House Surgeon: Dr. C. A. K. Ball.

MERCER'S HOSPITAL.—This hospital, founded in 1707, is situated in the centre of Dublin, in the immediate vicinity of the Schools of Surgery of the Royal College of Surgeons, the Catholic University School of Medicine, and within five minutes' walk of Trinity College. It contains 120 beds for medical and surgical cases, and arrangements have been made with the medical officers of Cork-street Fever Hospital whereby all students of this hospital are entitled to attend the clinical instruction of that institution and become eligible for the posts of Resident Pupil, &c. There is a large out patient department and a special department for diseases peculiar to women. There are also special wards for the treatment and study of children's diseases. During the past few years the hospital has undergone extensive alterations in order to bring it up to modern requirements.

Appointments.—A House Surgeon is appointed annually. Five Resident Pupils, each for six months, and Clinical Clerks and Dressers are appointed monthly from amongst the most deserving members of the class.

Fees.—Winter, six months £8 8*s*; Summer, three months, £5 5*s*.; nine months, £12 12*s*.

For further particulars apply to R. Charles B. Maunsell, M.B., F.R.C.S., [illegible]2, Lower Baggot-street, Dublin.

MEATH HOSPITAL AND COUNTY DUBLIN INFIRMARY.—Physicians: Sir John William Moore, Dr. James Craig, and Dr. Edward E. Lennon. Surgeons: Sir Philip Smyly (Surgeon to the King), Mr. L. H. Ormsby (Vice-President of the Royal College of Surgeons in Ireland), Mr. W. J. Hepburn, Mr. William Taylor, and Mr. Lane Joynt. This hospital was founded in 1753 and now contains 160 beds available for clinical teaching. A new building for the isolated treatment of fevers has recently been added. The certificates of this hospital are recognised by all the universities and licensing bodies of the United Kingdom. Six Medical and Twelve Surgical Resident Pupils and Clinical Clerks and Dressers are appointed every six months, and a House Surgeon is elected annually. The session will open on Oct. 1st and the opening address will be delivered by Mr. William Taylor on Monday, Oct. 14th. A prospectus giving the complete arrangements for the Medical and Surgical classes for the coming session may be obtained from the Secretary of the Medical Board, R. Lane Joynt, F.R C S, 84, Harcourt-street, Dublin.

MATER MISERICORDIÆ HOSPITAL, Dublin. — Consulting Physician: Sir Francis R. Cruise Physicians: Sir Christopher Nixon, Dr. Joseph Redmond, Dr. John Murphy, and Dr. Martin Dempsey. Assistant Physician: Dr. John O'Donnell. Surgeons: Messrs. Patrick Hayes, Charles Coppinger, Arthur Chance, and John Lentaigne. Assistant Surgeon: Mr. Alexander Blayney. Obstetric Physician: Dr. Thomas More Madden. Ophthalmic Surgeon: Mr. Louis Werner. Dental Surgeon: Mr. Daniel Corbett, jun. Pathologist: Dr. Edmond McWeeney. Anæsthetist and Surgical Registrar: Dr Michael O'Sullivan. House Physicians: Dr. James Gorman and Dr. Michael Curran. House Surgeons: Mr. M. McDonough, Mr. A. Gill, Mr. A. J. Quirke, and Mr. Alexis J. Fitzgerald. This hospital, the largest in Dublin, at present containing 335 beds, is open at all hours for the reception of accidents and urgent cases. Fifty beds are specially reserved for the reception of patients suffering from fever and other contagious diseases. Instruction at the bedside will be given by the Physicians and Surgeons at 9 A.M. daily. Clinical Instruction will commence on Monday, Oct. 2nd, at 9 A.M. A course of Clinical Instruction on Fever will be given during the winter and summer sessions. A certificate of attendance upon this course, to meet the requirements of the licensing bodies may be obtained. Opportunities are afforded for the study of Diseases of Women in the ward under the care of the Obstetric Physician, and at the Dispensary held on Tuesdays and Saturdays. Ophthalmic Surgery will be taught in the Special Wards and Dispensary. Surgical Operations will be performed on Mondays, Tuesdays, Fridays, and Saturdays at 11 o'clock. Connected with the hospital are extensive Dispensaries, which afford valuable opportunities for the study of general Medical and Surgical Diseases, Accidents, &c Instruction will be given on Pathology and Bacteriology. Junior Appointments: Four House Physicians and eight House Surgeons will be appointed annually. Ten resident pupils will be elected from the most attentive of the class to hold office for six months For the current session the elections will take place in November, 1899, and in May, 1900 Dressers and Clinical Clerks will be appointed, and certificates will be given to those who perform their duties to the satisfaction of the staff. Leonard Prizes: One Gold and one Silver Medal will be offered for competition annually in the subject of Medicine, and one Gold and one Silver Medal in the subject of Surgery. Junior Leonard Prizes: One prize value £3 and one prize value £2 will be awarded in Medicine, and one prize value £3 and one prize value £2 will be awarded in Surgery. They will be awarded on the aggregate of marks gained for Reports of Cases and at a Clinical Examination to be held at the close of the summer session. For further particulars see prospectus. Certificates of attendance upon [illegible] the Universities and licen[illegible] Private Wards have been [illegible] and Surgical cases. A Training School and Home for Trained Nurses have been opened in connexion with the Hospital.

Terms of attendance—Nine months, £12 12*s*.; six winter months, £8 8*s*; three summer months, £5 5*s*. Entries can be made with any of the physicians or surgeons, or with the Registrar, Arthur Chance, F.R C S, 90 Merrion square. A prospectus containing in detail the arrangements for Clinical Instruction, Prizes, &c., may be obtained from the Secretary, Dr. Joseph Redmond, 41, Merrion-square, E, Dublin.

RICHMOND, WHITWORTH, AND HARDWICKE HOSPITALS, North Brunswick-street, Dublin.—These hospitals contain 312 beds—110 for Surgical cases, 82 for Medical cases, and 120 for Fever and other epidemic Diseases. A Resident Physician and a Resident Surgeon are appointed each year and are paid for their services. Clinical Clerks: Five Resident Clinical Clerks are appointed each half-year, and provided with furnished apartments, fuel, &c. These appointments are open not only to advanced Students as formerly, but also to those who are qualified in Medicine or Surgery. The Dressers are selected from among the best qualified of the pupils without the payment of any additional fee. For prospectuses apply to Sir W. Thomson, F R C S., Treasurer, 54, Stephen's-green East; or to J O'Carroll, M.D., Honorary Secretary, 43, Merrion square, Dublin.

ROTUNDA HOSPITAL, Rutland square, Dublin.—This institution consists of two distinct hospitals—namely, the Lying-in Hospital and the Auxiliary Hospital, the latter for the reception of patients suffering from Uterine and Ovarian Diseases There is a large extern maternity and also a Dispensary for Diseases Peculiar to Women, which is open daily Clinical instruction is given daily (Saturdays excepted) in Midwifery and the Diseases peculiar to Women, special attention being directed to the application of antiseptics in Midwifery. Accommodation is provided for a limited number of intern pupils. Consulting Physician. Dr James Little. Consulting Surgeon: Sir Philip C Smyly. Master: Dr. R. Dancer Purefoy. Assistant Physicians *Dr. H. C Lloyd* and *Dr. P. Carton*. Clinical Clerks: Dr. M. T Goldstine and Dr W. F. Colclough

DR. STEEVENS'S HOSPITAL.—This hospital, containing beds for 200 patients, is situated close to the Kingsbridge Terminus of the Great Southern and Western Railway, occupying a position in the centre of one of the busiest manufacturing districts of the city, otherwise unprovided with medical institutions, and affords exceptional advantages for clinical instruction. Immediately adjoining is St. Patrick's (Swift's) Asylum for the Insane. The hospital is easily accessible by two lines of tramways. There is a ward entirely devoted to Venereal Disease, a detached building for Fever Cases, and an extensive Out-patient Department, with separate Clinics for Diseases of the Skin, Throat, Eye, Ear, Teeth, and Women. The hospital is visited daily by the physicians and surgeons. The wards are also visited by the resident surgeon each evening. Clinical Lectures are given by the physicians and surgeons during the session. There is accommodation in the hospital for four medical, six surgical, and two special resident clinical assistants.

Fees—Hospital Practice: Nine months, £12 12*s*; six months, £8 8*s*; three months, £5 5*s* Dressership: £10 10*s*, each three months. Further information may be obtained from the Resident Surgeon or from R A. Hayes, M.D., Honorary Secretary, 82, Merrion square South.

PUBLIC HEALTH.

INSTRUCTION FOR DIPLOMAS IN STATE MEDICINE

ENGLAND.

THE following recommendations, designed with a view of ensuring "the possession of a distinctively high proficiency, scientific and practical, in all the branches of study which concern the public health," were adopted by the General Medical Council in 1896.[1] The regulations require that—"(1) A period of not less than twelve months shall elapse between the attainment of a first registrable qualification in Medicine, Surgery, and Midwifery and the examination for a diploma in Sanitary Science, Public Health, or State Medicine; (2) every candidate shall have produced evidence of having attended, after obtaining a registrable qualification, during a period of six months, practical instruction in a laboratory approved of by the body granting the qualification; (3) every candidate shall have produced evidence of having for six months practically studied the duties of outdoor sanitary work either under a *medical officer* of health who is a teacher in public health in a recognised school, or under the medical officer of health of a county or of a single sanitary district of 50,000, or in one or more districts of 30,000 in Scotland or Ireland; (4) the examination shall have been conducted by examiners specially qualified, and shall comprise laboratory work as well as written and oral examination; (5) the rules as to study shall not apply to medical practitioners registered, or entitled to be registered, on or before Jan 1st, 1890." It was enacted by Section 18 (2) of the Local Government Act [England and Wales], 1888, that after Jan. 1st, 1892, no such appointment (that of medical officer of health) may be made in any county, or in any district or combination of districts with a population of 50,000 or upwards, unless the officer—having, of course, qualifications in Medicine, Surgery, and Midwifery—is registered as the holder of a diploma in Sanitary Science, Public Health, or State Medicine under Section 21 of the Medical Act, 1886 or has during any three consecutive years preceding 1892 been medical officer of a district or combination of districts with a population of 20,000 at least, or has for three years previously to August 13th, 1888, been a medical officer or inspector of the Local Government Board. With the sanction of the Local Government Board the same person may be appointed medical officer for two or more districts.

After Christmas, 1901, when the last examination under the above regulations will be held, the conditions will be considerably modified It will then be necessary that a candidate before admission to the examination shall, in addition to the other requirements, "have been for six months associated day by day in the duty, routine and special, of *public health administration under the supervision of a* medical officer of health" who must hold office of a specified nature. The candidate will also be called upon to produce evidence that he has attended for three months the practice of a fever hospital at which opportunities are afforded for the study of methods of administration.

The regulations in question as to study, which may be procured at the office of the General Medical Council in London, shall not apply to medical practitioners registered, or entitled to be *registered, on or before Jan. 1st, 1890.*"

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[1] The regulations were last settled on June 9th, 1896, and came into operation on Jan 1st, 1897.

London University.—Sanitary Science is included under the head of State Medicine in the M.D. degree, and a certificate has to be produced showing that a course of practical instruction has been attended for the prescribed period, and that the course has included such chemical, microscopical, and meteorological work and exercises as more especially relate to sanitation. The attendance includes six months' practical instruction in a laboratory and six months' outdoor sanitary work. Certificates will be received from the holder of any public health office directly or indirectly subject to control by a Secretary of State or a Government Department. Candidates for the M.D. degree in State Medicine must have (1) studied State Medicine for two years or (2) have studied State Medicine for one year and have held for a period of two years the position of medical officer of health in any sanitary district, or (3) *without having studied State Medicine* have held for a period of three years the position of medical officer of health in any sanitary district.

Cambridge University.—Two examinations in so much of State Medicine as is comprised in the functions of medical officers of health will be held during the year 1900 in Cambridge. Each examination will consist of two parts. Part I. will begin on the first Tuesday in April and October respectively; Part II. will begin on the second Tuesday in April and October respectively; and each part will end on the following Thursday. Any person whose name is on the Medical Register is admissible as a candidate for this examination provided (1) a period of not less than twelve months shall have elapsed between the attainment of registrable qualification and the time when he presents himself for either part of the examination; (2) he produce evidence of having, *after obtaining a registrable qualification*, attended during three months the practice of a hospital for infectious diseases at which opportunities are afforded for the study of methods of administration; (3) he produce evidence of having, *after obtaining a registrable qualification*, attended during a period of six months on one or more courses, approved by the Syndicate, of practical laboratory instruction in Chemistry, Bacteriology, and the Pathology of those diseases of animals that are transmissible *to man*; (4) he produce evidence of having, after obtaining a registrable qualification, for six months (of which at least three months shall be distinct and separate from the period of laboratory instruction) been associated day by day in the duty, routine and special, of public health administration under the supervision of: (*a*) In England and Wales either the medical officer of health of a county or of a single sanitary district having at the date of the last census a population of not less than 50,000 or the medical officer of health of a combination of two or more sanitary districts having collectively at the date of the last census a population of not less than 35,000; or (*b*) in Scotland or Ireland the medical officer of health of a county or of one or more sanitary districts having at the date of the last census a population of not less than 30,000; or (*c*) a medical officer of health who is a teacher in the department of public health of a recognised medical school. A certificate of an assistant officer of health of a county or a large urban district may be accepted, provided the medical officer of health of a county or district consents to the assistant officer giving such instruction. Any candidate who shall produce evidence that he has himself held an appointment as medical officer of health under conditions not requiring the possession of a special sanitary diploma shall be exempt from this regulation. The provisions as to previous study shall not apply to medical practitioners registered, or entitled to be registered, on or before Jan. 1st, 1890. The first part of the examination will have reference to the general principles of sanitary science and will comprise the following subjects. The elements of chemistry and physics: methods of chemical analysis and in particular the analysis of air and water. The laws of heat and the elements of pneumatics, hydrostatics, and hydraulics in their application to warming, ventilation, water-supply, and drainage. The geological and other conditions determining the healthiness of sites for dwellings. Sources, storage, and purification of water-supply. The elements of meteorology in relation to health. Principles of building construction in their application to dwellings, hospitals, and schools. The disposal of sewage and refuse and the general principles of sanitary engineering. Disinfectants, their chemistry and use. The chemical and microscopical examination of foods and the detection of the commoner for [illegible]. The methods of bacteriological [illegible]. The bacteriology of air, water, [illegible] general pathology of infection, and of the diseases of animals that are transmissible to man. The second part of the examination will have reference to State Medicine and to the applications of Pathology and Sanitary Science, and will comprise the following subjects. Laws and Statutes relating to Public Health.[1] The model by-laws of the Local Government Board. Sanitation of dwellings, schools, factories, and workshops, and of villages and towns. Inspection of slaughter-houses, cowsheds, &c. Inspection of meat and other articles of food. General epidemiology, with special reference to the origin, pathology, symptoms, propagation, geographical distribution and prevention of the epidemic, endemic, and other infective diseases both of temperate and of tropical climates. The methods applicable to the medical investigation of epidemics. Effects on health of overcrowding, vitiated air, impure water, polluted soils, and bad or insufficient food. Unwholesome trades and occupations, and the diseases to which they have rise. Nuisances injurious or dangerous to health. The effects on health of season and climate. The principles and methods of vital statistics in relation to public health. (N.B.—The foregoing schedule is not to be understood as limiting the scope of the examination, which will include every branch of sanitary science. No candidate will be approved by the examiners who does not show a high proficiency in all the branches of study, scientific and practical, which bear upon the duties of medical officers of health.) The examination in both parts will be oral and practical, as well as in writing. One day at least will be devoted to practical laboratory work and one day to oral and practical examination in, and reporting on, subjects connected with outdoor sanitary work. Candidates may present themselves for either part separately or for both together at their option; but the result of the examination in the case of any candidate will not be published until he has passed to the satisfaction of the examiners in both parts. Every candidate will be required to pay a fee of £6 6*s.* before admission or re-admission to *either part* of the examination, but candidates who have presented themselves before the year 1896 will be re-admitted to either part on payment of a fee of £5 5*s.* Every candidate who has passed both parts of the examination to the satisfaction of the examiners will receive a diploma testifying to his competent knowledge of what is required for the duties of a medical officer of health. All applications for information respecting this examination should be addressed to Dr. Anningson, Walt-ham-sal, Barton-road, Cambridge, Secretary to the Syndicate. Candidates who desire to present themselves for the examination must send in their applications on forms supplied for the purpose and transmit them with the fees to J. W. Clark, M.A., Registrary, University of Cambridge, for the April examination on or before March 17th and for the October examination on or before Sept. 15th. The prescribed certificates must be sent to the Registrary so as to reach him not later than 10 A.M. on March 29th and Sept 27th respectively. Cheques should be crossed "Barclay and Co., Ltd." The fee for either part of the examination cannot be returned to any candidate who fails to present himself; but he will be entitled, without an additional fee, to be a candidate on one subsequent occasion. Candidates must before admission to either part of the examination produce evidence of having satisfied provisions (1), (2), and (3), and before admission to Part II. having satisfied provisions (4), above mentioned. The following is a list of colleges and schools of medicine at which the courses of laboratory instruction have, for the purposes of this examination, been already approved by the State Medicine Syndicate: The Chemical and Pathological Laboratories, Cambridge; the London Hospital Medical College; St. Bartholomew's Hospital Medical College; King's College, London; University College, London; the Army Medical School, Netley; Owens College, Manchester; the University of Durham Medical School, Newcastle-on-Tyne; Mason College, Birmingham; University College and Southern Hospital School, Liverpool; St. Mary's Hospital Medical

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[1] All candidates will be examined in the provisions of the English Statutes relating to public health, but any candidate will be given an opportunity of showing a special knowledge of other sanitary laws in operation within the British Empire, provided that, *when applying for admission to the examination, he give notice* of his desire and indicate the special law he proposes to offer.

College; Charing-cross Hospital College; Westminster Hospital Medical School; University College, Bristol; Yorkshire College, Leeds; Guy's Hospital Medical School; St. Mungo's College, Glasgow; Edinburgh University Public Health Laboratory; Middlesex Hospital Medical School; Royal Southern Hospital, Liverpool; Royal Colleges, Edinburgh; Surgeons' Hall, Edinburgh; British Institute of Preventive Medicine; Trinity College, Dublin; Queen's College, Belfast; St. Thomas's Hospital Medical School; University College, Cardiff; and University College, Sheffield.

University of Oxford (Diploma in Public Health).—An examination, open to all registered medical practitioners, conducted partly in writing, partly *vivâ voce*, and in each subject partly practical, is held in Michaelmas Term in the following subjects:—General Pathology (with special relation to Infectious Diseases), the Laws relating to Public Health, Sanitary Engineering, Vital Statistics. The fee for admission to the examination is £10. For further information application should be made to the Secretary to the Boards of Faculties.

University of Durham.—Sanitary Science is the special object of the degrees in Hygiene. Candidates for the degree of Bachelor in Hygiene (B. Hy.) must be at least twenty-two years of age and registered, and before presenting themselves for examination must have been for at least twelve months graduates in Medicine of a recognised university. They shall spend six months at Newcastle-upon-Tyne studying Public Health, Comparative Pathology, Practical Bacteriology, Outdoor Sanitary Work, Infectious Diseases, Sanitary Chemistry; and Physics. They have to pass an examination in Sanitary Chemistry, Physics, Comparative Pathology, Sanitary Legislation, Vital Statistics, Nosology, Climatology, Meteorology, Distribution of Health and Disease, Sanitary Medicine and Practical Hygiene. The fee for the examination for the degree of B.Hy. is 10 guineas, and for the degree £6 6s. The examination is divided into two parts and candidates may present themselves for either part or both together at their option. Candidates for the degree of Doctor in Hygiene (D.Hy.) must have acquired the degree of Bachelor in Hygiene, must for two years subsequently have been engaged in practice as a medical officer of health and must write an essay upon some practical hygienic subject. The fee for the examination for the degree of D.Hy. is £5, and for the degree £6 6s. The regulations for education and examination for the Diploma in Public Health (D.P.H.) are the same as those for the degree of Bachelor of Hygiene except that the candidate is not required to be a graduate in Medicine of a recognised University, and the course of study need not be passed at Newcastle-upon-Tyne. The fee for the examination and Diploma in Public Health is ten guineas.

Victoria University.—An examination in Public Health is held yearly under the following regulations: The examination is in two parts, and is written, oral, and practical. Candidates before entering for either part of the examination must have held for not less than twelve months a registrable qualification in Medicine, Surgery, and Midwifery, and must present satisfactory certificates of having attended courses of instruction in Public Health in a college of the University, or in a college or medical school recognised for this purpose by the University; of having attended, after obtaining a registrable [illegible] nstruc- [illegible] courses [illegible] cteriolo- [illegible] which [illegible] tended for three months the clinical practice of a hospital for infectious diseases; of having practically studied the duties of outdoor sanitary work for not less than six months under the medical officer of health of a county or of a large urban district. Candidates may present themselves for Parts I. and II. separately or at the same time, provided that no candidate be admitted to Part II. unless he has already passed in Part I. No candidate's name will be published until he has satisfied the examiners in both parts of the examination. The fee for each part is £5 5s., and must be paid on or before July 1st in each year. For any subsequent examination in the same part the fee will be £3 3s. Every candidate who has passed both parts of the examination to the satisfaction of the examiners, and who is legally registered, will receive a Diploma in Public Health. The examinations will begin on the third Monday in July each year.

Royal College of Physicians of London and the Royal College of Surgeons of England.—The following are the regulations for obtaining the Diploma in Public Health:—Section 1: Candidates must be registered under the Medical Act. The examination consists of two parts. The fee for each part is £5 5s. A candidate intending to present himself must give fourteen days' written notice to the Secretary, at the Examination Hall, Thames Embankment, W.C. A candidate registered under the Medical Act on or before Jan. 1st, 1890, will be admissible to Part I. of the examination on producing evidence of being at least twenty-three years of age, and to Part II. on producing evidence of being at least twenty-four years of age. A candidate registered under the Medical Act after Jan. 1st, 1890, will be admissible to examination in Part I. on producing evidence (1) of having been in possession of a registrable qualification in Medicine, Surgery, and Midwifery for at least twelve months; (2) of having attended, after obtaining such registrable qualification, practical instruction in a laboratory recognised by the Examining Board in England during a period of six months; and (3) of being at least twenty-three years of age. A candidate will be admitted to Part II. of the examination on producing evidence (1) of having been associated day by day in the duty, routine and special, of Public Health administration during six months (of which at least three months shall be distinct and separate from the period of laboratory instruction required under Para. 2 for Part I.) under the supervision of a medical officer of health who fulfils certain conditions which can be ascertained on application to the secretary; (2) of having attended the clinical practice of a hospital for infectious diseases recognised by the Examining Board in England, after obtaining his registrable qualification in Medicine, Surgery, and Midwifery; and (3) of being at least twenty-four years of age.

King's College, London.—The necessary Laboratory Instruction to comply with the regulations of the various Universities and other Medical Licensing Bodies will be given by Professor William R. Smith, M.D., D.Sc., and Professor Hewlett, M.D. Lond. The syllabus includes Physics, Chemistry, Microscopy; Parasites and other Organisms Infesting Food-stuff or the Human Body; Bacteriology, including the Cultivation and Recognition of Micro-organisms. The course will last six months, four months of which will be spent in the Laboratories of Public Health, and two months in the Bacteriological Laboratory. Fee 20 guineas, payable in advance in the College office. Under the direction of Professor William R. Smith, M.D., D.Sc., and Demonstrator E. Russell, B.Sc., F.C.S., practical instruction will be given in the laboratories in the methods of Analysis of Air, Water, Foods, &c.; Detection of Poisons. Fees, one month, £4 4s.; three months, £10 10s. The laboratories are also available for original investigations and practical work in Public Health, and are open daily from 9 A.M. to 4 P.M. and on Saturdays to 1 P.M. In Public Health special classes will be held during the winter session by Professor W. R. Smith; fee, £12 12s. The Bacteriological Laboratory is open daily for original research under the direction of the professor and demonstrator of General Pathology and Bacteriology. For one month for original research, 5 guineas. For a longer period by arrangement. For one month for private study, with supervision, 5 guineas. For a longer period by arrangement. Practical course for a month, with attendance on lectures, 5 guineas. For a year, 30 guineas. Professor H. G. Seeley, F.R.S., will deliver a course of six lectures on Physiography.

University College, Bristol.—A course of lectures on the Principles and Practice of Hygiene is given at the College by D. S. Davies, M.D. Lond., D.P.H. Cantab., on Mondays and Fridays, 10-11 A.M., commencing on the first Monday in October. A six months' course of Practical Laboratory Instruction is given at the Western Counties' Laboratory, Park-street, by Mr. F. Wallis Stoddart, commencing on the first Wednesday in October, and including the subjects of Chemistry and Physics. Instruction in Bacteriology is given at the College by Professor A. F. Stanley Kent, M.A., F.L.S., F.G.S. Demonstrations on the provisions and practical working of the various Acts relating to Public Health and on the Orders, Circulars, and By-laws of the Local Government

Board are delivered by Mr. J C Heaven on Mondays and Fridays, commencing on the first Monday in October. Gentlemen taking out the course are admitted to practical outdoor sanitary work during the session, under the supervision of the medical officer of health for the city and port of Bristol. They are considered as pupil assistants and are required to carry out diligently such of the duties of medical officers of health as they may be directed to undertake. Facilities are afforded during the course for the study of those diseases of the lower animals which are communicable to man. Fee for the entire course, 30 guineas.

University of Birmingham.—The University grants a degree of B.Sc. in Public Health and also a Diploma in the same subject on the following conditions: Graduates in Medicine of this University may become candidates for the degree of Bachelor of Science in Public Health, by conforming to all the requirements laid down for candidates for the Diploma in Public Health, except that after graduating in Medicine all courses of study must be taken out in the University and they must, in addition, have attended a three months' course of Geology in the University. The following are the regulations for Diploma in Public Health (general conditions):—1. All candidates must be registered under the Medical Act. 2. The examinations will be held in the months of January and June, and will consist of two parts. No candidate will be allowed to pass Part II. until he has passed Part I. 3. Candidates may enter for Parts I. and II. separately or at the same time. 4. The examination in each part will be written, oral and practical. 5. Candidates intending to present themselves for either part of the examination must give 14 days' notice in writing to the registrar of the University. 6. The fee for each part of the examination is £5. The conditions of admission to the examinations are as follows:—I.—For candidates registered under the Medical Act on or before Jan. 1st, 1890. Candidates so registered will be allowed to sit for examination on producing certificate of registration. II.—For candidates registered under the Medical Act after Jan. 1st, 1890. Candidates will be admitted to examination on producing evidence: (1) of being at least 23 years of age, and of having been possessed of a registrable qualification in Medicine, Surgery, and Midwifery, for a period of 12 months; (2) of having received, after obtaining a registrable qualification, during six months, practical instruction in a Laboratory or Laboratories, British or Foreign, approved by the University, in which Chemistry, Bacteriology, and the Pathology of the Diseases of Animals transmissible to Man are taught; (3) that, after obtaining a registrable qualification, he has, during six months (of which at least three months shall be distinct and separate from the period of laboratory instruction required under Rule 2) been associated day by day in the duty, routine and special, of public health administration under the supervision of: (*a*) in England and Wales, the medical officer of health of a county or of a single sanitary district having a population of not less than 50,000, or a medical officer of health devoting his whole time to public health work; or (*b*) in Scotland, a medical officer of health of a county or counties, or of one or more sanitary districts having a population of not less than 30 000; or (*c*) in Ireland, a medical superintendent officer of health of a district or districts having a population of not less than 30,000; or (*d*) a medical officer of health who is also a teacher in the department of Public Health of a recognised medical school (the certificate of an assistant medical officer of health of a county or of a single sanitary district having a population of not less than 50,000 may be accepted as evidence under Rule 3, provided the medical officer of health of the county or district in question permits the assistant officer to give the necessary instruction and to issue certificates); and (4) that after obtaining a registrable qualification he has attended during three months the practice of a hospital for infectious diseases, recognised by the University, at which opportunities are afforded for the study of method of administration.

SCOTLAND.

Edinburgh University.—Two degrees in Science in the Department of Public Health are conferred by the University of Edinburgh, viz., Bachelor of Science in Public Health and Doctor of Science in Public Health. Candidates for the degree of B.Sc. in Public Health must be graduates in Medicine of a University of the United Kingdom, or of some other University recognised for the purpose, and must pass two examinations, for the first of which they must, after graduation in Medicine, have worked for at least twenty hours per week during a period of not less than eight months, of which at least five consecutive months must be in the Public Health Laboratory of the University of Edinburgh and the remainder either there or in a laboratory recognised by that University; they must also have attended lectures on Physics and Geology in some Scottish University. Candidates are not admitted to the Second Examination sooner than six months after having passed the First Examination, nor sooner than eighteen months after having taken their degree in Medicine, and they must have attended two separate courses in Public Health in some University of the United Kingdom or in such medical school or Indian, Colonial, or Foreign University as may be approved for the purpose by Edinburgh University, each course consisting of forty lectures at least; one of these courses shall deal with medicine and the other with engineering, each in its relation to public health. They must also give evidence (1) that for six months they have practically studied sanitary work under the medical officer of health of a county or borough or district containing a population of not less than 25,000; (2) that they have had three months' clinical instruction regarding fevers and infectious diseases; and (3) that they have had three months' instruction in mensuration and drawing. The subjects of examination include Laboratory work, Physics, Geology, Medicine in its application to Public Health, Sanitation, Sanitary Law, and Vital Statistics. Graduates who have held the degree of B.Sc. in Public Health from the University of Edinburgh for a term of five years may offer themselves for the degree of D.Sc. in Public Health in that University. They must then present a Thesis and pass an examination in Public Health. The fees are £3 3*s.* for the First and £3 3*s.* for the Second B.Sc. Examinations, and £10 10*s* for the degree of D.Sc.

University of Aberdeen.—The Diploma in Public Health (D.P.H.) is conferred only on graduates in Medicine of a University in the United Kingdom; and a period of not less than twelve months must elapse between medical graduation and entrance to the examination for the diploma. Every candidate must produce evidence of having attended, after graduation in Medicine, during a period of six months, practical instruction in Hygiene and Bacteriology in laboratories approved of by the University, together with having for a like period after graduation practically and daily studied the duties of outdoor sanitary work under the medical officer of health of a county or large urban district, or of having himself held appointment as medical officer of health. He must also have regularly attended for six months the wards of a general fever hospital containing not less than fifty beds. Every candidate who is not a graduate in Medicine of this University must have attended a course of instruction in the University in one or more of the subjects embraced in the examination for the diploma. The diploma is conferred after an examination in Public Health held in March and July of each year. Candidates desiring to appear for examination at either of these periods must send in their names, with the necessary fee, to the Secretary of the Medical Faculty a fortnight before the examination. The fee is £5 5*s.* The examination is conducted by specially qualified examiners appointed by the University. Candidates may enter for the whole examination at one period or they may enter for Part I. at one period and for Part II. at another and subsequent period.

The Royal Colleges of Surgeons and Physicians of Edinburgh and the Faculty of Physicians and Surgeons of Glasgow.—All candidates for the Diploma in Public Health must have been qualified for at least one year. Those qualified before 1890 and also those who have held the position of medical officer of health to a county or to an urban district of more than 20,000 inhabitants, or an entire rural sanitary district, do not require to produce evidence of attendance on any special courses. All other candidates must have attended, after qualifying, six months' practical instruction in a recognised public health laboratory or laboratories, and must have studied for six months the duties of outdoor sanitary work under the medical officer of health of a county or large urban district, or must themselves have held an appointment as medical officer of health under conditions not requiring the possession of a sanitary diploma. It is also recommended where possible to take out a course of instruction in the diseases of animals transmissible to man. There are two examinations, and candidates may enter for both at one period or for either separately. The First Examination includes (*a*) Laboratory Work (Chemistry and Bacteriology), (*b*) Physics, and (*c*) Meteorology; and the Second Examination embraces (*a*) Report on Premises visited, (*b*) Examination at Fever Hospital, (*c*) Examination at Public Abattoir, (*d*) Written and Oral Examinations on Epidemiology and Endemiology, (*e*) Vital Statistics and Sanitary Law, and (*f*) Practical Sanitation. The fee is 12 guineas for both examinations, or 6 guineas for either of them. A fee of £3 3*s*. is payable by rejected candidates for either examination. The examination is held twice yearly in May and October. The published regulations provide detailed synopses of the subjects of examination and give lists of books from which to select. The Registrar for Edinburgh is Mr. James Robertson, solicitor, 54, George-square, and for Glasgow Mr. Alexander Duncan, LL.D., 242, St. Vincent-street.

IRELAND.

Royal University of Ireland.—This University grants a Diploma in Sanitary Science. It is conferred only on graduates in Medicine of the University. Candidates are not admitted to this examination until the lapse of twelve months from the time of obtaining the first registrable qualification; they must give notice in writing to the Secretaries of their intention to present themselves and must pay the fee, £2 at least one month previously to the examination. Candidates are required to produce a certificate of having, *after obtaining the degree of M.B., B Ch., B.A.O.*, attended six months' practical instruction in a laboratory approved by the University, and also of having for six months practically studied the duties of outdoor sanitary work under the Medical Officer of Health of a county or large urban district. Candidates at this examination must answer in the following subjects. (1) Physics, (2) Climatology, (3) Chemistry, (4), Microscopy, (5) Bacteriology, (6) Geology, (7) Sanitary Engineering, and (8) Hygiene, Sanitary Law, and Vital Statistics.

University of Dublin.—The Diploma in Public Health is conferred, after examination, on the following conditions:—The candidate must be a Doctor in Medicine or a graduate in Medicine and Surgery of Dublin, Oxford, or Cambridge. The name of the candidate must have been on the Medical Register at least twelve months before the examination. The candidate must have completed (unless registered as a practitioner on or before Jan. 1st, 1890), subsequently to registration, six months' practical instruction in a laboratory approved by the University and also have studied practically outdoor sanitary work for six months, under an approved officer of health. The subjects of examination will be:—Part I: Chemistry, Bacteriology, and Hygiene, Pathology (including methods of post-mortem examinations), Physics, and Meteorology. Part II.: Hygiene and Epidemiology, Vital Statistics, Public Health Acts, Sanitary Engineering, and Reports.

Royal College of Physicians and Royal College of Surgeons in Ireland.—Stated examinations for the Diploma in Public Health are held in the months of February, May, and November. A special examination for the diploma can be (except during the months of August and September) obtained on payment of £10 10*s*., in addition to the ordinary fees mentioned below, and on giving notice at least one fortnight before the date of the proposed examination Every candidate for the Diploma in State Medicine must be a registered medical practitioner. (Candidates registered or entitled to be registered prior to January, 1890, are exempt from the rules as to study.) He must subsequently to qualification (1) receive six months' laboratory instruction in Chemistry, Bacteriology, and the Diseases of Animals transmissible to man; and (2) during six months either practically study outdoor sanitary work under a medical officer of health or himself hold an appointment of medical officer of health under conditions not requiring the possession of a special sanitary diploma and shall as an additional requirement attend a hospital for infectious diseases, unless this has been already done during his ordinary medical course. Candidates are examined on four days commencing on the first Tuesday of February, May, and November, Each candidate must return his name to the secretary of the Committee of Management under the Conjoint Scheme three weeks before the examination, and lodge with him a testimonial of character from a Fellow of either of the Colleges, or of the Royal Colleges of Physicians or Surgeons of London or Edinburgh. The fee for the examination is £10 10*s* The examination for the diploma in State Medicine comprises the following subjects:—State Medicine and Hygiene, Chemistry, Meteorology and Climatology, Engineering, Vital Statistics, Law and Bacteriology. For further particulars apply to the Secretary, Committee of Management; Office, Royal College of Physicians, Dublin.

DENTAL SURGERY.

ANYONE who is on the Medical Register is entitled to practise as a dentist, although he cannot register as such without the special licence; but it is of eminent advantage to take the L.D S., otherwise few dental appointments at general or special hospitals or dispensaries are available, and, what is still more important, the manual dexterity and knowledge of mechanics requisite for the successful practice of dentistry can only be gained by long and careful training at the dental operating chair and in the dental laboratory; and, this having been attained, it costs but little trouble to pass the special examinations. The subjects beyond those included in the general qualification are—Dental Anatomy and Physiology (Human and Comparative), one course; a separate course of Dental Histology, including the preparation of microscopical sections; Dental Surgery, one course; a separate course of Practical Dental Surgery; a course of not less than five lectures on the Surgery of the Mouth; Dental Mechanics, one course; a course of Practical Dental Mechanics, including the manufacture and adjustment of six dentures and six crowns, Dental Metallurgy, one course; a course of Practical Dental Metallurgy; Practice of Dental Surgery at a recognised school, two years, and a certificate of having been engaged during a period of not less than three years in acquiring a knowledge of Dental Mechanics (this may be obtained by apprenticeship to a duly qualified dental practitioner or in the mechanical department of a recognised dental hospital). In the case of qualified surgeons two years will suffice. The Dental Schools in London are the Dental Hospital of London, the National Dental Hospital and College, and Guy's Hospital Dental School. Most of the large provincial towns have now dental hospitals A convenient arrangement by which, the M.R.C S., L.R C.P., and L.D.S. can be taken is as follows:—The Preliminary Examination in General Education having been passed the student should become apprenticed to a qualified dentist and register as a dental and medical student. (This instruction, however, may be taken prior to the date of registration as a dental student.) During his apprenticeship the student should receive instruction in Chemistry and Physics, Pharmacy and Elementary Biology, and pass in these subjects before entering the hospital. (The foregoing constitute the First Examination.) Having entered the hospital the student should attend the dental and general courses contemporaneously, and pass at the end of the second winter the Second Examination—namely, Anatomy and Physiology. At the completion of his second year of study the Dental Examination should be passed. The student should then devote his time to general studies and pass the Third Examination. When time permits it is advisable to attend the general hospital only until after the First and Second Examinations have been passed. At this point a break may be made to admit of the completion of the dental curriculum and the passing of the examinations for the L.D.S. diploma The best course, however, is to entirely finish the curriculum for the M.R.C.S. and L R.C.P. and then take the special Dental work. The regulations for the Dental Licence of the Royal Colleges of Ireland and Edinburgh and of the Faculty of Physicians and Surgeons of Glasgow are very similar to those of the English College. The L.D.S. can also be obtained alone.

REGISTRATION OF DENTAL STUDENTS.

The registration of dental students is carried on at the Medical Council Office in London in the same manner as the existing registration of medical students, and subject to the same regulations as regards Preliminary Examinations. Students who commenced their professional education by apprenticeship to dentists entitled to be registered or by attendance upon professional lectures before July 22nd, 1878 (when dental education became compulsory), are not required to produce evidence of having passed a Preliminary Examination. Candidates for a diploma in Dental Surgery must produce certificates of having been engaged during four years in professional studies and of having received three years' instruction in mechanical dentistry from a registered practitioner. One year's *bonâ fide* apprenticeship with a registered dental practitioner, after being registered as a dental student, may be counted as part of the four years of professional study. The three years of instruction in mechanical dentistry, or any part of them, may be taken by the dental student either before or after his registration as a student, but no year of such mechanical instruction will be counted as one of the four years of professional study unless taken after registration.

It is now necessary for anyone practising Dental Surgery in this country to register and no foreign qualifications are admitted. Formerly exception was made with regard to the Universities of Harvard and Michigan.

The Royal College of Surgeons of England grants a diploma in Dental Surgery under the following regulations, which apply to all candidates who have registered as dental students after Jan. 1st, 1897 Candidates are required to pass three examinations: the Preliminary Science Examination, the First Professional Examination, and the Second Professional Examination. I. Preliminary Science Examination.—Before admission to this examination the candidate must produce a certificate of having received instruction (which may be taken prior to the date of registration as a dental student) at a recognised institution in Chemistry, Physics, and Practical Chemistry. The examination consists of these subjects and is identical with Part I. of the First Examination of the Examining Board in England. II. The First Professional Examination.—The candidate must produce the following certificates: 1. Of having been engaged during a period of not less than three years in acquiring a practical familiarity with the details of mechanical dentistry, under the instruction (which may be taken prior to registration as a dental student) of a competent practitioner or under the direction of the superintendent of the mechanical department of a recognised dental hospital. In the case of qualified surgeons evidence of a period of not less than two, instead of three, years of such instruction will be sufficient. 2. Of registration as a dental student by the General Medical Council. 3 Of having attended at a recognised Dental Hospital and School (*a*) a course of lectures on Dental Metallurgy; (*b*) a course of Practical Dental Metallurgy; (*c*) a course of Lectures on Dental Mechanics; and (*d*) a course of Practical Dental Mechanics, including the manufacture and adjustment of six dentures and six crowns. Candidates may present themselves for the First Professional Examination after the completion of six months' attendance at a recognised Dental Hospital and School. The Examination consists of Mechanical Dentistry and Dental Metallurgy; the examination in Dental Metallurgy will be by written paper. III. The Second Professional Examination.—The candidate must produce the following certificates: 1. Of having been engaged during four years in the acquirement of professional knowledge subsequently to the date of registration as a dental student. 2. Of having attended at a recognised dental hospital and school (*a*) a course of Dental Anatomy and Physiology; (*b*) a separate course of Dental Histology, including the preparation of microscopical sections; (*c*) a course of Dental Surgery; (*d*) a separate course of Practical Dental Surgery; (*e*) a course of not less than five lectures on the Surgery of the Mouth, which lectures may be given at a dental hospital or at a recognised medical school; in the latter case they may form part of the course of lectures on Surgery; (*f*) a course of Dental Materia Medica; and (*g*) a course of Dental Bacteriology; (*f*) and (*g*) will only be required of candidates who enter at a Dental Hospital on or after May 1st, 1902. 3 Of having attended at a recognised dental hospital or in the dental department of a recogised general hospital the practice of Dental Surgery during two years. 4. Of having attended at a recognised medical school (*a*) a course of lectures on Anatomy, (*b*) a course of lectures on Physiology, (*c*) a separate Practical Course of Physiology, (*d*) a course of lectures on Surgery, and (*e*) a course of lectures on Medicine. 5. Of having performed Dissections at a recognised medical school during not less than twelve months. 6. Of having attended at a recognised hospital the practice of Surgery and Clinical Lectures on Surgery during two winter sessions. 7. Of being twenty-one years of age. The certificates of professional study will be required to show that students have attended the courses of professional study to the satisfaction of their teachers. Candidates may present themselves for the Second Professional Examination after the completion of four years' professional study from the date of registration as a dental student and after the lapse of not less than six months from the date of passing the First Professional Examination. The Second Professional Examination consists of: Part I., General Anatomy and Physiology, General Surgery and Pathology; Part II., Dental Anatomy and Physiology, Dental Pathology and Surgery, and Practical Dental Surgery. The written examination in Part I. comprises General Anatomy and Physiology, General Pathology and Surgery, and in Part II. Dental Anatomy and Physiology, and Dental Pathology and Surgery. At the Practical Examination candidates may be examined (*a*) on the treatment of Dental Caries, and may be required to prepare and fill cavities with gold or plastic filling or material, or to do any other operation in Dental Surgery (candidates must provide their own instruments); (*b*) on the Mechanical and Surgical Treatment of the various irregularities of Children's Teeth. There is also an Oral Examination. Candidates may take the two parts of the examination together or separately. Exemption from the Preliminary Science Examination is granted to candidates who have passed an Examination in Chemistry and Physics for a degree in Medicine at a University in the United Kingdom, in India, or in a British colony. Exemption from Examination in Anatomy and Physiology is granted to candidates who have passed the Second Examination of the Examining Board in England or the corresponding Examination of the Royal College of Surgeons of Edinburgh, of the Royal College of Surgeons in Ireland, or the Faculty of Physicians and Surgeons of Glasgow, or of any University in the United Kingdom. Exemption from Examination in General Surgery and Pathology is granted to candidates who have passed the Examination in Surgery of the Examining Board in England or the corresponding Examinations of the Colleges and Universities above mentioned. The fee for the diploma is 20 guineas and is payable as follows:—Preliminary Science Examination, 3 guineas; First Professional Examination, 2 guineas; Second Professional examination, 5 guineas; the balance to be paid on the completion of the Examinations. The Preliminary Science Examination is held in January, March or April, July, and October in each year. The First and Second Professional Examinations are held in May and November in each year. Candidates must give twenty-one clear days' notice of their intention to present themselves for examination.

Royal College of Surgeons, Edinburgh.—For the Licence in Dental Surgery all candidates must pass a Preliminary Examination in General Knowledge and have their names inscribed in the Register of Dental Students of the General Medical Council. A copy of regulations, giving a list of Preliminary Examinations recognised for obtaining this Licence, as well as of the subjects of the Professional Examinations, may be obtained from Mr. James Robertson, Clerk to the Royal College of Surgeons, 54, George square, Edinburgh. Students who commenced their professional education by apprenticeship or attendance on lectures before July 22nd 1878 are exempt from the Preliminary Examinations. Candidates must produce certificates of having subsequently to the date of registration, been engaged for four years in professional studies and of three years instruction in Mechanical Dentistry from a registered dental practitioner, except in the case of previously registered medical practitioners, when two years will be considered sufficient. Candidates who have commenced their studies *after* Oct. 1st, 1890, must have attended the following curriculum: Anatomy, one course of six months; Practical Anatomy, twelve months; Chemistry, one course of six months; Practical Chemistry, one course of th[illegible] Physiology, one course of six months; [illegible] course of three months; Surgery, one course of six months; Medicine, one course of six months; and attendance on the practice of a recognised general hospital, with Clinical Instruction, twelve months. (Candidates who commenced study in accordance with the regulations in force before July, 1895, shall not be required to attend more than six months' hospital work.) These courses must have been attended at a University or in an established school of medicine or in a provincial school specially recognised by the College as qualifying for the diploma in Surgery. In addition to these courses candidates will be required to have attended in a recognised dental hospital, or with teachers recognised by the College, the following special courses of lectures and instruction: Dental Anatomy and Physiology

(Human and Comparative) (not less than 24 lectures), Dental Surgery and Pathology (not less than 20 lectures), Dental Mechanics (not less than 12 lectures)—one course each; two years' attendance at a dental hospital or the dental department of a general hospital recognised by the College. Certificates of attendance on such of these courses of the new curriculum as may be respectively required will entitle candidates to appear either for the First Dental Examination or for the First and Second Examinations for the Triple Qualification, as they may select and subject to the existing regulations for each qualification. Candidates who have passed the First and Second Examinations for the Triple Qualification will be exempt from the First Dental Examination and will have the advantage of being admissible either to the Final Dental Examination or to the subsequent Examination for the Triple Qualification, or to both. But the First Dental Examination will not be held as equivalent to the First and Second Triple Examinations and will admit to the Final Dental Examination only. Candidates who are Licentiates of this College or who may be registered medical practitioners will be required to produce certificates of attendance on the special subjects only and will be examined in these only for the dental diploma. First Professional Examination: The candidate must have attended the courses on Anatomy, Chemistry, and Physiology. The examination embraces Anatomy, Chemistry and Physiology. The fee for those candidates who began study before Oct 1st, 1896, is £4 4s. Second Examination: The candidate must have attended the remaining courses of the curriculum, must produce certificates showing that he is twenty-one years of age, and must pay a fee of £6 6s. The examination embraces Surgery, Medicine, Therapeutics, and the special subjects of Dental Anatomy and Physiology, Dental Surgery and Pathology, and Dental Mechanics with Dental Metallurgy. Unsuccessful candidates will be repaid £2 2s. in the First and £3 3s. in the Second Examinations. Candidates who claim exemption from the First Dental Examination on the ground of having passed the First and Second Triple Qualification Examinations will, before being admitted to the Second Dental Examination, be required to pay the total fee of £10 10s. payable for the dental diploma, of which £3 3s will be returned in case of rejection. The fee payable by candidates who begun study after Oct. 1st, 1896, shall be £16 16s.

Faculty of Physicians and Surgeons of Glasgow.—The regulations as to certificates, curriculum, number, and subjects of examinations, fees, &c., are in effect similar to those of the Royal College of Surgeons of Edinburgh. Special provision is made for candidates who intend to qualify both in Medicine and in Dentistry. There is a practical examination in Mechanical Dentistry and also an examination in Practical Dentistry conducted in a dental hospital.

Royal College of Surgeons in Ireland.—All information concerning the licence in Dentistry may be obtained from the Registrar of the College, who will receive the applications of candidates for permission to be examined. The bank receipt for fees, together with all certificates, &c., are to be lodged with him at least seven days prior to the day fixed for the commencement of the examination. The Primary Dental Examinations commence on the second Monday in the months of February, May, and November. The Final Dental Examinations commence on the Thursdays immediately following the Primary Dental Examinations. Candidates are required to pass three examinations—viz., Preliminary (in General Education), Primary Dental, and Final Dental. Preliminary Examination.—All examinations in general education recognised by the General Medical Council are accepted by the [illegible]
by th[illegible]
third [illegible]
Exam[illegible]
£5 5s [illegible]
to the Primary Dental Examination, to produce evidence—(1) of having passed a recognised preliminary examination and of having been registered as a medical or dental student by the General Medical Council; (2) of having, subsequently to registration as a dental or medical student, attended at a recognised medical school the following courses: Lectures on Practical Anatomy, including Dental Anatomy, six months; Demonstrations and Dissections two courses of six months each; Lectures on Chemistry six months; Lectures on Physiology, including Dental Physiology, six months; Practical Histology; and Practical Chemistry, including Metallurgy, three months; (3) of having attended Clinical *Instruction at a recognised general hospital for one year.* The subjects of this examination are: (1) Physics;[2] (2) Chemistry, including Metallurgy; (3) Anatomy; (4) Physiology and Histology; and (5) Surgery. Final Examination.—Candidates holding L.R.C.S.I. or students who have passed Primary Dental or Third Professional Examination of the College, £10 10s.; re-examination, £5 5s. Fees for Final Examination of all other candidates, £26 5s.; re-examination, £10 10s. Extra fee for Special Examination, £5 5s. Candidates must produce evidence of having passed the Primary Dental Examination of this College, or the Third Professional Examination under the Conjoint Board with the Royal College of Physicians in Ireland, or with the Apothecaries' Hall, or an equivalent examination recognised by the College, and are required to produce certificates of having attended: (1) the following ([illegible]
Surgery a[illegible]
courses); [illegible]
recognised by the College or of the dental department of a general hospital so recognised; (3) of having been engaged during four years in professional studies; and (4) of having received three years' instruction in Mechanical Dentistry from a registered dentist. Candidates holding a diploma in Surgery shall be admissible to the Final Dental Examination on producing certificates of having attended: (1) one course of Lectures on Dental Surgery and Pathology; (2) one course of Lectures on Dental Mechanics; (3) for one year the practice of a dental hospital recognised by the College, or of the dental department of a general hospital so recognised, where such attendance has been subsequent to the date of diploma (this remission (3) has been made on the understanding that the surgeon devotes his whole time to dental work); and (4) of having been engaged during a period of not less than two years in acquiring a practical familiarity with the details of Mechanical Dentistry under the instruction of a registered dentist. The following are the subjects of examination: Dental Surgery, Theoretical (including Dental Pathology), Clinical, and Operative; Dental Mechanics, Theoretical, Clinical, and Practical (including the Metallurgy of the Workshop). Examinations for the Licence in Dentistry *sine curriculo:* The Council has power to admit to examination, *sine curriculo*, candidates whose names are on the Dental Register published under the direction of the General Medical Council, and who are unable to furnish the certificates required by the foregoing regulations, on *presentation of a special schedule of application.*

TEACHING INSTITUTIONS.

ENGLAND.

Dental Hospital of London and School of Dental Surgery, Leicester-square.—The school provides the special dental education required by the Royal College of Surgeons for the Licence in Dental Surgery. The general part of the curriculum may be taken at any general hospital. The hospital is open from 9 A.M. to 4 P.M., there being one staff for the morning and another for the afternoon of each day. Pupils are received for the three years' mechanical training recognised by the curriculum. The demonstrators at the commencement of each session give a course of lectures on Operative Dental Surgery. The eight house surgeoncies are held for one year each, and are open to all qualified students. The lecturers in addition to their lectures, give special demonstrations on the Microscopy of Dental Anatomy and Dental Surgery. The lecturer on Dental Mechanics also gives practical demonstrations in the mechanical laboratory. Two scholarships of the value of £20 have been founded by Sir Edwin Saunders and Dr Joseph Walker. Prizes and certificates are awarded by the lecturers for the best examinations in the subjects of their respective courses, at the end of the summer and winter sessions. A prize of the value of 5 guineas is given

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[1] Candidates educated in England or Scotland are admitted to the Primary Dental Examination on the production of the certificates that would be necessary for both Primary and Final Examinations in their own countries.

[2] Candidates who have passed in Chemistry and Physics at a First Professional Examination under the Conjoint Board with the Royal College of Physicians in Ireland, or with the Apothecaries' Hall, or an equivalent examination recognised by the College, are exempted from examination in these subjects at the Primary Dental Examination.

by Messrs. Ash and Sons for the best essay on some surgical subject connected with Dental Surgery. The conditions under which this prize is to be competed for are the same as those for the Saunders Scholarship, with this exception, that the papers are to be written in the hospital during the summer session. Consulting Physician: Sir Richard Douglas Powell, Bart., M.D. Consulting Surgeon: Mr. Christopher Heath, F R.C S Consulting Dental Surgeons: Mr. T. Arnold Rogers, M.R.C.S., L.D.S., and Mr. Smith Turner, M.R.C.S., L.D.S. Dental Surgeons: Leonard Matheson, L D.S.; E. Lloyd Williams, L.R.C.P., M.R C.S. L.D S., L.S.A.; W. B. Paterson, F R.C.S., L.D.S.; W. H. Woodruff, L.D S; J. F. Colyer, L R.C.P, M.R.C S, L.D.S.; and C F. Rilot, L.R.C.P., M.R.C.S., L.D S. Assistant Dental Surgeons: H Lloyd Williams, M.R.C S., L.D.S.; W. H. Dolamore, L R.C.P, M.R.C.S, L.D.S.; G. Hern, L.R.C.P., M.R C.S., L.D.S.; J. G. Turner, L.R.C.P., F.R.C.S., L.D S; Russell Barrett, L.R.C.P., M R C.S, L.D.S.; N. G. Bennett. M.A., M.B. B.C., L R.C P., M.R.C.S., L.D.S.; D. P. Gabell, L R.C.P., M.R.C.S., L.D.S; and W. J. May, L.R.C.P., M.R.C.S., L.D.S.; A. Hopewell Smith, L.R.C.P., M.R.C.S., L D.S.; W. S. Nowell, M A., L.R.C.P., M.R.C.S., L.D.S.; H. Austen, M.D., L.D.S. Anæsthetists: Dudley W. Buxton, M.D., B.S. Lond., M.R.C.P. Lond.; Carter Braine, F R C.S.; Henry Davis, M.R.C.S., L.S.A.; George Rowell, F R.C.S; and E A. Bridger. M.D. Assistant Anæsthetists: R. Turle Bakewell, M.B. Lond., L.R.C.P., M.R.C S; R. J. Probyn-Williams, M.D. Durh.; George Flux, M D Brux.; H. J. Paterson M.A., M.B, B.C. Cantab., F.R.C.S.; H. Hilliard, L.R C.P., M.R.C.S.; F. H Belfrage, M.D Lond., L.R C.P., M.R.C S. Demonstrators: W. J. Law, L.D.S; R. Pring, L.R.C.P., M.R.C.S., L.D.S.; R. McKay, L.R.C.P., M.R.C S., L.D.S Medical Tutor: Wharburton Brown, L R C P., M.R C.S. Curator of Mechanical Laboratory: W. J. Cave. Lecturers.—Dental Anatomy and Physiology (Human and Comparative): Charles Tomes, F.R.S, M A Oxon., F.R.C.S, L.D.S., assisted by Mr. Hopewell Smith in Dental Histology. Dental Surgery and Pathology: W. Hern, L.R.C.P., M.R.C.S., L.D.S. Mechanical Dentistry: E Lloyd Williams, L R C.P., M.R.C.S. L D.S., L.S A. Metallurgy in its Application to Dental Purposes: Dr. Forster Morley, M.A., F.I C., F C.S., assisted by Mr. H. Richards. During the sessions the surgeons of the day will give demonstrations at stated hours. The house surgeons attend daily while the hospital is open. Fee for two years' hospital practice required by the curriculum, including lectures, £50 in one payment, or 50 guineas in two yearly instalments. The curriculum requires two years to be passed at a General Hospital; the fee for this is about £55 Both hospitals can be attended simultaneously. The fee for three years Mechanical Dentistry is 150 guineas. The Dean, Mr. Morton Smale, attends at the hospital every Wednesday morning from 10 to 12, or he can be seen at other times by appointment. Letters to be addressed—The Dean, 40, Leicester-square, "to be forwarded."

National Dental Hospital and College.—Winter Session, 1901–1902 commences on Oct. 1st at the new building at the corner of Great Portland and Devonshire-streets, W.—Consulting Physician: Sir W. H. Broadbent. Consulting Surgeon: Mr. Christopher Heath. Consulting Dental Surgeon: Mr. S. J. Hutchinson. Visiting Physician: Dr James Maughan Visiting Surgeon: Mr. E. W. Roughton. Dental Surgeons: Mr. F. H Weiss, Mr. A. Smith, Mr. M. Davis, Mr. T. G. Read, Mr. Rushton, and Mr. C. W. Glassington. Assistant Dental Surgeons: Mr. W. Weiss, Mr. E Beverley. Mr. S. F Rose, Mr. A. E. Relph, Dr J. Sims Wallace, and Mr. H J. Relph. Anæsthetists: Mr. H. P. Noble, Mr. C E. A. Macleod, Mr. C J Ogle, Mr. G. E Norton, Dr. J. Maughan, and Mr. F. W. Collingwood. Lecturers (winter), Dental Anatomy and Physiology: Dr J. W. Pare, Tuesdays and Thursdays, 5 P.M., in October, November, and December. Dental Metallurgy: Mr. Hugh Candy. Tuesdays, 5 P M., in January, February, and March. Dental Mechanics: Mr. H. Rose, Wednesdays, 6 P M., in January, February, and March. Dental Materia Medica: Mr. Charles W. Glassington, Tuesdays, 6 P.M, October, November, and December. Summer—Dental Surgery and Pathology, Mr. H. J. Relph, Tuesdays and Fridays, 6 P.M., in May, June, and July. Practical courses to comply with the R.C.S. curriculum are also held. The hospital is lighted throughout by electricity and warmed and ventilated by approved methods. Clinical Lectures and Demonstrations are given from time to time, and each student on entering passes through a preliminary course under a demonstrator. The stopping rooms have accommodation for sixty chairs. Dresserships in the extraction and stopping rooms are re-arranged every three months. An Entrance Exhibition, of the value of £15, is open for competition at the commencement of each summer and winter session. Prizes in medals are open for competition at the end of each course of lectures. Certificates of honour are given in each class. The Rymer Medal for General Proficiency, value £5, is awarded annually to the most meritorious student; and the Ash Prize, value £3 3s., for a Thesis on a subject in Dental Surgery. Total fee for the Special Lectures and Hospital Practice required, 40 guineas. Single Courses: Dental Anatomy and Physiology, Dental Surgery and Pathology, Dental Mechanics, Dental Metallurgy, Dental Materia Medica, Demonstration of Dental Mechanics, £5 5s. each. Hospital Practice to registered practitioners by special permission of Committee, twelve months, £15 15s. The Committee also consider applications from medical men who may desire to attend the Anæsthetic Room for a course of instruction in Nitrous Oxide administration. Information respecting the Hospital Practice and the College may be obtained from the Dean, Mr. Sidney Spokes, who attends at the Hospital, Great Portland-street, on Tuesday mornings.

Guy's Hospital—The work of the Dental Department begins daily at 9 A.M. both in the extraction rooms and in the conservation room. *The Extraction Rooms:* Patients are admitted between 9 and 9.30 A.M., and are seen by the dental surgeon for the day, the dental house surgeon, the assistant dental house surgeon, and the dressers. Such cases as are suitable for conservative treatment are transferred to the conservation room, taking with them a dental chart to indicate the treatment required *The Conservation Room:* This room is open from 9 A M. till 5 P.M. There are 55 Morrison chairs for the use of the Dressers, who, under the supervision of the Staff, perform the various operations of Dental Surgery. The members of the staff attend every morning and afternoon in the week to give demonstrations and otherwise assist students in their work in the Conservation Room and Mechanical Laboratory. Dental students have the opportunity of attending concurrently at this hospital the two courses of instruction required by the examining board for the L.D.S. Eng., viz., the special lectures and practice of the Dental Department and the general lectures and practice of the Medical School. The fees for these two courses may be paid separately or together, or they may be combined with the fees required to be paid for the course for a medical diploma. Students who enter for a medical as well as a dental diploma are allowed to pursue their study of Dentistry during any period of their medical course most convenient to themselves without further charge. An Entrance Scholarship in Dental Mechanics of the value of £30 is offered for competition annually in September, and prizes of the aggregate value of £35 are awarded for general proficiency and skill in Practical Dentistry. Dental students are eligible for admission to the Residential College and enjoy the other social privileges of students in the Medical School.

London Hospital.—Mr. Dolamore and Mr. Farmer give practical instruction during the winter and summer sessions on Mondays, Tuesdays, Thursdays, and Fridays at 9 A M. In selecting from candidates for the office of Dental Assistant priority will be given to those who have attended the greatest number of lectures on Dental Pathology and Surgery, and have also been the most punctual in attendance in the dental department. A class for special instruction in filling teeth will be formed each term Candidates for Dressership must undertake to attend regularly on Mondays and Thursdays, or on Tuesdays and Fridays, for three months, and to follow the practical course of demonstrations.

University of Birmingham.—The teaching of Dentistry is undertaken by the University acting in association with the Birmingham Dental Hospital and the Birmingham Clinical Board, so that the students may fully qualify themselves for the Dental diploma of the Royal Colleges. There is a special and well-equipped Dental Museum and Laboratory. An Entrance Exhibition, value £37 10s, is awarded annually at the commencement of the winter session. The following are the regulations for Degrees in Dentistry:—1. The degrees conferred by the University are those of Bachelor and Master of Dental Surgery (B.D.S. and M.D.S.). 2. All candidates for these degrees must pass the same Matriculation Examination as that required from candidates for Medical Degrees. 3. The degree of Bachelor of Dental Surgery is not conferred upon any candidate who has not obtained a Licence in Dental Surgery from some body legally entitled to confer such qualification. The candidate is not eligible for the degree until a period of 12 months has elapsed from the passing of his examination for the Licence in Dental Surgery. Of this period at least six months must be spent in the dental department of a general hospital approved by the University. 4. *A*. In addition to the Licence in Dental Surgery the candidate must produce evidence that he has attended the Courses required by medical students of the University in the following subjects and passed the Examinations held in the same for Medical and Surgical Degrees: (*a*) Chemistry and Practical Chemistry, (*b*) Physics and Practical Physics, (*c*) Comparative Anatomy, (*d*) Anatomy and Practical Anatomy, and (*e*) Physiology and Practical Physiology. *B*. That he has attended the following Courses: (*f*) One Course of Lectures on Medicine, (*g*) One Course of Lectures on Surgery, (*h*) Special Courses of Lectures on the Surgery and Medicine of the Mouth, and (*i*) Pathology and Bacteriology, and has passed the examinations for candidates for Dental Degrees held in each of these subjects. *C*. That he has attended Courses in: (*k*) Dental Histology and Patho-Histology, (*l*) Comparative Dental Anatomy, and (*m*) Dental Surgery and Prosthetic Dentistry. *D*. That he has received instruction in the Clinical Examination of living cases at the dental department of a general hospital for a period not less than six months. 5. The Final Examination will deal with the subjects in Classes *C*. and *D*. 6. On the expiration of 12 months from the date of passing the Examination for the Degree of Bachelor of Dental Surgery, the candidate will be eligible for that of Master of Dental Surgery. 7. For this degree candidates will be required to submit a thesis containing original work and investigations in some subject connected with Dentistry, which thesis shall be submitted to examiners to be nominated by the Board of Dental Studies. The degree will be awarded or withheld according to the report of these examiners.

University College, Bristol. — Dental students can enter for the full curriculum at Bristol. The Lectures are delivered at the college. Practical instruction is given at the *Royal Infirmary* by Mr. Ackland and at the *General Hospital* by Mr. Genge, both [illegible] Dental Board of the [illegible] Full information may [illegible] Faculty, Professor E. Markham Skerritt, University College, Bristol.

Owens College, Manchester.—Arrangements have been made for dental students to attend the hospital practice at the Manchester Royal Infirmary and the practice at the Victoria Dental Hospital. Lectures on special subjects will be given in the College as follows:—Winter session: Dental Mechanics, Mr. Tanner, Thursday, 4 P.M. Dental Metallurgy, Mr. J. P. Headridge, Monday, at 3.30 P.M. Summer session: Dental Anatomy and Physiology, Dr. Preston, Tuesday at 2 P.M., Friday at 2 P.M. Dental Surgery, Mr. Campion, Tuesday and Friday, 3 P.M. Practical and Operative Dental Surgery, Mr. Whittaker, Wednesday: Lecture, 2.30 P.M.; Demonstration, 4 P.M. Lectures in Dental Histology, Mr. D. Headridge, Monday, at 2 P.M. Fee for each course £4 4*s*. for the Class in Practical Metallurgy, £2 2*s*. Dental practice for two years at the Manchester Royal Infirmary, £10 10*s*.; at the Victoria Dental Hospital at Manchester, £21, paid in advance, or £13 13*s*. for the first year and £8 8*s*. for the second year. At the Victoria Dental Hospital patients attend at 8.30 A.M. daily, and at 6.30 P.M. on Monday, Wednesday, and Friday. Consulting Surgeon: Mr. J. Hardie. Consulting Dental Surgeon: Mr. H. Campion. Dental Surgeons: Mr G. G. Campion, Mr. H H Dreschfeld, Mr. J. W. Dunkerley, Mr. W. Dykes, Mr. W. Headridge, Mr. W. A. Hooton, Mr. P. A. Linnell, Mr. F. W. Minshall, Mr. I. Renshaw, Mr. W. Simms, Mr. C. H. Smale, Mr. T. Tanner, and Mr. G. O. Whittaker. Assistant Dental Surgeons: Mr. J. P. Headridge, Mr. W. H. Norman, and Mr. T. E. Sherratt. Demonstrator: Mr. W. H. Jones. Tutor: Dr. C. H. Preston. Consulting Prosthetic Dental Surgeon: Mr. T. Tanner. House Dental Surgeons: Mr. W. Wright and Mr. H. Hopkinson. Curator of Museum: Mr. D. Headridge. Administrators of Anæsthetics: Dr. A. Wilson, Mr. F. H. Westmacott, and Dr. W. B. Pritchard. Dean: Mr. William Simms.

University College, Liverpool (*Liverpool Dental Hospital and School of Dental Surgery*).—The courses of systematic instruction are given in University College, five minutes from the Dental Hospital. The two institutions are now closely associated and the management of the curriculum is in the hands of a joint committee. At the Dental Hospital recent alterations have been made and as it now stands this school offers advantages to students which are not excelled anywhere. The ground floor of the building contains the following: Extraction-room, with all needful appliances; anæsthetic room, specially reserved with every convenience; and large waiting-room for patients. The first floor has a large board-room and a very comfortable students' room set apart exclusively for the use of students. The whole top floor of the building has been thrown into one fine, airy, and well-ventilated operating room. This room will accommodate upwards of 30 operating chairs, which are of the "Morrison pattern," and each of which has a special electric light (canting pendant) suspended before it. In the basement a very convenient workroom has been fitted up containing the necessary requirements, and there are commodious lavatories for students. A new Laboratory for practical mechanical work was constructed last year, so as to meet the requirements of the curriculum. It is adequately furnished with all the modern appliances of a dental workshop. A skilled Dental Mechanic has been engaged and students are able to undertake at the hospital the whole of their training in Mechanical Dentistry. The times of the lectures at University College are arranged to meet the convenience of students; thus allowing the maximum time for attendance upon Dental Hospital practice. The staff of the hospital includes seven honorary Dental Surgeons, a Demonstrator, two House Surgeons, and a Curator. Fees for two years' hospital practice £21. *Apprenticeship.*—A limited number number of apprentices are admitted annually. Fee for three years £105. Further information may be had from the Warden, Mr. W. H. Gilmour.

The various medical and dental lectures are given at University College. The Anatomical Department contains an excellent collection of skulls illustrative of human and comparative dental anatomy. The dissecting-room and theatre are lighted by electricity. The Physiological and Pathological Departments are housed in new and spacious laboratories erected by the Rev. S. A. Thompson Yates. Fees: The composition fee for all lectures is £50 in one payment on entrance, or in two equal instalments (one-half on entrance and the remainder within twelve months). The fee for general hospital practice is £10 10*s*. Further particulars can be obtained of A. M. Paterson, M.D., Dean.

Devon and Exeter Dental Hospital, Castle-street, Exeter.—Established 1880.—The hospital is open daily (Sundays excepted), and patients are admitted between the hours of 9 and 11 A.M. Students attending the practice of the hospital must consider themselves strictly under the control of the medical officers, and must not undertake any operation without the consent of the dental surgeon for the day. Hon. treasurer, Mr. J. M. Ackland; hon. secretary, Mr. Henry Yeo.

SCOTLAND.

The Incorporated Edinburgh Dental Hospital and School, 31, Chambers-street, Edinburgh.[1]—For the special classes, both theoretical and practical, required by dental students the directors have secured the services of an efficient staff of dental officers and lecturers. There will also be a course of demonstrations in Mechanical Dentistry. Students will receive instruction in Practical Dental Mechanics under the mechanician. The fee for clinics in gold filling is included in the Dental Hospital fee of £15 15*s*. The minimum cost of classes for the whole course of dental instruction amounts to £90 7*s*.

Dental Hospital and School, Glasgow.—The winter session will begin on Oct. 15th and the lectures will be delivered as follows. In Dental Mechanics on Monday evenings, at 7.30 P.M., by Mr. Hugh McKay, L.R.C.S., L.R.C.P. Edin., L.F.P.S., L.D.S., and in Dental Metallurgy on Wednesday evenings at 7.30 P.M., by Professor T. R. Marshall, D.Sc. Ed., F.C.S. Fee for each of the above courses of lectures, £3 3*s*. The lectures and instruction at the Glasgow

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[1] No returns.

Dental Hospital and School are recognised by all the licensing bodies in the United Kingdom. The fees for two years' hospital practice are £15 15s. Intending students before commencing to attend the lectures or hospital practice must produce evidence of having passed the preliminary examination prescribed by the regulations of the General Medical Council for registration of dental students. The hospital is open daily from 5 to 7 P.M. (Saturdays excepted). Students may enrol either at the beginning of the winter or summer session. Summer session begins April 23rd, 1902.

Glasgow Royal Infirmary (Dental Department).—Mr. W. H. Gray, L.D.S., attends at the Royal Infirmary at 3 P.M. on Mondays, Wednesdays, and Saturdays, and gives a course of instruction in Dental Surgery on these days in summer. The following course in the curriculum can be taken at St. Mungo's College: Anatomy, six months; Practical Anatomy, nine months; Physiology, six months; Chemistry, six months; Practical Chemistry with Metallurgy, three months; Surgery, six months; Medicine, six months; Materia Medica, three months; Clinical Surgery, six months; Dental Surgery, six months, and attendance for two years on the dental department of the hospital. The attendance on the Dental Clinic is free to students of the hospital; to dental students, one year, £5 5s.; perpetual £10 10s. The winter session opens Thursday, Oct. 17th.

IRELAND.

Royal College of Surgeons in Ireland.—The schools of surgery are attached by Charter to the Royal College of Surgeons and have existed as a department of the College for nearly a century. They are carried on within the College buildings and are specially subject to the supervision and control of the Council, who are empowered to appoint and remove the professors and to regulate the methods of teaching pursued. The buildings have been reconstructed, the capacity of the dissecting-room nearly trebled, and special pathological, bacteriological, public health, and pharmaceutical laboratories fitted with the most approved appliances in order that students may have the advantage of the most modern methods of instruction. A refreshment-room is now open where students can have luncheon. There are special rooms set apart for lady students. The entire building is heated by hot-water pipes and lighted throughout by the electric light.

COOKE'S SCHOOL OF ANATOMY, PHYSIOLOGY, AND OPERATIVE SURGERY, London.—The school is prepared to admit to its supplementary work all who may wish to join the same, but in regard to its curriculum work it does not receive more than half-a-dozen students in the course of the year; these have special advantages both as regards Anatomy and Physiology. Charges are but slightly in excess of current charges. Particulars forwarded on application. By decision of the various examining bodies gentlemen rejected at their Anatomical and Physiological Examinations (Second Conjoint, &c.) can get signed up for the supplementary work they are required to put in before re-examination. The school is also recognised for the special dissections for the Fellowship of the Royal College of Surgeons. The operations of surgery are performed on the dead body; such courses are recognised for army promotion and the Royal College of Surgeons. The school possesses a good collection of physiological and chemical apparatus, and gentlemen preparing for the higher examinations receive special instruction in the more difficult subjects.

VOLUNTEER MEDICAL STAFF CORPS (LONDON COMPANIES), Calthorpe-street, Gray's-inn-road, W.C.—Hon. Commandant: Surgeon-General Sir William Guyer Hunter, K.C.M.G., Q.H.S., V.D. Officer Commanding: Surgeon-Lieutenant-Colonel J. E. Squire, V.D. The Volunteer Medical Staff Corps bears the same relation to the Volunteer Army as the Royal Army Medical Corps bears to the regular Army. The course of training has the great advantage of affording, in addition to a knowledge of ordinary military duties, special ambulance instruction useful in all ranks of life. All who have gone through the ranks of this corps are capable of rendering valuable aid in any accident, and in cases of emergency may be the means of saving lives which would otherwise be lost. In addition to the Company and Battalion drills of an ordinary infantry corps, the special training includes stretcher and waggon and cacolet drill; the use of improvised seats and stretchers; the use and application of bandages, splints, &c.; lectures by the officers on first aid to the injured, and on the elements of anatomy, physiology hygiene, and nursing, which are so arranged as not to interfere with the lectures, &c., carried on at the various hospitals in London. There is also a Shooting Club in the corps, in which instruction in, and facilities for, the practice of rifle shooting are given. There is a Transport Section in connexion with the corps, the members of which go through a course of instruction in riding and driving and transport work with the regular troops. There are also sections of Cyclists and Signallers. A Gymnastic Class meets once a week at headquarters, under an instructor who teaches boxing and fencing. Lectures are delivered during the winter session. The headquarters contain a fine drill hall, mess-rooms, canteen, &c., where dinners, suppers, dances, and smoking concerts can be held at any time. The Adjutant, Captain L. Way, R.A.M.C., will give any information respecting the above on application to the headquarters, Calthorpe-street, Gray's-inn-road, W.C.

SCHOOL OF THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.—Chemistry and Physics: J. Norman Collie, Ph.D., F.R.S. Botany: Professor Reynolds Green, M.A., Sc.D., F.R.S., F.L.S. (Dean of the school). Pharmaceutics: Professor Greenish, F.I.C., F.L.S. The session commences on Tuesday, Oct. 1st. Medical students, or pupils intending to enter the medical profession, are admitted to the lectures and laboratory work in any or all the courses. Certificates of instruction in this school are received by the Conjoint Board of the Royal Colleges. Application for admission to the school, or for further information, may be made to the Registrar, 17, Bloomsbury-square, London, W.C.

THE LONDON COLLEGE OF CHEMISTRY, PHARMACY, AND BOTANY, 323, Clapham-road, London, S.W.—Principal, Henry Wootton, B.Sc. Lond. This College, which is established for the purpose of providing thorough and practical instruction in all branches of science, especially for students preparing for Pharmaceutical, Medical, and University Examinations, includes large and completely fitted chemical, pharmaceutical, and physical laboratories, lecture-hall, museum, and class-rooms. Each student has a separate commodious bench, fitted with gas, water, and sink, with large locker for apparatus. There is a botanic garden attached to the school.

WESTMINSTER COLLEGE OF CHEMISTRY AND PHARMACY, LTD., Trinity-square, Borough, S.E.—Principal, G. S. V. Wills, F.L.S. Special instruction given to medical and dental students in chemistry, physics, and pharmacy. Fees and time by arrangement. Ladies are prepared for the Dispenser's Examination of the Apothecaries' Hall. For prospectus, fees, &c., apply to J. E. Walden, Secretary.

ROYAL COLLEGE OF SCIENCE, London (with which is incorporated the ROYAL SCHOOL OF MINES).—Mechanics and Mathematics: Professor J. Perry, F.R.S. Biology: Professor G. B. Howes, F.R.S. (Zoology), and Professor J. B. Farmer, M.A. (Botany). Chemistry: Professor W. A. Tilden, F.R.S., and Dr. W. P. Wynne, F.R.S. Physics: Professor A. W. Rücker, Sec. R.S., and Mr. W. Watson, B.Sc. Astronomical Physics: Professor Sir J. N. Lockyer, K.C.B., F.R.S. Geology: Professor J. W. Judd, C.B., F.R.S., and Dr. Cullis. Metallurgy: Professor Sir W. C. Roberts-Austen, K.C.B., F.R.S. Mining: Professor C. Le Neve Foster, F.R.S. The College re-opens on Wednesday, Oct. 2nd, 1901. Communications should be addressed to the Registrar, Royal College of Science, South Kensington, S.W.

ELECTRICAL STANDARDIZING, TESTING, AND TRAINING INSTITUTION. Faraday House 8 and 10, Charing-cross-road, W.C.—Principal, Hugh Erat Harrison, B.Sc. Lond., F.C.S., A.M.I.C.E., M.I.E.E. Instructor in Mathematics: Alexander Russell, M.A. Glasgow and Cambridge. Instructor in Chemistry: Chas. J. Wilson, F.I.C., F.C.S. Instructor in Mechanical Engineering: Walter H. Bell, A.M.I.C.E. This institution, in addition to its ordinary course of training in electrical engineering, which occupies two or three years, also arranges for special instruction in all branches of electricity either by private tuition or by a specially arranged course at the college or at the works of the companies with which it is associated. There are Entrance Scholarships of the value of 80 and 50 guineas, and Exhibitions of 40 guineas. Particulars may be obtained on application to the Secretary, Howard Foulds, Faraday House, Charing-cross-road, W.C. Session begins Sept. 16th.

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY.

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
LONDON UNIVERSITY ...	No. 1.	£40 per annum.	2 years.	By first place with distinction in ANATOMY at July Intermediate M.B. Honours Examination.	M.B. Examination within 3 years.
	No. 2.	£40 per annum.	2 years.	By first place with distinction in PHYSIOLOGY AND HISTOLOGY at July Intermediate M.B. Honours Examination	Ditto.
	No. 3.	£30 per annum.	2 years.	By first place with distinction in ORGANIC CHEMISTRY at July Intermediate M.B. Honours Examination.	Ditto.
	No. 4.	£30 per annum.	2 years.	By first place with distinction in MATERIA MEDICA and PHARMACEUTICAL CHEMISTRY at July Inter- [illegible]	Ditto.
	University Scholarship in Medicine.	£50 per annum.	2 years.	B[illegible]	
	University Scholarship in Obstetric Medicine.	£30 per annum.	2 years.	By first place with distinction in OBSTETRIC MEDICINE at M.B. Honours Examination.	
	University Scholarship in Forensic Medicine.	£30 per annum.	2 years.	By first place with distinction in FORENSIC MEDICINE at M.B. Honours Examination.	
	University Scholarship in Surgery.	£50 per annum.	2 years.	By first place with distinction in B.S. Honours Examination.	
ST. BARTHOLOMEW'S MEDICAL SCHOOL	Entrance Scholarships. No. 1.	£75.	—	Open Competitive Examination in not more than three nor fewer than two of CHEMISTRY, PHYSICS, ZOOLOGY, BOTANY, PHYSIOLOGY, ANATOMY.	Full Course at St. Bartholomew's Hospital.
	" No. 2.	£75.	—		Ditto.
	" No. 3	£150.	—	Open Competitive Examination in not fewer than three of the following:—CHEMISTRY, PHYSICS, BOTANY, ZOOLOGY, PHYSIOLOGY.	Ditto.
	Preliminary Scientific Exhibition.	£50.	—		Ditto.
	Jeaffreson Exhibition.	£20.	—	Open Competitive Examination in LATIN, MATHEMATICS, and GREEK, FRENCH, or GERMAN.	Ditto.
	Shuter Scholarship.	£50.	—	Competitive Examination among Cambridge Graduates in ANATOMY, PHYSIOLOGY, and MATERIA MEDICA.	Ditto.
	Junior Scholarships.				
	" No. 1.	£30.	—	Competitive Examination among Students in ANATOMY and BIOLOGY.	Study at St. Bartholomew's Hospital.
	" No. 2.	£20.	—	Ditto.	Ditto.
	" No. 3.	£25.	—	Competitive Examination in CHEMISTRY, PHYSICS, and HISTOLOGY.	Ditto.
	" No. 4	£15.	—	Ditto.	Ditto.
	Senior Scholarship.	£50.	—	Competitive Examination among Students in ANATOMY, PHYSIOLOGY, and CHEMISTRY.	Ditto.
	Kirkes Scholarship.	£30 and Medal.	—	Competitive Examination among Students in CLINICAL MEDICINE.	
	Brackenbury Scholarships.				
	" No. 1.	£30.	—	Competitive Examination among Students in MEDICINE.	Ditto.
	" No. 2.	£30.	—	[illegible]	Ditto.
	Lawrence Scholarship.	£42 and Medal.	—	[illegible] MIDWIFERY.	Ditto.
	Sir Geo. Burrows Prize.	£10 10s.	—	Competitive Examination in PATHOLOGY among Students	
	Skynner Prize.	£15.	—	Competitive Examination in REGIONAL and MORBID ANATOMY among Students.	Ditto.
	Matthews Duncan Medal and Prize.	£20.	—	Competitive Examination among Students in MIDWIFERY and GYNÆCOLOGY.	Ditto.
	Research Studentship in Pathology.	£100.	—	By Election, on the recommendation of the School Committee.	Research Work at St. Bartholomew's Hospital.
CHARING CROSS HOSPITAL AND COLLEGE	Entrance Scholarships, open to students at the commencement of curriculum.				
	Livingstone.	100 guineas.	—	T[illegible]	Open to all general students.
	...	60 "	—	of subjects:—(1) ENGLISH, including LANGUAGE, HISTORY, and GEOGRAPHY; (2) Any two of the following four languages—LATIN, GREEK, FRENCH, and GERMAN; (3) MATHEMATICS.	Open to all general students.

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
CHARING-CROSS HOSPITAL AND COLLEGE—*continued.*	Huxley.	55 guineas.	....	including ARITHMETIC, ALGEBRA, and GEOMETRY; and MECHANICS, including STATICS and DYNAMICS; (4) INORGANIC CHEMISTRY and EXPERIMENTAL PHYSICS, including ACOUSTICS, HEAT, MAGNETISM, ELECTRICITY, and OPTICS; and (5) ANIMAL and VEGETABLE BIOLOGY. No Candidate may offer himself for examination in more than three of the above groups of subjects, the selection of the groups being left entirely to the Candidate.	For sons of medical men.
	...	40 „	....		Open to all general students.
	...	30 „	....		For dental students.
	Epsom Scholarship.	Free education.	....	....	Epsom Foundation Scholars who have passed Preliminary Scientific M.B. Lond. Univ.
	Universities Scholarship (1) Universities Scholarship (2)	60 guineas. 60 „	....	Examination in ANATOMY and PHYSIOLOGY, including HISTOLOGY.	Oxford Students who have passed first M.B. Exam. Cambridge students who have passed second M.B. Exam. London students who have passed Intermediate Exam. in Med. who have not entered at any London Medical School.
	Llewellyn Scholarship.	£25.	....	Awarded annually to the Student of not more than five years' standing, who, in the opinion of the School Committee, shall have distinguished himself the most at the Prize Examinations in the following subjects, viz.:—MEDICINE, SURGERY, MIDWIFERY, PATHOLOGY, THERAPEUTICS, FORENSIC MEDICINE, PUBLIC HEALTH, PSYCHOLOGICAL MEDICINE, OPHTHALMOLOGY, PRACTICAL MEDICINE, PRACTICAL MIDWIFERY.	None.
	Huxley Medal with Prize.	£10.	....	Competitive Examination in ANATOMY and PHYSIOLOGY at end of Second year.	....
	Golding Prize.	£10.	....	Competitive Examination among First-year Students in ANATOMY and PHYSIOLOGY.	Students must have attended the Classes in each subject at this School.
ST. GEORGE'S HOSPITAL.	Entrance Scholarships. No. 1.	£150.	....	Competitive Examination among First-year Students, being the sons of medical men, in LATIN, GREEK, FRENCH, GERMAN, MATHEMATICS, PHYSICS, CHEMISTRY, and BIOLOGY; three at option.	Previous entrance at St. George's School.
	„ No. 2.	£85.	....	Competitive Examination among Students being First M.B.'s of Oxford or Second M.B.'s of Cambridge, in ORGANIC CHEMISTRY, ANATOMY, PHYSIOLOGY, ZOOLOGY, and BOTANY; two at option.	Ditto.
	„ No. 3.	£85.	....	Ditto.	Ditto.
	„ No. 4.	£85.	....	Competitive Examination among Students of Provincial University Colleges of similar standing in the same subjects.	Ditto.
	„ No. 5.	£50.	....	Competitive Examination among Students in the same subjects as Entrance Scholarship No. 1.	To enter St. George's School
	„ No. 6.	£50.	....	Ditto.	Ditto.
	„ No. 7.	£50.	....	Competitive Examination among Sons of Officers in H.M. Service who have met their death by serving in the South African Campaign.	Ditto.
	Wm. Brown Exhibition.	£100 per annum.	2 years.	Competiti [illegible] petual [illegible] qualifica [illegible] MEDICINE, MIDWIFERY, and SURGERY.	Study at St. George's School.
	„	£40 „ „	3 years.	Competition among Third-year Students in the same subjects.	Ditto.
	Brackenbury Prize in Medicine.	Interest on £1103.	....	Competitive Examination among Students of not more than five years' standing.	None.
	Brackenbury Prize in Surgery.	Interest on £1103.	....	Competitive Examination among Students of not more than five years' standing.	None.
	Treasurer's Prize.	£10 10s.	....	Proficiency in Clinical Examination of three Medical and three Surgical Cases, together with a written Examination in Medicine, Surgery, and Midwifery.	None.
	H. C. Johnson Memorial Prize.	£10 10s.	....	Competitive Examination in PRACTICAL ANATOMY.	None.

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
ST. GEORGE'S HOSPITAL—*continued.*	Pollock Prize.	Interest on £372.	....	Competitive Examination in PHYSIOLOGY, PHYSIOLOGICAL CHEMISTRY, and HISTOLOGY.	None.
	Clarke Prize. Thompson Medal. Brodie Prize Acland Prize.	Interest on £209. Interest on £185. Interest on £220 £5	....	Awarded for Clinical Reports and Commentaries.	None.
	Webb Prize.	Interest on £1000.	....	Competitive Examination among Perpetual Pupils in BACTERIOLOGY.	None.
	General Proficiency Prizes. No. 1.	£10 10s.	— —	Competitive Examination in ELEMENTARY ANATOMY, BIOLOGY, CHEMISTRY, and PHYSICS.	None.
	" No. 2.	£10 10s.	....	Competitive Examination in ANATOMY, PHYSIOLOGY (including HISTOLOGY), and PHYSIOLOGICAL CHEMISTRY.	None.
	" No 3.	£10 10s.	....	Competitive Examination in ORGANIC CHEMISTRY, ANATOMY, and PHYSIOLOGY, including HISTOLOGY and PHYSIOLOGICAL CHEMISTRY.	None.
	" No. 4.	£10 10s.	....	Competitive Examination in MEDICINE, SURGERY, OBSTETRIC MEDICINE, and PATHOLOGY.	None.
GUY'S HOSPITAL	Entrance Scholarships. No. 1.	£100.	....	[illegible]	Course at Guy's Hospital.
	" No. 2.	£50.	....		Ditto.
	" No. 3	£150.	....	[illegible] GENERAL BIOLOGY, and EXPERIMENTAL PHYSICS	Perpetual Course at Guy's Hospital.
	" No. 4.	£00.	— —	Ditto	Ditto.
	" No. 5.	£50.	....	*Competitive* Examination among Candidates under twenty five years of age who have completed the curriculum for, or passed, the Examinations in Anatomy and Physiology for a medical degree in any University of the United Kingdom, and have not entered as Students in any Metropolitan Medical School.	*Ditto.*
	Arthur Durham Prizes.	£15.	....	Dissections done by Students of more than one year's standing	
	"	£5.	....	Dissections by First year Students.	Ditto.
	Hilton Prize	£5.	....	Ditto	
	Junior General Proficiency.	£20.	....	Competitive Examination among Junior Students in ELEMENTARY ANATOMY, HISTOLOGY, and ANATOMY and PHYSIOLOGY.	None.
	"	£15.	— —	Ditto	Ditto.
	"	£10.	— —	Ditto	Ditto.
	Michael Harris Prize.	£10.	— —	Competitive Examination among Second year Students in HUMAN ANATOMY.	Ditto.
	Sands Cox Scholarship.	£15 per annum.	3 years.	Competitive Examination among Second year Students in PHYSIOLOGY, HISTOLOGY, and PHYSIOLOGICAL CHEMISTRY.	Course at Guy's Hospital.
	Wooldridge Memorial Prize.	£10.	— —	Ditto	
	Senior General Proficiency.	£20.	— —	C[illegible]	Ditto.
	"	£15	— —	Ditto.	Ditto.
	"	£10.	— —	Ditto	Ditto.
	Golding Bird Prize.	£20 and Medal.	— —	Competitive Examination among Senior Students in SANITARY SCIENCE	Ditto.
	Beaney Prize.	£31 10s.	— —	Competitive Examination among [illegible]	Ditto.
	Gull Studentship, Pathology.	£150 per annum.	3 years.	A[illegible]	
	Beaney Scholarship, Therapeutics	£31 10s.	3 years.	[illegible]	
KING'S COLLEGE	Warneford Scholarships. No. 1.	£25 per annum.	3 years.	[illegible] MATHEMATICS	Perpetual Course at King's College.
	" No. 2.	£25 per annum.	3 years.	Ditto	Ditto.
	" Class II.	£25 per annum.	2 years.	[illegible]	
	Sambrooke Exhibitions. No. 1.	£60.	— —	[illegible] PHYSICS, INORGANIC CHEMISTRY, BOTANY, and ZOOLOGY.	Course as Medical Student at King's College.
	" No. 2.	£40.	— —	Ditto.	Ditto.

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

Institution.	Title of Scholarship, &c.	Annual or total value.	How long tenable.	How obtainable.	Conditions attached to tenure.
KING'S COLLEGE—*continued.*	Rabbeth Scholarship.	£20.	——	Competitive Examination among Matriculated Students in Preliminary Scientific Subjects.	*None.*
	Science Exhibitions. No. 1.	£30 per annum.	2 years.	Competitive Examination among Candidates under nineteen years of age in MATHEMATICS, MECHANICS, PHYSICS, &c., or alternative Subjects.	None.
	Science Exhibitions. No. 2.	£20 per annum.	2 years.	Competitive Examination among Candidates under nineteen years of age in MATHEMATICS, MECHANICS, PHYSICS, &c., or alternative subjects.	None.
	Medical Entrance Scholarships.				
	" No. 1.	£73 10s.	——	Open Competitive Examination in ANATOMY AND PHYSIOLOGY for Students who propose to take degree at any British University and have passed the Examination at that University in BIOLOGY, CHEMISTRY, and PHYSICS.	
	" No. 2.	£63.	——	Ditto.	
	Medical Scholarships. No. 1.	*£40* per annum.	1 year.	*Competitive Examination among Third- and Fourth-year Students.*	
	" No. 2.	£30.	1 year.	Competitive Examination among Second- and Third-year Students.	
	" No. 3.	£20.	1 year.	Competitive Examination among First-year Medical Students.	
	" No. 4.	£20.	1 year.	Ditto.	
	Sambrooke Registrarship. No. 1.	£50.	....	Competitive Examination among Matriculated Medical Students who have filled certain appointments at hospitals.	
	" No. 2.	£50.	——	Ditto.	
	Daniel Scholarship.	£20 per annum.	2 years.	Open Competitive Examination among six months' Laboratory Students.	
	Carter Prize.	£15.	....	Open Competitive Examination in Botany.	
	Tanner Prize.	£10.	——	Competitive Examination in OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN.	None.
	Todd Prize.	*£4 4s.* and medal.	——	Competitive Examination in Clinical Medicine.	
LONDON HOSPITAL ——	1. Price Scholarships.	£120.	....	Competitive Examination among Students in subjects of Preliminary Scientific M.B. Examination at University of London.	Successful Candidates must enter as Full Students.
	2. Entrance Scholarships.				
	" No. 1.	£60.	....	Ditto.	
	" No. 2.	£35.	....	Ditto.	
	3. Epsom College Scholarship.	Free Education.	——	....	
	4 Price Scholarships.	£60.	——	*HUMAN ANATOMY AND PHYSIOLOGY.*	Study at Oxford or Cambridge
	Buxton Scholarships. No. 1.	£30.	——	Competitive Examination among Students in subjects of Preliminary Examination.	
	" No. 2.	£20.	——	Ditto.	
	Scholarship	£20.	——	Competitive Examination in CLINICAL MEDICINE.	
	"	£20.	——	Competitive Examination in CLINICAL SURGERY.	
	"	£20.	——	Competitive Examination in CLINICAL OBSTETRICS.	
	Sutton Prize in Pathology.	£20.	——	Competitive Examination in PATHOLOGY.	
	Duckworth Nelson Prize.	£10.	——	PRACTICAL MEDICINE and SURGERY.	
	Biennially: Letheby Prizes.	£20 and £10.	——	Competitive Examination in CHEMISTRY.	
	Scholarship.	£25.	——	Competitive Examination in ANATOMY AND PHYSIOLOGY.	
	"	£20.	——	Competitive Examination in ANATOMY and BIOLOGY.	
	Dressers' Prize.				
	" No. 1.	£15.	——	ZEAL, EFFICIENCY, and KNOWLEDGE OF MINOR SURGERY.	
	" No. 2.	£10.	——	Ditto.	
	" No. 3.	£10.	——	Ditto.	
	" No. 4.	£5.	——	Ditto.	
	" No. 5.	£5.	——	Ditto.	
	" No 6.	£5.	——	Ditto.	
	" No. 7.	£5.	....	Ditto.	
	Triennially: Hutchinson Prize.	£35.	——	For the best essay upon a subject in CLINICAL SURGERY.	
	Practical Anatomy Prizes.	£6.	——	....	
		£4.	....	....	
	Biennially: Andrew Clark Prize.	£26.	....	CLINICAL MEDICINE and PATHOLOGY.	
	James Anderson Prizes.	£9.	——	CLINICAL MEDICINE.	

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
ST. MARY'S HOSPITAL —	Natural Science Scholarship	£145.	— —	Competitive Examination.	
	"	£78 15s.	— —	Ditto.	
	"	£78 15s.	— —	Ditto.	
	"	£52 10s.	— —	Ditto.	
	University Scholarship.	£63.	— —	Open to Students from Oxford or Cambridge by Competitive Examination in NATURAL SCIENCE.	
	"	£63.	— —		
	Epsom College Scholarship	£145.	— —	By nomination.	
	Kerslake Scholarship in Pathology and Bacteriology.	£25.	1 year.	Given for the best Essay on a Set Subject in PATHOLOGY and BACTERIOLOGY.	
	Gold Medal in Clinical Medicine	£20.	— —	Given for an ESSAY ON SOME SPECIAL POINT IN CLINICAL MEDICINE.	
	General Proficiency Scholarship. No. 1.	£20	1 year.	Examination in ELEMENTARY ANATOMY, PHYSIOLOGY, BIOLOGY, and CHEMISTRY.	
	" No. 2.	£20.	1 year.	ADVANCED ANATOMY, PHYSIOLOGY, and HISTOLOGY.	
	" No. 3.	£20.	1 year.	MIDWIFERY, MATERIA MEDICA, PATHOLOGY, and FORENSIC MEDICINE.	
	" No. 4.	£20.	1 year.	MEDICINE, SURGERY, HYGIENE, and MENTAL DISEASES.	
	Ophthalmology Prize.	£10 10s.	— —	Awarded twice in each year by Competitive Examination.	
	Dermatology Prize.	£5 5s.	— —	Ditto.	
	Meadows Prize in Obstetrics.	£8.	— —	Awarded in alternate years for Proficiency in OBSTETRICS.	
	Clinical Medicine Prize.	£5 5s.	....	Awarded annually for Reports of Clinical Cases by Students of Third and Fourth Years.	
	Clinical Surgery Prize.	£5 5s.	— —		
	Winter Session Prizes (10 in number).	£3 3s. and £2 2s. each.	....	Competitive Examination at the end of the Course of Lectures in each of the Subjects of the Medical Curriculum.	
	Summer Session Prizes (7 in number).	£3 3s. and £2 2s. each.	....	Ditto.	
MIDDLESEX HOSPITAL —	Entrance Scholarship No. 1.	£100.	— —	Open Competitive Examination.	Course at Middlesex Hospital.
	" No. 2.	£60.	— —	Ditto.	Ditto.
	" No. 3.	£60.	— —	Competitive Examination among Students from Oxford or Cambridge. (Subjects: ANATOMY and [illegible]	
		£126.	— —	[illegible]	
	Broderip Scholarship. No. 1.	£60.	— —	[illegible] SUBJECTS.	
	" No. 2.	£40.	— —	Ditto.	
	Freeman Scholarship.	£30.	....	[illegible]	
	Governor's Prize.	£21.	— —	[illegible]	
	Hetley Clinical Prize.	£25.	— —	[illegible]	
	John Murray Gold Medal and Scholarship.	£20.	Every third year.	[illegible] and OBSTETRICS.	
	Lyell Medal.	£5 5s.	— —	Examination in SURGICAL ANATOMY and PRACTICAL SURGERY.	
	Leopold Hudson Prize.	£11 11s.	....	Examination in SURGICAL PATHOLOGY and BACTERIOLOGY.	
ST. THOMAS'S HOSPITAL SUMMER	College Prizes. " No. 1.	£15.	— —	Competitive Examination among First-year Students.	
	" No. 2.	£10.	— —	Ditto.	
WINTER	Entrance Science Scholarship. No. 1.	£150	— —	[illegible]	Perpetual Course.
	" No. 2.	£60.	— —		Ditto.
	" No. 3.	£50.	— —	Competitive Examination in ANATOMY, PHYSIOLOGY, CHEMISTRY (any two).	Perpetual Course from third year.
	Wm. Tite Scholarship.	£27 10s.	— —	Competitive Examination among First-year Students.	
	College Prizes. " No. 5.	£20.	— —	Ditto.	
	" No. 6.	£10.	....	Ditto	
	Musgrove Scholarship or	£38 10s.	2 years.	Competitive Examination among Second-year Students.	
	Peacock Scholarship.	£38 10s.	2 years.	Ditto.	
	College Prizes. " No. 7.	£20.	— —	Competitive Examination among Second-year Students.	
	" No. 8.	£10.	— —	Ditto.	
	" No. 9.	£10.	— —	Competitive Examination among Fifth-year Students.	
	" No. 10.	£10.	— —	Ditto.	
	" No. 11.	£10.	— —	Ditto.	
	" No. 12.	£10.	— —	Ditto.	
	" No. 13.	£10.	— —	Ditto.	
	" No. 14.	£10.	....	Ditto.	
	" No. 15.	£10.	....	Ditto.	

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
ST. THOMAS'S HOSPITAL—*continued.*	Cheselden Medal.	....	——	Competitive Examination in SURGERY and ANATOMY.	
	Mead Medal.	——	——	Competitive Examination in MEDICINE and PATHOLOGY.	
	Bristowe Medal.	——	——	Competitive Examination in PATHOLOGY and MORBID ANATOMY.	
	Solly Medal and Prize.	....	——	SURGICAL REPORTS.	
	Treasurer's Gold Medal.	....	——	General Proficiency.	
	Wainwright Prize.	....	....	Medicine and Pathology.	
	Hadden Prize.	....	....	Pathology.	
	Beaney Scholarship.	£50 biennially.	——	For SURGERY and SURGICAL PATHOLOGY.	
	Sutton Sims Memorial Prize.	£5 biennially.	....	Reports of Cases in OBSTETRIC MEDICINE.	
	Grainger Testimonial Prize.	£15 annually.	....	For work in ANATOMY and PHYSIOLOGY.	
	The Salters' Company Research Fellowship.	£100 annually.	3 years.	Promotion of Research — PHARMACOLOGY.	
UNIVERSITY COLLEGE, LONDON	Entrance Scholarships No. 1. (Bucknill Scholarship.)	£120.	——	Open Competitive Examination in CHEMISTRY, PHYSICS, BOTANY, and ZOOLOGY.	Perpetual Course at University College.
	,, No. 2.	55 gs.	....	Ditto.	Ditto.
	,, No. 3.	55 gs.	....	Ditto.	Ditto.
	,, No. 4.	75 gs.	....	ANATOMY and PHYSIOLOGY.	Ditto.
	,, No. 5.	75 gs.	....	Ditto.	Ditto.
	Atkinson Morley Scholarship.	£45 per annum.	3 years.	Theory and Practice of Surgery.	
	Atchison Scholarship.	£55 per annum.	2 years.	Competitive Examination among Medical Students.	
	Sharpey Physiological Scholarship.	About £110.	——	Proficiency in Biological Science.	
	Filliter Exhibit'n.	£30.	1 year.	Competitive Examination among Students in PATHOLOGICAL ANATOMY.	
	Cluff Mem. Prize.	£16.	——	Competitive Examination among Students in ANATOMY, PHYSIOLOGY, and CHEMISTRY.	
	Erichsen Prize.	£10 10s.	....	Practical Surgery.	
	Morris Bursary.	£15.	2 years.	....	
WESTMINSTER HOSPITAL	Guthrie Entrance Scholarship.	£60 (total).	——	Open Competitive Examination among Candidates under twenty-five years of age in LATIN,* MATHEMATICS, EXPERIMENTAL PHYSICS, CHEMISTRY, and GREEK, FRENCH, or GERMAN.	For Students entering in the Winter Session.
	Entrance Scholarship.	£40 (total).	——	Ditto.	Ditto.
	Ditto.	£30.	....	Ditto.	Ditto.
	Dental Scholarship.	£20 (total).	——	Ditto, as above, save that Dental Students only can compete.	For Students entering in the Winter Session.
	Free Presentation.	....	——	Open to Pupils of the Epsom Medical College, obtained by recommendation.	
	Entrance Scholarship (Governors).	£40 (total).	——	Open Competition in CHEMISTRY and EXPERIMENTAL PHYSICS according to the Synopsis of the Conjoint Board	For Students entering in the Summer Session.
	Natural Science	£60.	——	Competitive Examination in subjects of Preliminary Scientific of University of London	For Students entering in the Winter Session.
	Oxford and Cambridge Scholarship.	£40 (total).	——	Competitive Examination among Oxford and Cambridge Students in ANATOMY and PHYSIOLOGY.	In April and in September.
	Ditto.	£30.	....	Ditto.	Ditto.
	Natural Science	£60.	——	Competitive Examination in subjects of Preliminary Scientific of London University.	Ditto.
	Arts Scholarship (Entrance).	£60.	——	Competitive Examination as for the Guthrie Scholarship, except that the Latin Book is that of the London Matriculation of the preceding January.	For Students entering in the Summer Session.
	Ditto.	£40.	....	Ditto.	Ditto.
	Treasurers' Prize.	£10 10s.	....	Competitive Examination among First-year Students in ANATOMY, BIOLOGY, and CHEMISTRY.	
	Sturges Prize in Clinical Medicine.	£10.	——	Notes and commentaries on 8 cases.	
	Clinical Surgery.	£5.	——	Ditto on 12 cases.	
	Chadwick Prize.	£21 in books or instruments.	——	Competitive Examination among Medical Students in MEDICINE and SURGERY, including PATHOLOGY and APPLIED ANATOMY and PHYSIOLOGY.	
	Bird Medal and Prize.	£14 in medal, books, or instruments.	——	Competitive Examination in MIDWIFERY and DISEASES of WOMEN, MEDICINE, and PATHOLOGY among Students who have completed their Fourth Winter Session at the Westminster Hospital School of Medicine.	

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* The Latin Book is that of the Matriculation, University of London, in the preceding June.

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—continued.

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN	Entrance Scholarship.	£30.	— —	Competitive Examination in ENGLISH, LATIN, ARITHMETIC, EUCLID, and ALGEBRA.	
	St. Dunstan's Scholarship.	£60.	3 years, extendible to 5 years.	Ditto.	Candidates must be (1) not more than 20 years of age on June 1st preceding the examination; (2) resident in the Metropolitan Police District area; (3) Matriculated Students of the University of London; (4) in the opinion of the Governors in need of such an exhibition for the prosecution of their medical studies.
	Stuart Mill Scholarship.	£30.	4 years.	Ditto.	Candidates must be willing to enter into a legal arrangement to practise in India under the Countess of Dufferin's Fund.
	Bostock Scholarship.	£60.	2 or 4 years.	Given on results of Preliminary Scientific Examination of the University of London.	Candidates are expected to read for the M B. degree of the University of London.
	Mabel Webb Research Scholarship.	£30.	2 years.	For Research Work in PHYSIOLOGY, CHEMISTRY, or PATHOLOGY.	....
	Fanny Butler Scholarship.	£14 10s.	4 years.	Competitive Examination in ENGLISH, LATIN, ARITHMETIC, EUCLID, and ALGEBRA.	Candidates must be willing to work in connexion with the Church of England Zenana Missionary Society.
	John Byron Bursary.	£20.	2 to 4 years	— —	Offered to students already in the school requiring assistance for the prosecution of their medical studies.
	Two Mackay Prizes.	£20 each.	— —	Given to the two Students gaining the highest number of marks in the School Examinations during the first two years of Medical Study.	
	Helen Prideaux Scholarship.	£50.	— —	......	Awarded every second year to a Student who has qualified during the two years immediately preceding the date of the award, and who, in the opinion of the Trustees, has done the best work during her final years in MEDICINE, SURGERY, OBSTETRIC MEDICINE, and PATHOLOGY. The holder of the Prize shall submit to the Trustees for their approval a statement as to how she proposes to spend the money, so as to fulfil the condition that it is for the purpose of assisting her to further study. The next award will be in December, 1902.
OXFORD UNIVERSITY —	Burdett-Coutts Scholarships.	£90 per annum.	2 years.	Competitive Examination.	....
	Radcliffe Trav. Fellowship.	£200 " "	3 years.	Ditto.	Foreign Travel for purpose of Medical Study.
	Rolleston Prize.	£40 " "	— —	Original Research.	

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
OXFORD UNIVERSITY — *continued.*	Scholarships in various branches of Natural Science at many of the Colleges.	£50 to £80 a year.	4 years.	Competitive Examination.	Satisfactory industry.
UNIVERSITY OF DURHAM	Four Scholarships.	£25 a year each.	4 years.	Examination in GOSPEL OF ST. LUKE in GREEK, LATIN, ARITHMETIC, ALGEBRA, EUCLID, and ENGLISH HISTORY. N.B.—after October, 1901, the Examination will be the *September* Examination for the Certificate in General Education. Candidates must take ENGLISH, LATIN, ARITHMETIC, EUCLID, ALGEBRA, with GREEK or GERMAN, or both. (See College Calendar for special books.)	Candidates desirous of being admitted as Medical Students. The successful Candidates must take out their entire curriculum at the University of Durham College of Medicine, Newcastle-upon Tyne.
College of Medicine	Dickinson Scholarship.	Interest on £400 and Gold Medal.	...	Examination in MEDICINE, SURGERY, MIDWIFERY, and PATHOLOGY.	Full Students of the College of Medicine who have passed the intermediate examination of any of the Licensing Bodies named in Schedule A of the Medical Act, 1858.
	Tulloch Scholarship.	Interest on £400	...	Examination in ANATOMY, PHYSIOLOGY, and CHEMISTRY.	No Student is eligible who commenced his medical curriculum more than two academical years before the date of examination.
	Charlton Memorial Scholarship.	Interest on £700	....	...	Open to full Students of the College entered for the class on the Principles and Practice of Medicine.
	Gibb Scholarship.	Interest on £500	...	Awarded annually as a Scholarship in PATHOLOGY to full Student who passes the best examination in that subject.	No Student eligible after completion of his curriculum.
	Luke Armstrong Memorial Scholarship.	Interest on £680	...	Original Essay on some subject in COMPARATIVE PATHOLOGY.	Open to all Graduates in Medicine or Hygiene and candidates for these degrees who have spent six months at the University, and whose age does not exceed thirty years.
	Stephen Scott Scholarship.	Interest on £1000.	...	Original essay on any Surgical subject.	Any Graduate in Medicine or Surgery of the University or any Student of the College of Medicine. Student's age must not exceed 30 years.
	Heath Scholarship.	Interest on *£4000.*	...	Original essay on THE CEREBRO-SPINAL NERVOUS SYSTEM: ITS INJURIES AND SURGICAL DISEASES, THEIR PATHOLOGY, DIAGNOSIS, AND TREATMENT.	All Graduates in Medicine or Surgery of the University are eligible.
Royal Infirmary	Goyder Memorial Scholarship.	Interest on *£325.*	Annually.	Student who most distinguishes himself in CLINICAL MEDICINE AND CLINICAL SURGERY at the Royal Infirmary.	
UNIVERSITY OF BIRMINGHAM.	Ingleby Scholarships (1 or more).	£10 to £15.	1 year.	....	Candidates must have spent first two years of curriculum at the University.
	Sydenham Scholarship	£42.	3 years.	Award of Council to orphan sons of Medical Practitioners.	
	Sands Cox Scholarship.	£42.	3 years.	Competitive Examination among sons of Medical Practitioners under eighteen years of age in ARTS SUBJECTS	
	Queen's Scholarship.	£42.	3 years.	Open Competitive Examination in ELEMENTARY SCIENCE, with a Modern Language.	
	Dental Scholarship.	£37 10s.	3 years.	Open Competitive Examination in subjects learned during apprenticeship.	

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
VICTORIA UNIVERSITY ...	Gilchrist Scholarship.	£50.	3 years.	Awarded annually to the candidate who shall stand highest at the June preliminary examination of the Victoria University provided that he pass in the first division.	Candidates must be over 18 years of age on July 1st in the year of competition.
	University Scholarship in Medicine.	£25.	1 year.	Awarded annually on the results of the second examination for the degrees of M.B. and Ch.B.	
	University Fellowship in Medicine.	£100.	1 year.	Awarded annually *for excellence* and promise in one or more of the subjects of the Second or Final M B. Examinations	*For the encouragement of Study* and Research.
OWENS COLLEGE, MANCHESTER	General Entrance Scholarships	—	—	—	Open to candidates above 16 and under 20 years of age.
	Rogers.	£40.	2 years.	Subjects: GREEK, LATIN TRANSLATIONS AT SIGHT, and PROSE COMPOSITION.	
	Seaton.	£40.	2 years.	Subjects: GREEK, LATIN TRANSLATIONS AT SIGHT, and PROSE COMPOSITION.	
	Dalton.	£40.	2 years.	Subjects: EUCLID, ALGEBRA, TRIGONOMETRY, GEOMETRY, and CONIC SECTIONS.	
	Cartwright.*	£35.	3 years.	Ditto	
	Hulme.	£35.	3 years.	Subjects: ENGLISH LANGUAGE and LITERATURE, HISTORY, GEOGRAPHY, and LATIN, GREEK, FRENCH, or GERMAN (any two subjects).	
	James Gaskill.	£40.	2 years.	MATHEMATICS, MECHANICS, and CHEMISTRY.	
	Dora Muir.†	£25.	3 years.	Ditto	
	Manchester Grammar School.*	£18.	3 years.	MATHEMATICS, ENGLISH ESSAY with CLASSICS and PHYSICAL SCIENCE in alternate years.	
	Kay-Shuttleworth.*	£30.	3 years.	Subjects as in James Gaskill Scholarships.	Pupils of Sedbergh, Giggleswick, or Burnley Grammar School.
	Theodores Exhibition.	£15.	1 year.	Subjects: FRENCH and GERMAN	Successful candidates are required to enter for a regular University course
	Robert Platt Physiological Scholarship.	£50.	2 years.	Subjects: PHYSIOLOGY and COMPARATIVE ANATOMY.	Open to Candidates whether or not previously students of the College.
	Dauntesey Medical Scholarships (two).	£35 each.	1 year.	Subjects: ZOOLOGY, BOTANY, and CHEMISTRY.	These Scholarships are open to all students preparing for a Medical Course who shall not have attended Lectures or Laboratory Courses on Human Anatomy or Physiology, or a purely Medical or Surgical Course in the Owens College or any other Medical School in the United Kingdom. Candidates must not be more than 25 years of age on October 1st of the year of competition. Scholars must immediately on election enter for a full course of medical studies.
	Robert Platt Exhibitions (two).	£15 each.	—	—	First and second year students in Physiology.
	Sidney Renshaw Exhibition.	£15	....	—	Second year students in Physiology.
	Professor Tom Jones Exhibition in Anatomy.	£25.	—	—	First year students in Anatomy.

* Open to men candidates only.

† Open to women candidates only.

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
OWENS COLLEGE, MANCHESTER—*continued.*	Turner Scholarship.	£20.	— —	Subjects: MEDICINE, PATHOLOGY (written and practical), OBSTETRICS, PRACTICAL SURGERY, OPHTHALMOLOGY, FORENSIC MEDICINE, and PUBLIC HEALTH.	Students who have completed a full course of medical study in the College are eligible only.
	John Henry Agnew Scholarship.	£30.	— —	The Scholarship is awarded on the results of an Examination, partly written and partly clinical, on DISEASES OF CHILDREN, MEDICAL AND SURGICAL.	Open for competition annually to all students in the Medical Department who have pursued a regular course of medical study in the College extending over a period of not less than 4 years or more than 6, and who have attended the course of lectures on Diseases of Children.
	Professor Tom Jones Memorial Surgical Scholarship.	£100.	1 year.	The scholar will be elected on the result of evidence submitted by him.	Candidates must have either graduated in the Victoria University or have obtained the Diploma of the Conjoint Colleges.
	Dumville Surgical Prize.	£15.	— —	Subjects: SYSTEMATIC, PRACTICAL, and OPERATIVE SURGERY, SURGICAL ANATOMY, and SURGICAL PATHOLOGY.	
BRISTOL ROYAL INFIRMARY AND BRISTOL GENERAL HOSPITAL.	University College Bristol Entrance Scholarship	£50.	— —	Competitive Examination in Subjects of GENERAL EDUCATION.	Open to Perpetual Students of Faculty of Medicine, University College, Bristol.
	Lady Haberfield Entrance Scholarship.	Interest of £1000.	— —	Ditto.	
	Tibbitts Surgical Prize.	£9 9s.	— —	Proficiency in PRACTICAL SURGERY.	
	Martyn Memorial Pathological Prizes.	Two annually, of £10 each.	— —	Competitive Examination in PATHOLOGY and MORBID ANATOMY.	
	A Gold and a Silver Medal.	— —	— —	Given by the Committees of the two Institutions to most distinguished Students of Fifth Year.	
Bristol Royal Infirmary ..	Suple Medical Prize.	Gold Medal value £5 5s. and £7 7s. in money.	— —	Competitive Examination in MEDICINE to Students of Fourth and Fifth Years.	Restricted to Perpetual Students who have done the necessary qualifying work at the Bristol Royal Infirmary.
	Suple Surgical Prize.	Gold Medal value £5 5s. and £7 7s. in money.	— —	Competitive Examination in SURGERY of Students of Third and Fourth Years.	
	Clark Prize.	£11 11s.	— —	Class Work of Third-year Students.	Restricted to Perpetual Students who have done the necessary qualifying work at the Bristol Royal Infirmary.
	Crosby Leonard Prize.	£7 7s.	— —	Examination in CLINICAL SURGERY.	
	Augustin Prichard Prize.	£7 7s.	— —	Examination in SURGICAL ANATOMY.	
Bristol General Hospital ...	Sanders Scholarship.	£22 10s.	— —	Competitive Examination in MEDICINE, SURGERY, and MIDWIFERY of Fourth-year Students.	Restricted to Perpetual Students who have done the necessary qualifying work at the Bristol General Hospital.
	Clarke Scholarship.	£15.	— —	Competitive Examination in SURGERY among Students of Fourth Year.	
	Marshall Prize.	£9.	— —	To the best Surgical Dresser of the year.	
LEEDS SCHOOL OF MEDICINE (YORKSHIRE COLLEGE).	Entrance Scholarship.	£67 4s.	— —	Competitive Examination among Medical Students who have passed Preliminary Scientific Examination at London or Victoria University.	Complete Course of Lectures and Practical Classes at Leeds School.
	Infirmary Scholarship.	£42.	— —	Competitive Examination in ARTS among Students who have passed one of the Preliminary Examinations.	Complete Course of Hospital Practice and Clinical Lectures at Leeds Infirmary.
	Hardwick Prize.	£10.	— —	Competitive Examination among Clinical Clerk Students of two years' standing in CLINICAL MEDICINE.	
	McGill Prize.	£10.	— —	Competitive Examination among advanced Surgical Students in CLINICAL SURGERY.	
	Thorp Prizes.	£10 and £5.	— —	Examinations in Forensic Medicine and Hygiene.	
	Thorp Prize Essay.	£15.	— —	Essay or research on some subject connected with FORENSIC MEDICINE, TOXICOLOGY, or PUBLIC HEALTH.	Every three years to former student of the Leeds School.
	Scattergood Prize.	— —	— —	Examination in MIDWIFERY.	

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
UNIVERSITY COLLEGE, LIVERPOOL.	Robert Gee Entrance Scholarships (four annually).	£25 each.	1 year.	Special College Scholarship Examination held in May.	First M.B. Course.
	Holt Fellowships (Physiology and Pathology).	£100 each.	1 year.	Vote of Faculty to Student after graduation.	Teaching and Original Research.
	Gee Fellowship (Anatomy).	£100.	1 year.	Ditto.	Teaching and Research.
	Alexander Fellowship (Pathology).	£100.	1 year.	Ditto.	Research in Pathology.
	Johnston Colonial Fellowship (Pathology and Bacteriology).	£100.	1 year.	Ditto.	Ditto.
	John W. Garrett International Fellowship (Physiology and Pathology).	£100.	1 year.	Ditto.	Ditto.
	Lyon Jones Scholarship. No. 1.	£21 per annum.	2 years.	Competitive Examination among Junior Students in 1st M.B. SUBJECTS.	Perpetual Course at Victoria University.
	,, No. 2.	£21.	——	Competitive Examination among Senior Students in ANATOMY, PHYSIOLOGY, and THERAPEUTICS.	
	Derby Exhibition.	£15.	——	Competitive Examination among Fourth- or Fifth-year Students in CLINICAL SUBJECTS.	
EDINBURGH UNIVERSITY	*Sibbald Bursaries (1 or 2 annually).	Each £30 per annum.	3 years.	Competitive Examination in Preliminary Subjects among entrants.	Continued Study.
	*Heriot Bursaries (7 for men and 1 for women annually).	Each £30 per annum.	3 years.	Ditto.	
	*Thomson Bursaries (2 annually).	Each £25 per annum.	4 years.	Distinction in Medical Preliminary Examination.	Ditto.
	*Grierson Bursary. ,, No. 1.	£20.	1 year.	Ditto.	Ditto.
	*Crichton Bursaries (2 annually).	Each £50 per annum.	4 years.	Distinction in Medical Preliminary Examination, with extra subjects.	Born in Scotland.
	* Mackie Bursary. ,, No. 1.	£30 per annum.	2 years.	....	Pecuniary circumstances requiring assistance, &c.
	*Junior J. A. Carlyle Bursary.	£28.	1 year.	Distinction in Class Examinations in ANATOMY and CHEMISTRY.	
	* Coldstream Memorial Scholarship	£25 per annum.	5 years.	——	Intention to become Medical Missionary, &c.
	* Vans Dunlop Scholarship ,, No. 1.	£100 per annum.	3 years.	First place in MEDICAL PRELIMI- [illegible]	
	,, No. 2.	£100 per annum.	3 years.	[illegible]	Continued study.
	,, No. 3.	£100 per annum.	3 years.	[illegible]	Ditto.
	*Thomson Scholarship.	£40 per annum.	4 years.	[illegible]	
	† Mackie Bursary. ,, No. 2.	£30 per annum.	2 years.	....	Pecuniary circumstances requiring assistance, &c.
	† Grierson Bursary. ,, No. 2.	£20.	1 year.	Competitive Examination in CHEMISTRY, BOTANY, ZOOLOGY, and PHYSICS.	
	†Senior J. A. Carlyle Bursary.	£28.	1 year.	Distinction in Class Examinations in ANATOMY and PHYSIOLOGY.	
	† Sibbald Scholarship.	£40 per annum.	3 years.	Competitive Examination in CHEMISTRY, BOTANY, ZOOLOGY, and PHYSICS.	Continued study.
	† Vans Dunlop Scholarship. ,, No. 4.	£100 per annum.	3 years.	[illegible]	Ditto.
	† Neil Arnott Prize	£37 10s.	——	[illegible]	
	‡ Grierson Bursary. ,, No. 3.	£20.	1 year.	Competitive Examination in ANATOMY and PHYSIOLOGY.	
	§ Syme Surgical Fellowship.	£100 per annum.	2 years.	Competitive Thesis by M.B. of not more than three years' standing.	
	§ Goodsir Memorial Fellowship.	£100 per annum.	2 years.	Competitive Essay by M.B., &c., of not more than three years' standing	

* For Students entering on or in their First Year. † For Students entering on or in their Second Year.
‡ For students entering on their Third Year.
§ For Students entering on or in their Fourth or Fifth Year, or for Graduates.

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

INSTITUTION	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
EDINBURGH UNIVERSITY —*continued.*	* Leckie Mactier Fellowship.	£80 per annum.	8 years.	Competitive Examination among M.B.'s of not more than three years' standing.	
	* Freeland Barbour Fellowship.	£100.	1 year.	Highest Marks in ANATOMY, PHYSIOLOGY, and PATHOLOGY in Professional Examinations.	One year's research in Midwifery.
	* Allan Fellowship.	About £40.	1 year.	Competitive Examination in CLINICAL MEDICINE and CLINICAL SURGERY.	
	* Vans Dunlop Scholarship				
	,, No. 5.	£100 per annum	8 years.	Competitive Examination in ANATOMY and PHYSIOLOGY.	Continued study and research.
	,, No. 6.	£100 per annum.	8 years.	Do. in MATERIA MEDICA (including PHARMACOLOGY).	Ditto.
	,, No. 7.	£100 per annum.	8 years.	Do. in PATHOLOGY and MEDICAL JURISPRUDENCE and PUBLIC HEALTH.	Ditto.
	* Murchison Memorial Scholarship.	Interest on £1000.	1 year.	Competitive Examination in CLINICAL MEDICINE.	
	* Stark Scholarship in Clinical Medicine.	£112.	1 year.	Competitive Examination in CLINICAL MEDICINE.	Research in Clinical Medicine.
	* Buchanan Scholarship.	£40.	1 year.	Competitive Examination and Class Work in MIDWIFERY and GYNÆCOLOGY.	Work in Gynæcological Ward, &c.
	* James Scott Scholarship.	£32 10s.	1 year.	Competitive Examination and Class Work in MIDWIFERY.	Work in Maternity.
	* Ettles Scholarship	£31.	1 year.	Most distinguished M.B., Ch.B. of year.	
	* Crichton Research Scholarships in Anatomy, Physiology, Materia Medica, and Pathology.	£100 each per annum.	1, 2, or 8 years.	Competitive Examination for Graduates of the University.	Continued Research.
	* Mouat Scholarship.	£55.	1 year.	Class and Degree Examinations in PRACTICE OF PHYSIC (MEDICINE).	Continued study in Medicine.
	* Grierson Bursary.				
	,, No. 4.	£10.	1 year.	Competitive Examination in MATERIA MEDICA.	
	,, No. 5.	£10.	1 year.	Competitive Examination in PATHOLOGY.	
	* M'Cosh Graduate's Bursary and M'Cosh Medical Bursary (for Research)	Income of £5500.	1 year.	Distinction in Professional Subjects, and sufficient knowledge of FOREIGN LANGUAGES.	Research in Medical Schools of Europe.
	* Gunning Victoria Jubilee Prizes (2 awarded annually)	Each £50.	——	Thesis or Original Research in ANATOMY, PHYSIOLOGY, ZOOLOGY, BOTANY, CHEMISTRY, MATERIA MEDICA, SURGERY, PRACTICE OF PHYSIC, PATHOLOGY, OBSTETRICS, and MEDICAL JURISPRUDENCE and PUBLIC HEALTH, respectively.	
	* Theses Gold Medals.	....	——	Candidates for M.D. who present Theses of high merit.	
	* Wightman Prize.	£12.	——	Competitive Reports on Cases by Clinical Students.	
	* Beaney Prize.	£82 10s.	——	Highest Marks in ANATOMY, SURGERY, and CLINICAL SURGERY, in M.B. and Ch.B. Examinations.	
	* Ellis Prize.	£28 per annum.	——	Essay on ANIMAL OR VEGETABLE PHYSIOLOGY.	
	* Cameron Prize.	Annual Proceeds of £2000.	——	Most valuable addition to PRACTICAL THERAPEUTICS during preceding 5 years.	
	* Milner Fothergill Gold Medal.	About £20.	——	Essay on PHARMACOLOGICAL or THERAPEUTIC SUBJECT.	
	† Mackay Smith Scholarship in Chemistry.	£25 per annum.	2 years.	Competitive Examination in CHEMISTRY among University Students.	Continued study of Chemistry
	† Houldsworth Scholarship.	£40.	1 year.	Competitive Examination in MATERIA MEDICA among University Students or Graduates.	Research in Pharmacology.
	† Mackenzie Bursaries (2 annually).	£20.	——	Industry and Skill in PRACTICAL ANATOMY.	
	† Pattison Prize.	About £11 7s. 6d.	——	Competitive Reports on CLINICAL SURGERY CASES.	

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* For Students entering on or in their Fourth or Fifth Year, or for Graduates.
† For Students of any year (or standing of candidates not stated).

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

INSTITUTION.	TITLE OF SCHOLARSHIP, &c.	ANNUAL OR TOTAL VALUE.	HOW LONG TENABLE.	HOW OBTAINABLE.	CONDITIONS ATTACHED TO TENURE.
EDINBURGH UNIVERSITY —*continued.*	* Dobbie Smith Gold Medal.	— —	— —	Essay on BOTANICAL SUBJECT.	
	* Anderson Henry Prize.	Proceeds of £300 accum. for 3 years.	— —	Ditto.	
	Gilfillan Memorial Prize.	About £10.	— —	Most distinguished Lady Graduate of year.	
GLASGOW UNIVERSITY—QUEEN MARGARET COLLEGE	Mackintosh Mental Science Bursary.	£30.	1 year.	— —	Open for competition to students of medicine of either sex attending the lectures on Insanity.
	Dr. Thos. Gibson Bursary.	£32.	4 years.	Vacant 1904. Competition by Students at the First Professional Examination.	Open to medical students preparing to be missionaries in connexion with the Church of Scotland.
	Arthur Bursary.	£20.	3 years.	Competition by Students of one year's standing in the subjects of the First Professional Examination. Next vacancy 1901.	Restricted to women students only.
	Logan Bursary.	£17.	4 years.	Appointment by the Senate of Glasgow University. Next vacancy 1901.	Open to medical students of either sex.
	Armagh Bursary in Medicine.	£45.	3 years.		Open to students of either sex who have taken the course of study for graduation in Arts and intend to study Medicine.
	Two Taylor Bursaries.	Each £7.	4 years.	Appointment by the Senate. Both vacant in 1901.	Open to students of either sex in any faculty.
	Two Dumfriesshire Society Bursaries.	Each £15.	4 years.	Appointment by the Dumfriesshire Society.	Open to First- and Second-year's Students of either sex in any faculty.
	Four Buchanan Society Bursaries.	Each £35.	3 years.	Vacant 1901. Competition by students entering on the University Course.	Open to students in Science or Medicine of either sex of the names of BUCHANAN, MCMILLAN, MCAUSLAN, MCWATTIE, and RISK.
	William Gardiner Bursary.	£13 10s.	2 years.	Vacant 1901. Competition in PHYSIOLOGY, CHEMISTRY, and PHYSICS of PROFESSIONAL EXAMINATIONS.	Open to medical students of either sex.
	Two Pratt Bursaries.	Each £20.	4 years.	Vacant 1901.	Open to sons and daughters of working men of the Parishes of WISTON and ROBERTON and of LAMINGTON.
QUEEN'S COLLEGE, BELFAST	Ten Junior Scholarships for Matriculated Students, two for each of the five years' curriculum.	£20 each.	1 year.	Examination at the commencement of session.	Open to matriculated Medical Students of either sex.
ROYAL COLLEGE OF SURGEONS IN IRELAND, SCHOOLS OF SURGERY	Class Prizes.†	£1 and £3	— —	Proficiency in Class Examination.	
	Carmichael Scholarship.	£15.	— —	Examination in ANATOMY, PHYSIOLOGY, HISTOLOGY, CHEMISTRY, MATERIA MEDICA, and PHARMACY.	Open to students of the third year.
	Mayne Scholarship.	£15.	— —	SURGERY, MEDICINE, JURISPRUDENCE, MIDWIFERY, and DISEASES OF WOMEN.	Open to students of third and fourth year.
	Barker Bequest.	£21.	— —	For best DISSECTION.	Open to all medical students.
ROYAL UNIVERSITY OF IRELAND	Travelling Medical Scholarship.	£100.	— —	The subjects are in rotation: (1) ANATOMY AND HISTOLOGY; and (2) PHYSIOLOGY AND PATHOLOGY.	Those who have passed the Medical Degrees Examination either in the year of the scholarship examination or in the year immediately preceding are alone eligible.

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* For Students of any year (or standing of candidates not stated).
† Given in each class at termination of each course of lectures.

SCHOLARSHIPS GIVEN IN AID OF MEDICAL STUDY—*continued.*

Institution.	Title of Scholarship, &c.	Annual or total value.	How long tenable.	How obtainable.	Conditions attached to tenure.
ROYAL UNIVERSITY OF IRELAND—*continued.*	Dr. Henry Hutchinson, Stewart Medical Scholarships.				
	" No. 1.	£10.	3 years.	Competition in the subjects of the second examination in Medicine.	Candidates must present themselves after the lapse of not more than one medical year from the time of passing the first examination in medicine.
	" No. 2.	£50.	3 years.	Subjects include Psychological Medicine, Diseases of the Nervous System, and Anatomy, Psychology and Pathology of Brain, Cord, and Nerves.	Competition among medical graduates of not more than 2 years' standing for proficiency in the knowledge of Mental Diseases. Fee £2.
	Medical Studentship.	£200.	2 years.	(1) Pathology and Bacteriology; and (2) Physiology and Physiological Chemistry.	Open to Graduates in Medicine of the University. Fee £2.
	Exhibition at first Examination in Medicine.				
	" No. 1.	£20.	......	......	
	" No. 2	£20.	......	......	
	" No. 3.	£10.	......	......	
	" No. 4.	£10.	......	......	
	Exhibition at second Examination in Medicine.				
	" No. 1.	£25.	......	......	
	" No. 2.	£25.	......	......	
	" No. 3.	£15.	......	......	
	" No. 4.	£15.	......	......	
	Exhibition at third Examination in Medicine.				
	" No. 1.	£30.	......	......	
	" No. 2.	£30.	......	......	
	" No. 3.	£20.	......	......	
	" No. 4.	£20.	......	......	
	M B., B.Ch., and B.A.O. Examinations.				
	" No. 1.	£40.	......	......	
	" No. 2.	£40.	......	......	
	" No. 3.	£25.	......	......	
	" No. 4.	£25.	......	......	
QUEEN'S COLLEGE, GALWAY	Eight Junior Scholarships.	£25 each and half fees.	1 year.	Competitive Examination at the commencement of session.	Students of either sex must be of the standing of the year, and may be of any recognised school of medicine.
QUEEN'S COLLEGE, CORK	Eight Junior Scholarships for Matriculated Students, two for each of first four years of curriculum.	£25.	1 year.	Examination at commencement of session.	Open to matriculated students of either sex.
	Blayney Scholarship, in fifth year of curriculum.	£35.	1 year.	Ditto.	Ditto.
	Senior Exhibition, in fifth year of curriculum.	£30.	1 year.	Ditto.	Ditto.
	Three Exhibitions in Practical Medicine, Surgery, and Midwifery respectively.	£15 each.	......	Examination at end of medical session.	

Annotations.

"Ne quid nimis."

THE ROYAL COMMISSION ON TUBERCULOSIS.

A ROYAL Commission has been appointed having for its purpose to determine with respect to tuberculosis these points: (1) whether the disease in animals and man is one and the same; (2) whether animals and man can be reciprocally infected with it; and (3) under what conditions, if at all, the transmission of the disease from animals to man takes place, and what are the circumstances favourable or unfavourable to such transmission. The following are the Commissioners:—Sir Michael Foster, M.P., K.C.B., F.R.S., M.D., Professor of Physiology in the University of Cambridge; Dr. German Sims Woodhead, F.R.S. Edin., Professor of Pathology in the University of Cambridge; Dr. Sidney Martin, F.R.S., Professor of Pathology at University College, London; Professor John McFadyean, Principal and Professor of Comparative Pathology and Bacteriology at the Royal Veterinary College; and Professor Rubert William Boyce, Professor of Pathology at University College, Liverpool. This is a very strong Commission; scientific and practical knowledge will be combined at its councils to a remarkable extent.

LOOKING BACK: CHESS PROBLEMS.

THE following excerpt is taken from THE LANCET of Sunday, Nov. 9th, 1823:—

"In a former number (THE LANCET, Oct. 19th, 1823) we gave some account of the origin of the game of chess. This is perhaps the only game to which the medical student may profitably devote any portion of his time and attention. It is liable to none of the objections which apply to games of chance; it holds out no encouragement to cupidity; and while it affords an agreeable relaxation from more serious pursuits it strengthens the intellectual faculties by the unremitting attention which it demands, and may even have some influence on our moral habits by the lessons of foresight, patience, and perseverance which it inculcates. To avoid errors on the one hand by foresight and circumspection, and to endeavour to retrieve such as are committed on the other by patient industry and perseverance—these are maxims applicable to all professions and situations in life and which, as the American philosopher Dr. Franklin has observed, are constantly illustrated on the chess-board. The study of chess has, we believe, been recommended to medical students by the distinguished professor[1] whose lectures stand at the head of this publication and who unites to his great professional and general knowledge a very considerable degree of excellence in that scientific game. The recommendation was founded, not only on the superiority of this amusement to all others in an intellectual point of view, but upon a more benevolent motive, for circumstances might possibly occur in which the surgeon's acquaintance with chess might relieve the mind as much as his professional skill could mitigate the bodily sufferings of his patient. Sanctioned by such an authority we have no hesitation in recommending the study of chess to such younger members of the profession as are unacquainted with its principles, and for those who have already made some proficiency in the game we shall in this and every succeeding number insert a few problems as an exercise of their skill and ingenuity. Many original positions will be given and others will be selected from sources not generally accessible. The solutions will be given at the end of each volume of THE LANCET, but it cannot be too strongly impressed upon the student in chess that the whole benefit to be derived from the study of problems must depend on his solving them *proprio marte* and resolutely forbearing to consult solutions."

Everybody will agree for the most part with our remarks upon the subject of chess made nearly eighty years ago. But nowadays probably no one would say that chess is "perhaps the only game to which the medical student may profitably devote any portion of his time and attention." At the present time most persons would say that outdoor games, cricket, lawn-tennis, football, hockey, or fives, are far preferable to any indoor game. But in the "twenties" football and cricket were in their infancy, if we may judge from the account of the latter game as given in "Pickwick, although the game was played and the Founder of this journal was in his student days an enthusiastic cricketer. Almost the only other recreations open to the medical student of 80 years ago were boxing and billiards. Chess, of course, even apart from its intellectual value, has its advantages. It requires no outlay of money and but two players, while between two fairly equal antagonists one game lasts a long time. Of sedentary games it is the best, for the possible combinations and complications are more numerous than occur in any card games, while there appears to be no incentive to stake money on the result. The excitement of the game is sufficient by itself.

THE DISTRIBUTION OF PLAGUE.

A TELEGRAM from the Governor of the Cape of Good Hope, received at the Colonial Office on August 28th, states that for the week ending August 24th the cases of bubonic plague in the Cape Peninsula numbered 2, both being in Europeans. At Port Elizabeth the cases were: Europeans, 1; coloured persons, 1; Chinamen, 2; natives, 4; total, 8. All other places reported no cases. The deaths from plague in the Cape Peninsula numbered 1, the patient being a Malay. At Port Elizabeth the deaths were as follows: Europeans, 1; coloured persons, 1; Chinamen, 1; natives, 2; total, 5. All other places reported no deaths. The area of infection remains unchanged and no cases of plgue have occurred among persons under naval or military control. As regards Mauritius a telegram from the Governor, received at the Colonial Office on August 30th, states that for the week ending August 29th there were 5 cases of plague with 2 deaths. As regards plague in Egypt, during the week ending August 25th 3 cases of plague and 2 deaths from the disease have been reported throughout Egypt. Of these 2 cases and 2 deaths occurred at Port Said among natives and 1 case occurred among Europeans at Alexandria. The last case of plague notified from Zagazig occurred on August 9th.

PETROLEUM LAMP ACCIDENTS.

WE notice in the annual report of the chief officer of the Public Control Department of the London County Council, which has been recently published, that the Council's inspectors have investigated during the past year, 1900-1901, the causes of 204 lamp accidents, 25 of which were fatal and involved the loss of 26 lives. The number of accidents is only one more than the number investigated in the year 1899-1900, but there have been three more lives lost. It is most interesting to point out that according to this return only 6 out of a total number of 25 fatal accidents occurred during the hot months of summer, one in June, two in July, and three in August, and if we remember rightly the hot weather last year did not really commence till after the middle of June, and then at times the temperature in the shade reached again and again, and even exceeded, as it has done this year, the flashing-point of the lamp-oil mostly sold. On the other hand, six cases occurred in the cold month of December, three in November, two in January, two in February, two in March, two in September, one in May, and one in October—a total of 19 fatal cases in the winter and autumn months. Lamps are, of course, used for a longer period in the winter months and the chances of accidents are increased, whatever they may be due to, but it is remarkable that in the hot summer months, when the temperature is frequently over 80° F. in the shade (well above the usual flashing-point of the oil), accidents are decidedly few when compared with the winter months.

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[1] Sir Astley Cooper.

THE REFORM OF THE ROYAL ARMY MEDICAL CORPS.

As we write the report of the commission at present sitting on Mr. Brodrick's scheme for the reform of the Royal Army Medical Corps is on the eve of being made public; in fact, before we go to press, the scheme may be in the hands of our readers, for we understand that it only requires the Royal sign-manual to be promulgated. We have reason to believe that the terms offered to the Royal Army Medical Corps under this scheme will be found to be liberal and that the desires of the profession will be met by conferring advantages on those who display professional zeal and ability.

DR. ALFRED EDWARD AUST LAWRENCE, consulting physician accoucheur at the Bristol General Hospital and professor of midwifery and diseases of women in University College, Bristol, died suddenly last week while on a holiday with his family at Bishopsteignton, Devon.

SURGEON-GENERAL H. SKEY MUIR, Deputy Director-General of the Royal Army Medical Corps, has been offered extension of service to Dec. 31st next, instead of retiring by age on Oct. 4th. This officer is now on leave of absence until about Sept. 25th, and officers of the Royal Army Medical Corps writing more or less officially for information are requested to note this. Such correspondence should be directed to the Deputy Director-General if a reply is desired.

OPENING OF THE MEDICAL SCHOOLS:

WINTER SESSION 1901-1902.

LONDON.

St. Bartholomew's Hospital.—The session will begin on Tuesday, Oct. 1st. The old students' dinner will be held on the same evening in the great hall of the hospital at 6 30 for 7 o'clock, Mr. W. J. Walsham, F.R.C.S., in the chair.

Charing-cross Hospital. — The session will begin on Wednesday, Oct. 2nd, when Mr. J. W. Taylor, F.R.C.S., Professor of Gynæcology in the University of Birmingham, will deliver an introductory address at 4 P.M. The old students' dinner will be held at the Hôtel Cecil on Tuesday, Oct. 22nd.

St. George's Hospital.—The session will begin on Tuesday, Oct. 1st, with an introductory address at 4 P.M. by Dr. P. W. Latham. The annual dinner will be held on the same evening at the Hôtel Métropole at 6.30 for 7 o'clock, when the chair will be taken by Mr. Warrington Haward.

Guy's Hospital.—The session will begin on Tuesday, Oct. 1st, on the evening of which day a house dinner of the Students' Club will take place in the college dining hall. Application for tickets to the dinner should be made to Mr. A. W. Ormond, the secretary of the Students' Club, Guy's Hospital, S.E The first meeting of the Physical Society will be held in the new Physiological Theatre at 8 P.M. on Saturday, Oct. 5th. Sir Samuel Wilks, Bart., F.R.S., will preside, and a paper will be read by Mr. S. W. Mac Ilwaine on Disease and its Causation. After the meeting a conversazione will be held in the new laboratories and class-rooms. All past and present students are cordially invited to the meeting.

King's College Hospital.—The session will begin on Tuesday, Oct. 1st. The old student's dinner will be held in the evening at the Hôtel Cecil, when Mr. Paul Swain, F.R.C.S., will take the chair.

London Hospital.—The session will begin on Tuesday, Oct. 1st. The old students' dinner will be held in the college library, Dr. F. J. P. Daly in the chair.

St. Mary's Hospital.—The session will begin on Tuesday, Oct. 1st, with an introductory lecture by Dr. G. William Hill, aural surgeon. The annual dinner of past and present students will take place on Wednesday, Oct. 3rd, at the Whitehall Rooms, Hôtel Métropole, Colonel A. B. R. Myers in the chair.

Middlesex Hospital—The session will begin on Tuesday, Oct. 1st, when Mr. T. H. Kellock, M.A., M.D., F.R.C.S., will give an introductory address, after which the prizes gained during the previous year will be distributed, by Lord Howard de Walden. The annual dinner of past and present students will take place the same evening at 7 o'clock at the Trocadéro Restaurant, under the presidency of Mr. J. Bland-Sutton, F.R.C.S.

St. Thomas's Hospital.—The session will begin on Wednesday, Oct. 2nd, when the prizes will be distributed by Major-General Sir Ian Hamilton, K.C.B., in the Governors' Hall, at 3 P.M. During the afternoon the various departments of the hospital and school will be open for the inspection of visitors. The annual dinner, in which all former and present students are invited to join, will take place the same evening at the Whitehall Rooms, Hôtel Métropole, at 6.30 for 7 o'clock, Mr. H. H. Clutton in the chair.

University College Hospital.—The session will begin on Tuesday, Oct. 1st, when an introductory lecture will be given at 4 P.M. by Professor J. Risien Russell. The Past and Present Students' Dinner will take place at 6.30 the same evening at the Hôtel Cecil; Sir Richard Douglas Powell, Bart., will preside.

Westminster Hospital.—The session will begin on Tuesday, Oct. 1st. The annual dinner will take place on Oct. 4th, Mr. Charles Stonham, F.R.C.S., in the chair. The secretaries of the dinner are Mr. E. Canny Ryall, F.R.C.S., and Mr. W. Turner, F.R.C.S.

London (Royal Free Hospital) School of Medicine for Women.—The school will reopen on Tuesday, Oct. 1st, when the introductory address will be given by Dr. F. W. Andrewes at 4 P.M.

London School of Tropical Medicine.—The session will begin on Tuesday, Oct. 1st.

Pharmaceutical Society of Great Britain.—The inaugural address will be given on Oct. 1st at 3 P.M., by Professor Ramsay, F.R.S.

Dental Hospital of London.—The session will commence on Oct. 1st.

National Dental Hospital and College.—The session will commence on Tuesday, Oct. 1st.

PROVINCIAL.

University of Birmingham.—The session will begin on Tuesday, Oct. 1st.

University College, Bristol.—The session will begin on Tuesday, Oct. 1st.

University College, Cardiff.—The session will begin on Monday, Oct. 7th.

Yorkshire College, Leeds.—The session will begin on Tuesday, Oct. 1st. Sir William S. Church will deliver the introductory address on the following day.

University of Durham.—The session in the Medical Faculty will begin on Tuesday, Oct. 1st.

University College, Liverpool.—The session will begin on Tuesday, Oct. 1st. The opening address will be delivered and the prizes distributed on Saturday, Oct. 12th, by Professor Lodge of Birmingham.

Owens College, Manchester.—The session will begin on Tuesday, Oct. 1st.

University College, Sheffield.—The session will begin on Tuesday, Oct. 1st, when Sir Thomas Barlow, Bart., K.C.V.O., will deliver an introductory address.

SCOTLAND.

University of Aberdeen.—The session will commence on Tuesday, Oct. 15th.

University of St. Andrews (United Colleges of St. Andrews and University College, Dundee).—The session will open on Wednesday, Oct. 9th.

University of Edinburgh.—The session will begin on Tuesday, Oct. 15th.

University of Glasgow.—The session will open on Thursday, Oct. 17th.

Anderson's College, Glasgow.—The session will begin on Thursday, Oct. 17th.

St. Mungo's College, Glasgow.—The session will begin on Thursday, Oct. 17th.

Queen Margaret College, Glasgow.—The session will begin on Thursday, Oct. 17th.

IRELAND.

Queen's College, Belfast.—The session will begin on Tuesday, Oct. 15th.

Queen's College, Cork.—The session will begin on Thursday, Oct. 17th. The lectures will commence on Monday, Oct. 21st.

University of Dublin.—The session will begin on Thursday, Oct. 10th.

Royal College of Surgeons in Ireland.—The session will commence on Tuesday, Oct. 1st.

MEDICAL TEACHERS

Mr. R. O B Kerin, B.A., London, first in First Class Honours in Classics, assisted by a staff of B A. and B Sc. Honour Graduates, prepares candidates in class and by private tuition for Medical Prelimi [illegible] Inter Science, [illegible] d, Oxon, and [illegible] tories For last [illegible] Hospital Science [illegible] lane, W C. [illegible] prepares candi [illegible] Examinations, [illegible] (Cambridge or [illegible] There are five [illegible] al preparation, besides other tutors for [illegible] equipped laboratory for [illegible] The Manager is Mr B S [illegible] Strand, London, W C

M D, B S Lond prepares for all the Professional Exams Small classes [illegible] and Physicians, the [illegible] g) Tuition [illegible] Cavendish-square, W

Special preparations, in class, privately, and by correspondence, for the Triple Qualification, Edinburgh Also for Fellowship Examinations of Royal College of Surgeons, Edinburgh, and M D Brussels Resident pupils received —Address, Class Rooms, 7, Chambers-street, Edinburgh

Coaching for Examination (University of Brussels) Also Correspondence Course for Provincial Practitioners, with practical and [illegible]

Instructors in Elocution, &c.

Professor Altschul, Ph D, has made Stammering Stuttering, Lisping, Falsetto, recent or of long standing, due to nervousness, &c, irrespectively of age or sex (without any mechanical appliance), his [illegible] ly developed and strengthened [illegible] righton) [illegible] lic introducer of the Pure Oral [illegible] made the subject of Lip-reading [illegible] both *acquired* and *congenital*, [illegible] ious subjects can be had at 11, Fitzroy-square, W

Mrs. Emil Behnke gives instruction in Voice Training and treats Stammering and other Defects of Speech at 18, Earl's-court-square, S W

Correspondence.

"Audi alteram partem"

"HARVEST BUGS."

To the Editors of The Lancet.

Sirs,—Is your correspondent Mr A Maude quite correct in all that he writes in The Lancet of August 24th with regard to harvest bugs? I am a layman and I do not claim to have made careful observations, nor can I distinguish between varieties of insects of the same objectionable propensities all of which I have been in the habit of anathematising under the same name. I am, however, a little surprised to learn that they inhabit "dry grassy places or chalky soil and near the sea," a sentence apparently intended to imply that they are found exclusively in such localities, or that, at all events, they are not to be expected elsewhere, and also that "they comparatively seldom attack men, as very moderately thick stockings and drawers prevent them from biting I admit that I was attacked by them recently near the sea (but not on a chalky soil or in a grassy country), while my host, who wore thick stockings, not only escaped but had informed me that they were unknown in his district. I met, however, a gentleman farmer near here yesterday, who was suffering severely from them and I expect to suffer myself more or less when partridge shooting begins I should have thought they were fairly universal, that stubbles were at least as productive of them as grass, while men were particularly liable to their attacks because they go more in long grass and into cornfields than do women I have never heard, by the way, whether agricultural labourers suffer from them or not Men do not as a rule wear thick stockings or drawers in August or early in September, but I have been bitten, or burrowed into, by them through fairly thick stockings when wearing knickerbockers and certainly through, or under, elastic stockings worn for varicose veins I notice that Mr Maude speaks of their attacking women round the ankles and waist. I have usually myself had them at the ankles or in places where my elastic stockings were tight, or (so I thought, at any rate) under the garters, and I always imagined that they found the skin warm, moist, and easy to work in at such points as these, but they can hardly be said to be particular They are also, I believe, to be found in hops and attack ladies and children, who gather them in the hedges, in the upper parts of their bodies With regard to prophylactic measures I have seen the free use of carbolic soap recommended in the *Field* and also sponging with Jeyes' fluid diluted with water I have tried the latter, and also sanitas, with some success, but they are rather highly-scented remedies for anyone who is going to mix with his fellow creatures It will be noted that the measures I have mentioned were advised in a sporting newspaper for the benefit of men, and I believe that one of them was the suggestion of a gentleman living in this county. With regard to the cure I venture to suggest that something oleaginous is fairly effective Most people use carbolised oil if they can get it, but I fancy that vaseline or any oil or ointment that will soak into the skin will serve

I am, Sirs, yours faithfully,

Midgham near Reading August 26th, 1901 E A Armstrong

Births, Marriages, and Deaths.

BIRTH

Gale —On August 31st, at Norton Woodseats, Sheffield, the wife of Arthur Knight Gale, L R C P Lond, M R C S, of a son

MARRIAGES

Little—Knowles —On July 27th at the Cathedral, Armidale, New South Wales, by the Right Reverend the Bishop of Grafton and Armidale Joseph Henry Little M B, to Mary, third daughter of [illegible]

DEATHS

[illegible] ust 29th, suddenly, [illegible] years [illegible] short illness, John [illegible] e Grove, Stratford, [illegible]

N.B —A fee of 5s is charged for the insertion of Notices of Births, Marriages and Deaths

MARRIAGE OF COUSINS

To the Editors of The Lancet

Sirs —I have been consulted as to the advisability of marriage in the case of two young people who are first cousins Can any of your readers assist me in giving an opinion?—I am Sirs, yours faithfully,

Sept 2nd 1901 D F

⁂ When cousins are healthy and have no proclivity to hereditary disease they may safely marry, but the existence of a strongly-marked predisposition to tuberculous or other taint should prevent such marriages Marriage with cousins exaggerates the influence of heredity —Ed L

◆

Salvator —There is no objection to a medical man limiting his dispensary practice to a speciality if he has made a study of that particular branch of medicine Medical men resent, and with reason, one *of their number setting up among them as say, an ophthalmic* or an aural surgeon who has had no greater opportunity than any of them for acquiring particular knowledge in either direction On the other hand medical men are often glad to have someone resident among them in the district who is devoting his attention to certain special lines of knowledge and are glad to consult him in his special capacity

A M O H S —The practice is a very young one and in ordinary circumstances we should have thought that a year's purchase would have been the proper price but only someone who has had access to the books, as well as an opportunity of seeing the kind of work done, can give an opinion of practical value We recommend our correspondent to have the books audited If the report is favourable, as a good introduction is offered the bargain may be worth considering

Open Air —We regret to say that there are at present no sanatoria open for the reception of poor patients Some of the counties but as yet only a few, have begun to take action towards providing accommodation for the open air treatment of tuberculosis

Surgeon.—The practitioner mentioned had evidently attended the child previously to conjointly with or at a later date than our correspondent attended In any of these cases he would be legally justified in giving a death certificate

OUR CURRENT NUMBER

Being almost exclusively devoted to information especially interesting to Students we are necessarily compelled to defer the publication of communications on other important subjects.

We tender our best thanks to those gentlemen who have at considerable personal trouble kindly supplied us with the returns and prospectuses upon which the information given in this Students' Number of THE LANCET *relative to the various medical examining bodies, hospitals, and medical schools of the United Kingdom is based. We regret that in some cases, however, owing to proofs having been either not returned at all or too late, certain inaccuracies may be found.*

TO ADVERTISERS.

Owing to the pressure on our advertisement columns this week some announcements have unavoidably been held over.

Communications, Letters, &c., have been received from—

A.—Dr. Arabyan, Afion Karahissar; Messrs. Armour and Co., Lond.; Addressograph, Ltd., Lond.; A. L. R.

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A Poſt-Graduate Lecture

ON

CHRONIC INVALIDISM IN WOMEN, ITS CAUSES AND CURE.

Delivered at the Medical Graduates' College and Polyclinic

BY W. S. PLAYFAIR, M.D., LL.D., F.R.C.P.,
EMERITUS PROFESSOR OF OBSTETRIC MEDICINE AT KING'S COLLEGE AND CONSULTING PHYSICIAN TO KING'S COLLEGE HOSPITAL.

GENTLEMEN,—The subject I have chosen on which to address you this afternoon may possibly strike you as too common-place for discussion before a post-graduate audience. There is no elaborate pathology connected with it. I shall not have to demonstrate to you any of the mysteries of modern bacteriology. I shall only have to discuss with you very common-place states of ill-health, their causes, and their treatment. But if the importance of morbid conditions is to be estimated not only by their structural alterations but also by their frequency in every-day practice and by the amount of suffering which they cause to the patients and to the other members of her family, then I think the topic of this lecture will be admitted to be of no slight importance from a practical point of view, and to be well worthy of the study of the practitioner. If you will carry your minds back to your acquaintances there is probably no one of you who will not recollect among the families you know some where there is an example of the type I am alluding to—some bed-ridden or sofa-ridden lady who is perpetually being "doctored," who is going from one health resort to another, who is swallowing bucketfuls of drugs, who is dragged about in bath-chairs, who is a centre of attraction to sympathising friends, earnest curates, Christian scientists, *et id genus omne*, who steadily make her worse, until her sick-chamber becomes a morbid centre the evil influence of which dominates all who come in contact with her, and makes too often a home which ought to be bright and cheerful a misery to all connected with it.

In studying this subject we are at first struck with the fact that the disease or group of morbid symptoms we are discussing has not until comparatively lately held a recognised place in our text-books or catalogues of diseases. It is common enough in all conscience, but its symptoms are so various, and often so indefinite, that they do not readily lend themselves to classification and description. There are no characteristic signs such as we have in definite structural diseases, as in pneumonia, apoplexy, peritonitis, and the like, by which it can be certainly diagnosed. The symptoms being altogether functional this can hardly be expected, since functions of all sorts and kinds, of all parts of the body, are concerned, and wide clinical experience is required to recognise and understand them properly. Even a name has been wanting until of late. Obviously, illnesses so common have not passed altogether unrecognised. Under the divisions, "Nervousness," "Hysteria," and "Hypochondria," Whytt published a remarkable essay in the middle of last century which clearly foreshadowed a knowledge far in advance of his time, and I am not sure that any better or more accurate classification of common types of the disease has even yet been given. Then "spinal irritation" was used as a descriptive term, and it was not a bad one, although I well remember when I was a student hearing it denounced as a thing that did not exist and the very mention of which we should be careful to avoid. Under the names of "nevroisme," "nevropathie," and "nervous exhaustion" the same form of disease was described, [illegible] that the term "neuras[illegible] the proper designation, [illegible] by all recent writers. I confess that I have never much liked it, but that is perhaps because I have unconsciously shared the prejudice that existed in the minds of many men against a term which it must be admitted was often enough associated with some forms of practice perilously near what we call "quackery," and yet, after all, it is a name which pretty accurately describes what is the real essence of the diseases and no one has suggested a better, so *faute de mieux* we must use it.

One reason why this type of disease has not been hitherto properly recognised and dealt with in our systematic treatises on medicine is that it is essentially a disease of the cultured and educated classes. It occurs in those whose nervous systems are of the mobile and emotional kind, the result of either heredity, defective education, training, or the like. It is rarely, if ever, met with in hard-working women of the so-called lower class who have to work for their living and for their families by the sweat of their brows and who have no time to give way to "nerves." Therefore, it is rarely met with in hospital wards or out-patient rooms where the authors of our text-books have gained their clinical experience. It is satisfactory, however, to know that of late years it is not only recognised as a distinct and most important type of disease, and described by Dr Weir Mitchell, Dr. T. Clifford Allbutt, Mr. Victor Horsley, and others, but that the principles which should guide us in its management have been fully recognised, and that types of illness formerly considered quite hopeless are now, in the majority of cases, amenable to treatment and very generally restored to health. When you reflect that until quite recently these cases were left rigidly alone as being the despair of the physician, that, as a matter of fact, from their very nature ordinary "doctoring" only added fuel to the flame and made them distinctly worse, then it must be admitted that to have thoroughly mastered their nature and to have devised a systematic method of treatment which recognises the essential nature of the disease, and in nine cases out of 10 enables us to restore the patient to perfect health, must be admitted to be a great clinical discovery—I do not think I am exaggerating in calling it one of the greatest clinical discoveries of the past century.

The subject is so large and may be considered from so many points of view that I do not propose to discuss at length the symptoms and general characteristics of neurasthenia. It would be impossible to compress into the limits of a single lecture what should be said on this topic. I shall therefore consider some aspects of it only—chiefly how best such nervous states are to be prevented, since it is a truism that that is even better than curing them; and next how they are best dealt with, since many absolutely curable cases are spoilt by imperfect and badly carried out methods of treatment, owing to lack of experience on the part of the medical men who undertake their management. In the latter topic I shall have to deal with the so-called "rest cure" or the "Weir-Mitchell treatment" which has of late years attracted a good deal of attention, and in the carrying out of which little practical experience can be gained by the practitioner in the course of his studies, since the form of illness to which it is appropriately applied is not met with in our hospital clinics. As I have paid a good deal of attention to this matter I hope it may not be altogether without profit to you if I detail to you some of the lessons which my work in this direction has taught me.

How I came to work at this subject is sufficiently curious. I daresay you know that gynæcologists have had in their day to submit to a good deal of criticism from their medical brethren. I daresay it was all very well meant and I am sure that it was useful. We were told that gynæcological treatment very often did a great deal more harm than good, that it concentrated the attention of patients on their own ailments, and that it very frequently led to a state of chronic illness of the most aggravated type. My good friend Dr. Clifford Allbutt told us in his excellent lectures at the Royal College of Physicians of London that when a woman fell "into the net of the gynæcologist" she was a lost woman indeed, and that her only hope of salvation was that the gynæcologist should take a holiday in the Upper Engadine or go salmon-fishing in Scotland. Now, I am not disposed to deny that there was some measure of truth in this. Gynæcologists are no more free from error than the rest of their medical brethren, and the tinkering style of gynæcology that some 20 years ago led to a very exaggerated belief in the importance of certain local conditions, now much more judiciously dealt with, such as cervical erosions and uterine malpositions, often led to much too frequent and injudicious local treatment that frequently had a disastrous effect on the patient. "For God's sake tell me, am I displaced?" was the despairing cry once made to me by a lady who had suffered many things from many pessaries and it indicated a frame of mind far from uncommon then and which led to much evil. At any rate, I took to heart

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the criticisms of our kind friends, and so it came to pass that I paid more and more attention to the chronic state of general ill-health so often associated with uterine disease and have had the opportunity of seeing many interesting examples of the effect of morbid nervous conditions in producing the illnesses described as "neurasthenic," or "chronic invalidism," on which I am now addressing you.

And first as to prevention. How are we to educate and bring up our young women of the middle and upper classes so as to minimise as far as possible the chance of neurotic break-down in after life? The true secret of this I believe to be found in the old adage, "*Mens sana in corpore sano.*" My belief is that the thoroughly strong-bodied, healthy girl very rarely lapses into the invalid woman, or perhaps it would be more accurate to say that a thoroughly healthy body is the best safeguard against her doing so. Unfortunately, the higher class of mental training now so prevalent amongst girls, against which I have nothing to say, often leads to conditions very much opposed to physical health. A great many of the mistresses of high-class schools start with the absolutely erroneous theory that there is practically no distinction between the sexes at and about the period of puberty, and little or no attention is ever paid to the all-important function of menstruation. The feeling of most school-mistresses seems to be antagonistic to admitting that any inquiries should be made on such an important subject. I have seen dozens of girls whose health has broken down at school, and in no single instance that I can recall was the mistress aware that long before symptoms of breakdown became prominent nature had thrown out danger-signals, such as amenorrhœa, menorrhagia, headaches, emaciation, and the like, which, if they had been attended to, would certainly have prevented much future evil. So long as school-mistresses go on the theory that men and women are alike and should be treated as being alike, and that the differences between them will disappear when women are not prevented by evil traditions from sharing with perfect equality the ambitions and occupations of the other sex, so long will evil certainly arise. Work, and hard work, need do no mischief *per se* if properly safeguarded. The successes of women in the higher examinations, the universities, the medical schools, and so on, are more than sufficient proof of this. But while the boy's health at school is safeguarded by outdoor exercise, cricket, football, and the like, which are not optional but compulsory, the schoolgirl's outdoor exercise is too often limited to a walk or possibly to a visit to the gymnasium, with a time-table of from seven to eight hours' hard indoor work. If the girl is languid and ailing even this is not insisted on, and she may spend her leisure time indoors in a hot and ill-ventilated room. Of course, the evils of the old type of girls' school have been pointed out, and I am happy to say that in many of the girls' high schools of to-day games thoroughly well suited to girls are actively encouraged and even insisted on, such as golf, hockey, and tennis, rowing where it is possible, and bicycling, which are better for the adolescent girl than the more violent type of games, such as cricket and football. The results, when such safeguards to education are systematically carried out, will be the production of a thoroughly representative type of the healthy-minded and healthy-bodied English girl, little prone to give way to morbid emotions, and thus fitted to bear the strain to which so many of them will certainly be subjected in after life by the trials of life and the worries of existence which cannot be avoided, which are the constant causes and precursors of the types of illness we are discussing.

The causes of developed neurasthenia are very multifarious, but my experience has taught me that two elements are rarely if ever absent, defective nutrition and some form of mental or emotional disturbance, which may perhaps be best described by the good old English word "worry." The one we might describe as the predisposing and the other as the exciting cause. Without the former the latter would probably have little effect. I have rarely, however, met with a pronounced case of neurasthenia in which some mental or emotional cause could not be traced. Amongst the most common I would mention grief of some kind or another, such as the death of a near relative, often ending in a prolonged strain affecting the body, with its sleepless nights and constant anxieties, or a disappointment in love, a cause of breakdown I have traced in very many cases of nervous illness; or, again, another cause, by no means infrequent, is monetary anxieties following sudden reverses in fortune. Here the nerve strain is often very great, for the patient may have had to take on herself responsibilities to which she had been totally unaccustomed in the endeavour to work for a living, the effort ending in complete collaps Excessive work, which is very generally considered a ferti cause of neurasthenia, is not, in my experience, by a means so important a factor as is generally believed, unle it is unwisely insisted on when the general health is defe tive. A healthy man or woman is capable of almost a amount of work—I should be inclined to say the more t better, provided the physical machinery of the body sound—but if the general health is bad, the appetite d fective, the nutrition below par, and the patient insists prolonged mental strain, anxiety in competitive examin tions, and the like, then of course the nerve irritation w tell and collapse ensue. The influence of heredity in pr disposing to neurasthenic conditions is certainly of gre importance. You will very often find in investigating t family history of a marked case of neurasthenia that the are cases of some other type of nervous disease amo relatives. I have frequently come across cases in which brother or sister, uncle or aunt, were insane. It might put into other words by saying that there is very general *a family tendency to mobile and emotional nervous system* The phlegmatic unemotional man or woman rarely becom neurasthenic.

It is not my intention to-day to direct your attention the symptoms of pronounced neurasthenia. Time wou entirely fail me, and I am rather desirous of giving you son practical hints as to treatment, especially as to the carryi out of the rest cure or systematic method of dealing wi properly selected cases, which we owe mainly to Dr. We Mitchell of Philadelphia, and which is very generally know by his name. Parts of this treatment were practised fro time to time, but a regular systematised method of deali with these difficult cases, based on an accurate conception their essential nature, was certainly never suggested anyone else. The results have been, in well-selected case often so miraculous that it is not astonishing that th should have attracted a good deal of attention and that th method of treatment should have been extensively tri Unfortunately, the proper carrying-out of the rest cu requires several conditions which are often wanting. O is a special aptitude and experience on the part of t medical man who conducts it; it is a little like playing t fiddle—unless the musician has some experience and practi in his instrument he will certainly fail to produce go music. So with this. Many men seem to think that th can play this instrument without any trouble. They fail realise that an emotional nervous woman is a very diffic subject to deal with. Either they adopt the totally erroneo method of bullying and scolding her as if she were a naugh child or they let her dominate and have her own way everything—an error quite as fatal. How either fault is be avoided it is not easy to tell. Some men carry out th treatment very easily and successfully. They are the me whose will and personality are strong, but in whom the ste gauntlet is very thickly coated with velvet, so that th patient fails to see that the steel is there. Certainly if th medical man is unable to gain the respect as well as th affection of his patient he is not likely to be very successfu

The selection of a proper nurse is almost as important a that of the medical man. It is my experience that thre nurses out of four, however experienced they may be in othe branches of their work, are absolutely useless in cases of th kind. There is an indefinable quality of tact which essential and which is very frequently wanting. Time aft time I have seen cases doing badly which have instantl begun to improve and have progressed steadily when th nurse has been changed. What is required are kindnes sympathy, intelligence, and firmness, and the possessor such a combination is a *rara avis* indeed. There a cases so simple to deal with that any nurse can manag them and others so difficult that only the most experience can properly deal with them.

The other error from which failure often arises is that th practitioner attempts to get over the real difficulties of th treatment by carrying it out in what he is pleased to call " modified way"—the modifications generally being such a necessarily preclude success. For example, one *sine qu non is complete removal of the patient from her hom* surroundings. This is necessarily costly and is certainl unpleasant. Strong pressure is invariably brought bear on the medical man to induce him to forego this to which the weak kneed man too often yields and attempts to treat the patient in her own house or admits the occasional visits of relatives and friends The result is almost invariably a disastrous failure, as the *attempt to play Hamlet with the part of* Hamlet left out is bound to be and so a really valuable treatment is discredited and a case which, properly treated, would certainly have been restored to health is little benefited

The rest cure may be described as based on two principles, one physical and the other psychological The former attempts the restoration to health of the body, the latter of the mental or nervous system, both of which are materially disordered. Here we have concisely the definition I have already given of a *mens sana in corpore sano* Let us now consider what we have to do in these directions, and first as to the physical parts of the treatment which aims at the restoration of the general health which is almost invariably at a very low ebb Probably for years the patient has been taking next to no food, often she is emaciated to an extraordinary degree Sometimes, especially in the case of hysterical women suffering from what has been called "apepsia nervosa," the extent to which this starvation is carried is quite astonishing Either from pure hysteria or as a consequence of dyspeptic symptoms one article of food after another has been dropped, until the patient has come to subsist on an almost starvation diet, barely enough to keep body and soul together All the body fat is absorbed, the muscles waste, and the patient often has the appearance of a living skeleton. These very emaciated cases are the exception They most frequently occur in hysterical girls, and, curiously enough, they are the easiest to treat and give the best results, and I have long come to the conclusion that the

his respect the better it is for treatment,
affords, as it were, a better leverage
say that I have never had to deal with
this type which I have failed to cure

Short of such cases, in the vast majority of neurasthenic and chronic invalids the general condition of the body is in a wretched state To get the body into good health we have to adopt some method which will effect this without calling on the will of the patient To tell such a wretched starved creature to eat rump steak or mutton chops would be as wise as to tell the tide to cease flowing, as Canute did. Doubtless she has been told to eat hundreds of times already, she can no more do it voluntarily than she can fly, nor can she do it by persuasion, bullying, or cajoling But, as you all know, when a man's or a woman's muscles are wasted by strong muscular exercises the muscle waste must be supplied by food, and even a healthy appetite becomes greatly stimulated when its owner is deer stalking cycling, or the like, and so "hungry as a hunter' exactly describes what takes place under such conditions. Now, in the "rest cure" this muscular waste is brought about vicariously and without any effort on the part of the patient by massage, shampooing, or whatever you choose to call it of her muscles by a skilled operator The patient is put to bed and is absolutely passive and inert, and by degrees her muscles are exerted for her by a competent masseuse for at least two hours twice daily Now on this therapeutic agent of massage—for it is simply a mechanical remedy, just as cod liver oil is a fluid one—I desire to say a word or two It is now nearly 25 years *since* I brought this method of dealing with a very important and

h case before the profession in this
e there was, so far as I knew, no such
be found I had to teach one or two
my own purposes from the few and
I could lay my hands on and I have
e else, although masseuses now exist
he thing has been the subject of quackery in
the very name of "massage" has become
Men have used quackery in its practice,

es have been written about it so as to turn a perfectly simple mechanical process into a mystery, and women have been humbugged into wasting their substance by paying large fees for learning it Worse still, it has been turned into a cloak for hideous pandering to vice, so that it has come to this, that so many abuses have grown up about it that it requires some moral courage to prescribe it at all. Many men have not that moral courage They talk of it as a thing no respectable practitioner would have anything to do with, and, since cases of the kind we are dealing with cannot possibly be cured without it, they leave them uncured Now this is a thing I cannot understand I loathe the abuses of massage as much as any man can the more so as I feel the responsibility of having *brought its use before the profession in this country* But my hands are perfectly clean and my conscience does not prick me I know that not to use it would be to deprive myself of a therapeutic agent which has been of infinite value to me, and I see no more reason why the quack should have the best remedies than Wesley saw why the devil should have all the best tunes The test of massage being well and effectively done is not the employment of useless and misleading names, such as "effleurage,' "pétrissage," and the like, about which I know nothing, which only serve to obscure a perfectly simple thing, but its effects in enabling the patient to consume and assimilate the enormous quantities of food required to build up the wasted tissues and to restore the bodily strength What it can do in this way is really astounding The patient being in bed and absolutely at rest she is given by the nurse first about five ounces of milk every third hour, which in a couple of days or so is increased to 10 ounces, so that she is soon taking about four pints in the course of 24 hours Then about the third day she has a breakfast consisting of a cup of cocoa, fish egg and bacon, or the like, and bread and butter, with which, like the milk, she should be fed by her nurse If the massage is being properly done by this time there is scarcely, if ever, any difficulty about this Then by degrees a light dinner is added, then a substantial meal in the middle of the day In 10 days at the most, in a case that is doing well, the patient is consuming an amount of food daily, and digesting it without difficulty, that no strong healthy man in good health could possibly take If you take, for example, this dietary that I extract at haphazard from the books I keep of the food taken by each patient you will see that this statement is not exaggerated —March 6th 8 A M, porridge and one gill of cream, 9 A M, breakfast, consisting of fish, boiled egg bread and butter, and cocoa, 10 A M, 14 ounces of milk 11 A M, raw meat soup and peptonoids, 12 noon, 2.30 P M, and 4 P M, 14 ounces of milk, 1.30 P M, lunch consisting of roast beef two vegetables bread, milk pudding and stewed fruit, 5 P M, raw meat soup and peptonoids, 7 30 P M, dinner, consisting of fish fowl two vegetables bread and sweets, 8 P M and 9 30 P M, 12 ounces of milk The milk, you will see totals up to 80 ounces or four pints I would defy any gentleman present to get through this if he tried It is really most interesting to watch a starved emaciated creature who possibly for years has been unable to take and digest anything beyond slops and beef tea, consume this enormous dietary with perfect ease and without repugnance, and to see how day by day she puts on weight gains colour, and gets the long lost appearance of good health I am accustomed to consider a gain in weight of eight pounds in the first fortnight after treatment has been commenced a fair average and subsequently a gain of two pounds a week. This I consider to be the best test of a case doing well and if in 10 days or a fortnight the patient is unable to consume all this food and is not putting on flesh at something like the rate I

thing wrong, either in the
be advisable to change the

whenever I have a case that is not doing well, and often *such a step is followed by the happiest results* Of course every now and again there is trouble with this exaggerated diet. Not infrequently there is an attack of bilious vomiting or diarrhoea but 24 hours' holiday from food, during which the patient takes milk only, almost invariably removes it and enables us to resume the former scale of feeding Others, on which I have no time to dwell, can only be dealt with by experience It is curious to see how with improved general health functions that have long been most imperfectly carried on become healthy For example, obstinate constipation which is exceedingly common disappears and without any special treatment the bowels act healthily and regularly So again with menstruation. Time after time I have seen this function which has been absolutely in abeyance for many years recur spontaneously within the six weeks or two months during which the patient is under treatment in a home or if not then at least within a few weeks later There are many other points in connexion with the physical aspect of the 'rest cure' on which I should like to speak to you but time makes it impossible You will observe that I have said nothing as to drugs. They are, indeed, of little consequence and the patient has doubtless already swallowed them in bulk. The only ones I ever give are some iron and arsenic, some aperient if required at first, and a tablespoonful of maltine two or three times daily.

The psychological aspect of the "rest cure" is as important as the physical and the one is necessarily interdependent on the other. You must bear in mind how all these chronic invalids have fallen into morbid grooves in the conduct of their lives. Almost always there is some injudicious relative and friend who, is, as it were, the slave of the patient, and who, generally from the highest motives of love and sympathy, unconsciously fosters all her evil habits. These motives, however, although right, are generally injudicious. To attempt to carry on the case under conditions in which the friends are in constant communication with the patient is to court failure. I am not prepared to say that a case can never be cured at home, but it is so seldom that the exception only proves the rule, and no wise man will run the risk. I have already hinted at some of the personal qualities which the medical man ought to possess if he is to conduct these cases successfully. Every case should be the subject of a careful psychological study. No two cases are the same, no two can be managed in the same way. Beyond any doubt I think there is a good deal of suggestion in this business. If the patient comes with the profound conviction that she is to be cured, whether she likes it or not, then the battle is half gained, but how that confidence and conviction are to be given to the patient it is not in my power to tell you. All I can say on this is that in nine cases out of 10 it can be done. But if you think that you can pull one way while you leave relatives, friends, and visitors to pull the other at their own sweet will by a word, a hint, or a look, then you will soon find out your mistake. Therefore I would insist most strongly that complete separation from ordinary surroundings, as in a suitable home or lodgings, should always be made an absolute *sine quâ non*. Even letters should be prohibited, at least at first. If after a week you find your patient doing well, then this rule may be safely relaxed. I generally keep my cases rigidly confined to bed for about six weeks; then I get them up for some hours and I set them to work with the nurse to go out daily, to walk an increasing amount, to go to theatres, churches, and concerts—in fact, to do whatever was impossible before and what is incompatible with the life of an invalid. Then, if the patient's means admit of it, I send her away with the nurse to travel abroad, to go on a sea voyage, or to the seaside, or to do whatever is most likely to suit the particular case, and when the patient has been got to walk five or six miles daily, to ride on horseback, to go out bicycling, and so on, then no one can say that she is an invalid; but I would not advise the patient in any bad case to go home to her former surroundings unless she has passed through some such tests as I have indicated. And when once she has done so the cure may be considered to be established. I have often heard objectors say that it is no use curing the patients in cases of this type—that the improvement will be only transient and that very soon they will be as bad as ever. Now, that is certainly not the case. Of course, it would be absurd and irrational to expect that no case ever relapses, but all I need say on this point is that my experience, which I can now claim to be very large, has convinced me that any real and permanent relapse is quite an exception and may be considered as a negligible quantity. Of course, every now and again it must happen, but its possibility should never be a ground for not trying to get the patient out of the slough in which she is lying Should a patient show any symptom of recurrence then the proper thing to do is to try to get her away from home for a week or two so as to nip the threatened danger in the bud. The one great objection that can be raised against this system of treatment is the very considerable expense that is necessarily associated with it and which I have never seen my way to get over. I once tried to treat cases in a private room at King's College Hospital, but they were found to be so costly to the institution, as well as troublesome, that the hospital authorities would not allow me to take in any more. I am afraid that any attempt to treat them cheaply will end in failure. All I can say on this is that there is nothing so expensive to a family as constant ill-health and that, therefore, the expenditure will generally be found to be a real economy in the long run.

THE OCCURRENCE OF GREEN OR BLUE URINE AND ITS MOST FREQUENT CAUSE

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So much has been written, especially in France, on the effects of the ingestion of methylene blue on the urine, that one would think that there was little more to be said on the subject. It happens occasionally, however, that apparently healthy subjects, mostly children, pass green or blue urine, though they are unaware of having swallowed methylene blue or any other similar anilin dye in any form. Medical men not familiar with the characteristic properties of methylene blue and the reactions of urine coloured with methylene blue are therefore very apt to seek some other explanation—for instance, such an unusual one as that indigo blue, derived by fermentation from indican, is present in the urine before it leaves the body. As a matter of fact, apart from the greenish urine resulting from the presence of biliverdin and apart from the somewhat greenish urine of carboluria, practically all cases in which green or blue urine is voided are due to the ingestion of methylene blue or a similar anilin dye, though some poisonous plants may make the urine green and Zülzer[1] recorded the case of a boy who became severely ill after eating the leaves of *Cytisus alpinus* and passed a large quantity of urine having a grass-green colour. I am even sceptical of the power of indigo, given medicinally or otherwise, to colour the urine green. At all events, whereas a capsule containing one decigramme of methylene blue will make the urine green or blue during the next three or four days, several doses of the same amount of indigo have no effect of this kind, the colour of the urine remaining unaltered or simply becoming yellower or more decidedly orange. I think that when apparently healthy persons in England pass green or blue urine without obvious cause the real explanation is *generally* that they have indulged in sweets coloured with methylene blue, particularly certain purple sweets. These latter contain a mixture of dyes and the urine passed after eating them is greenish. Thus, the supposed "unaccountable" secretion of green urine generally occurs in children and young women who like sweets. As a considerable quantity of sugar has to be swallowed for the urine to become deeply coloured (other kinds of sweets are likely to be eaten at the same time as those containing methylene blue) it is not surprising that some of those who secrete green urine should suffer from digestive troubles and a general metabolic disturbance, the latter showing itself by a sediment of uric acid or calcium oxalate[2] crystals in the urine. These disagreeable effects are certainly not so readily produced by swallowing pure methylene blue (medicinally) in considerably greater amount than that contained in the sweets.

Last April a practitioner gave me a specimen of green urine from a woman, aged 28 years, who had been passing similar urine for four days. The ordinary tests for methylene blue gave positive results, and though the patient was not aware of having taken methylene blue in any form she had, as she acknowledged, been eating sweets. The urine was of specific gravity 1023, acid, free from sugar and albumin, but loaded with small uric acid crystals. Perhaps some hepatic disturbance due to indulgence in sweets accounted for the uric acid sediment. Later, in June, through the kindness of Dr. A. E. Garrod, I obtained a specimen of bluish-green urine from a girl, aged nine years, together with a sample of sweets similar to those which she had been eating. The urine was of specific gravity 1022, acid, and free from albumin and sugar, but after standing it deposited a sediment of oxalate of calcium crystals. The ordinary tests showed that the colour was due to methylene blue. The sweets in question were violet or purple coloured, becoming opaque and more reddish on keeping. Three or four pieces swallowed experimentally sufficed to impart a green colour to the urine passed two or three hours afterwards, this green colour was shown by the ordinary tests to be due to methylene blue. In July a woman who attended as an out-patient at the North London Hospital for Consumption told me that her daughter, six years old, had recently had a peculiar affection. During about eight weeks the child from time to time passed greenish urine. The green colour used to be observed for two or three days consecutively every week, and only in the urine passed in the morning. I ascertained that the child had been occasionally eating purple coloured sweets though she preferred others when she had the choice. In this case I succeeded in getting some of the purple sweets from the maker. They were similar to those mentioned in the previous case, and after experimentally eating some of them greenish acid urine was excreted, giving the ordinary proofs of the presence of methylene blue.

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[1] Harn-Analyse, p. 54, quoted by Dr. H. Morley Fletcher, Transactions of the Clinical Society of London, 1899, vol. xxxii., p. 49.

[2] There is no doubt that oxaluria may sometimes be regarded as a forerunner of alimentary glycosuria—that is, as being due to the same kind of metabolic disturbance which when more pronounced reveals itself by the presence of sugar in the urine. See Dr. Paul Mayer's excellent paper, "Ueber unvollkommene Zuckeroxydation im Organismus," *Deutsche Medicinische Wochenschrift*, 1901, Nos. 16 and 17. It is possible, however, that a dose of pure methylene blue without sugar may in some individuals produce or increase oxaluria.

I have taken considerable trouble to test the accuracy of various accounts of the characters by which a green or blue colouration of the urine may be recognised as due to methylene blue. Some mistakes in this connexion have been published, but I believe the following summary to be correct.

1. When a capsule containing one decigramme of methylene blue has been swallowed by a fairly healthy adult the urine passed an hour or so afterwards is already found to have a greenish tint. The urine voided later is deeper green, and still later it is blue. The colour is observed in the urine of the next three or four days, but becomes less intense and finally intermittent, the earliest morning urine being the best coloured. In some individuals a green tint may even be observed in the morning urine after five days, though the midday urine of the two preceding days has only the ordinary yellow appearance. This accounts for the history sometimes given that the green colour has been observed chiefly, or exclusively, in the morning urine—that is, in the urine secreted during the night's sleep. Thus when relatively small doses of methylene blue in the form of sweets are taken at intervals during several weeks, as in the third case which I have alluded to, it is not surprising to hear that during eight weeks the green was noticed only in the morning urine.

2. The colour of the urine varies from faint greenish-yellow to deep blue and depends, of course, on the amount of methylene blue and of the ordinary yellowish pigment present in the specimen. The urine quickly stains ordinary white writing- or blotting-paper blue.

3. The colour of the urine may sometimes be increased by boiling. This is because some of the methylene blue is excreted as a colourless "chromogen." The colour is brought back by heating the urine with acetic acid, as Achard and Castaigne[3] say, or, in acid urine at all events, as I have noted, merely by boiling it. The amount of methylene blue secreted as a colourless chromogen is very much greater in some animals (the dog, the rabbit, and the guinea-pig) than in man, and is increased by the presence of certain pathological conditions in man.

4. The colour of the urine is slightly lessened by filtering it. This is because part of the methylene blue is absorbed in staining the filter paper, and sometimes also because the urine contains suspended uric acid crystals stained with the blue which cannot pass through the filter paper.

5. The urine is decolourised by adding a solution of caustic potash without heating. A few drops of nitric acid will not effect this, but decolourisation can generally be effected by boiling with strong nitric or hydrochloric acid. The green or blue can be brought back by neutralisation.

6. Ether, when shaken up with the urine, does not become coloured, but chloroform takes up much of the dye and rapidly becomes blue. This it will *not* do with an ordinary aqueous solution of methylene blue. Generally, when shaken up with the latter, chloroform gradually becomes mauve, and afterwards purple or red, causing some diffuse absorption in the green of the spectrum.[4] It is probable, however, that the anilin dyes which after passing through the body appear in the urine as methylene blue are not all quite identical with each other—in other words, that there are different varieties of anilin dyes[5] resembling methylene blue which when absorbed from the alimentary canal are excreted in the urine as methylene blue. The blue colouration of chloroform by the methylene blue in the urine does not absolutely prove that the anilin dye has passed through the body, for outside the body ordinary methylene blue if dissolved in any urine, whether freshly passed or otherwise, becomes rapidly capable of giving the characteristic blue colour to chloroform.

7. On examining the green or blue urine with a good pocket spectroscope an absorption band can sometimes, but not always, be made out identical with that yielded by an aqueous solution of methylene blue. The absorption band can, however, be best examined in a pale blue chloroform solution derived from the urine. It is a clearly defined band in the red of the spectrum separated by a considerable space from the sodium band (Fraunhofer D), whereas the characteristic band from a chloroform solution of indigo (and of artificial indigo) is further from the red end of the spectrum and quite close to the sodium band. In more deeply coloured solutions of methylene blue there is a second band in about the position of the indigo band, and in still stronger solutions the two bands united spread out from the red into the yellow and green of the spectrum. If a greenish colour in urine is due to indigo blue the chloroform should take on a bluish tint somewhat different from that due to the presence of methylene blue and if the chloroform becomes sufficiently coloured the characteristic absorption band of indigo should be detected whilst that of methylene blue should be absent; moreover, when indigo is present the urine is likely to be decomposing and alkaline and by microscopical examination of the sediment the blue granules of the pigment will probably be seen.[6]

8. Methylene blue is reduced and decolourised by the vital action of living organisms. Consequently when urine containing methylene blue begins to ferment the lower portion of the liquid, owing to the action of the reducing microbes, loses its colour and only the upper surface retains it. There the anilin dye forms a thin blue or green film which cannot be decolourised because it is directly exposed to the oxygen of the air. On gently shaking up the liquid and thus mixing it with oxygen the colour may be seen rapidly spreading downwards from the surface until the original appearance of the whole is regained. If the decomposing urine is in a tightly corked bottle, but does not quite fill it, this beautiful experiment may be repeated several times, but at last all the oxygen in the bottle is used up by the reducing microbes and the urine by reduction entirely *loses its colour. Then* no amount of shaking will bring back the colour until the cork be withdrawn so as to let out the carbonic acid and admit oxygen. On taking such a bottle of decolourised fermenting urine out of a cupboard and withdrawing the cork and pouring out the liquid into a glass the colour rapidly returns and the erroneous conclusion may be arrived at that it is exposure to light instead of oxygenation which causes the colour to return. Such a mistake has been made, but Achard and Castaigne[7] drew attention to this decolourising effect of living organisms on methylene blue as far back as in 1897. The same action of living tissues explains why the ingestion of a considerable dose of methylene blue scarcely alters the colour of the living human blood and tissues. The methylene blue until it is excreted by the kidneys is present in the body as a

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[3] Sur la Décoloration du Bleu de Methylène par les Éléments Vivants. Comptes rendus de la Société de Biologie, Paris, 1897, p. 1091.

[4] By spectroscopic examination of the reddish chloroform a methylene-blue absorption band can sometimes also be made out.

[5] At all events I find that chloroform when added to an aqueous solution of the purple sweets (from the third case mentioned previously) remains uncoloured, though it takes on a mauve or purple colour when shaken up with an aqueous [illegible] of ordinary methylene blue. Yet the green urine obtained by eating these sweets gives the characteristic blue colour to chloroform just as does any green urine from the medicinal use of methylene blue. However, on dissolving some of these sweets in a glass of urine and adding chloroform the latter at once becomes blue.

[6] I am indebted to Mr J. Good of Stockport for an example of such urine. It was from an old lady aged [illegible] years who said that it was bright green when voided and that she had never noticed her urine of that colour before [illegible] wards it still had [illegible] decomposing and [illegible] could be seen under the microscope [illegible] crystals. A [illegible] Chloroform shaken up with the sediment took on a faint blue colouration. This was best seen after heating and evaporating off part of the chloroform and then by spectroscopic examination the characteristic absorption band of indigo blue was observed. This case is of course not the one described by Mr Good in THE LANCET of June 1st (p. 1535) and August 31st (p. [illegible]), in which he found after all that the colour of the urine was due to methylene blue.

[7] Achard and Castaigne, loc. cit.

colourless chromogen—that is to say, in its reduced form. Dr. L. Hill has made use of the dye to show how oxygen is used up by cerebral work, the methylene blue being reduced and decolourised by the activity of the brain substance.

Naturally the decolourisation of green urine beginning to ferment may be delayed or prevented by boiling it or adding glacial acetic acid, or chloroform, or any antiseptic preservative substances. The following experiment well illustrates the action of living organisms on methylene blue. If to a weak solution of sugar coloured by methylene blue a little yeast is added the blue colour gradually disappears from the lower layers of the liquid as fermentation progresses. When the sugar is used up fermentation ceases and the blue colour returns, because the yeast cells though still alive have nothing to do. When, however, fresh sugar is added the yeast cells regain their activity and reduce the methylene blue to the state of a colourless chromogen.

The question of green urine from eating coloured sweets is not without its practical importance, for a suspicion of the true cause may save a good deal of time and possibly some anxiety. A medical man when he prescribes methylene blue should not forget, for obvious reasons, to warn the patient of the effect of the drug on the urine, and vendors of sweets, as they can hardly converse with their customers on urinary topics, ought certainly never to sell any sweets containing the colouring matter in question.

Though fuchsin, when given as medicine—as it frequently was some years back for renal affections—quickly reddens the urine I have never heard of a case in which the urine has been thus coloured from eating red sweets. Probably, therefore, fuchsin is not employed as one of the substitutes for cochineal. An eosin-like anilin dye is, however, sometimes employed for sweets. In 1898 the urine of a child just admitted to the German Hospital was found to be markedly fluorescent, somewhat like a weak solution of eosin, appearing pink by transmitted light and golden green when viewed against a black background. About three days after admission the urine was slightly acid and of specific gravity 1020 and still looked greenish-yellow against a black background, though the pink colour by transmitted light had disappeared. Dr. A. E. Garrod kindly told me of a similar case from eating anilin-dyed sweets and I obtained samples of coloured sweets which the child had partaken of just before admission to the hospital. Amongst them were pink discs like "musk-drops" or "rose-drops," and these when dissolved in water yielded a solution fluorescent like the child's urine. The child had doubtless eaten very many of the sweets, for a few only seem not to colour the urine. This is probably why similar urine is seldom observed.

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TWO CASES OF BLACKWATER FEVER.

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With Pathological Notes by

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THE paucity of complete post-mortem records of cases of the little-understood disease, blackwater fever, clinically observed from beginning to end, justifies, it is thought, the publication of this paper.

CASE 1.—The patient was a European who had been for over a year in Sierra Leone doing duty as a non-commissioned officer. He was an exceptionally robust and energetic man. He had not been on the sick-list during his tour, but said that he had "had a couple of hours' fever" occasionally. However, he was seen on the morning of the first day of his illness looking well, smoking, and getting about his work. At 3 P.M. he felt ill, shivered a little, vomited, had a pain in his back, and by tea-time he was passing hæmoglobinuric urine of the usual character. He stated that he had taken five grains of quinine three or four times a week. Next morning he passed about a pint of similar urine. The backache was now agonising and green bilious vomit was frequent. No more urine of any kind was passed for three days. Then he passed in two instalments five ounces containing albumin and none for another three days. The day before his death 12 ounces were removed by catheter in the morning and two ounces in the evening. It contained very little albumin. No hæmoglobin was apparent in the urine after the second day of illness. Jaundice was noticeable within a few hours of the onset of the disease and was intense by the third day. Repeated examinations failed to demonstrate malarial organisms in the blood. Treatment was with boric acid and arsenic—also, of course, symptomatically. During the last four days of illness I (F. S.) made intravenous injections of normal salt solution ranging from half a pint to one and a half pints twice a day by means of an irrigator and an aspirating needle, with a slight temporary good effect on the skin and perhaps the pulse. Life was sustained mainly by nutrient enemata, almost everything given by the mouth being ejected. Vomiting, in spite of all treatment, remained persistent, the matter brought up being progressively darker until it attained a deep mahogany colour. Meantime, the jaundice became less marked and had almost gone before death. The mind was confused about the fourth day, but more or less mental clearness remained to the last, and the patient conversed intelligibly the night preceding his death. Hiccough was troublesome from time to time and there were twitchings of the fingers. The mouth during the last few days was much inflamed and there were hæmorrhages from the buccal mucous membrane. The saliva was blood-tinged and mingled with material of the same mahogany colour as the vomit. Sleeplessness was troublesome only for the first three days. The stools were scanty and loose, naturally bile-stained in colour, but containing no blood. The recorded temperature was never above 101° F., but the temperature commonly dropped with the appearance of the hæmoglobinous urine and it was in this case not taken before owing to the sudden onset. Death took place on the tenth day.

Dr. Taylor made daily blood counts with the following results. On July 24th, the first day of illness, no count was made. On the following dates the number of the red and white blood corpuscles per cubic millimetre was as follows: 25th, red 1,900,000 (24 hours after onset), white 10,000; 26th, red 1,700,000, white 10,000; 27th, red 1,000,000; 28th, red 900,000; 29th, red 1,100,000, white 18,000 (increase chiefly polynuclear); 30th, red 1,000,000; and 31st, red 1,200,000, white 10,000. On August 1st no count was made. On the 2nd death occurred.

Necropsy.—At the post-mortem examination the body was found to be that of a fairly muscular man. The skin and conjunctivæ were of a pale lemon-yellow tint. The lips and teeth were covered with sordes. On examination of the thorax the heart was found to be of normal size and weight. There was marked fatty infiltration of the wall of the right ventricle The heart muscle was pale in colour and was very soft and friable, and beneath the endocardium of both ventricles there was a yellowish mottling which was most distinctly seen on the papillary muscles and was due to fatty degeneration of the muscle. The cavities of the heart were of normal size and with the exception of slight dilatation of the mitral and tricuspid orifices the valvular apparatus was healthy. The aorta was also quite healthy. The lungs were free from adhesions and showed only slight hypostatic congestion and œdema at their bases. The peritoneum was normal in appearance and there was no fluid in the abdominal cavity. The spleen was firm and was considerably enlarged, weighing nine ounces, and the capsule was adherent to the surrounding parts. It was very much congested, but the pulp was not at all diffluent and it was more of a walnut colour than is usually found in a simple congested spleen. The Malpighian bodies were slightly swollen and the trabeculæ were thickened. Microscopical examination of films made from the pulp showed that this walnut colour was due to a large amount of blood pigment. Great numbers of degenerated red corpuscles were also seen. The liver was enlarged, weighing 4 pounds 13 ounces, and was very soft. It was much congested and on section it presented a colour similar to that of the spleen pulp; there was also a yellowish mottling throughout which was due to fatty degeneration. The gall-bladder was distended with coagulated bile. The weight of the kidneys without their intimate capsules was—right nine ounces, left eight and a half ounces. Both presented a similar appearance, so that the one description will do for both. The cortex was enlarged and swollen, measuring fully three-quarters of an inch. Both cortex and inter-pyramidal cortex were of the same walnut colour as that of the spleen and liver but with yellow markings throughout, more especially in the region of the convoluted tubules. The cortical vessels were much congested and there were numerous hæmorrhages around them. The pyramids were of a purple colour and were similarly congested. The larger vessels of the kidneys appeared to be healthy. There were no hæmorrhages in the pelves of the kidneys. The pathological condition was apparently that of an acute catarrhal nephritis. The stomach contained a quantity of bile-stained fluid and some curdled milk. The entire mucous membrane was of a deep red colour which was partly due to extreme congestion and partly to numerous sub-mucous hæmorrhages. The duodenum presented an exactly similar condition with also a certain amount of granularity of the surface, but there was no ulceration. Throughout the small intestine sub-mucous hæmorrhages were present with intervals of six or seven inches between the right down to the ileo-cæcal valve. The mucous membrane of the large intestine, however, appeared to be normal, there being no hæmorrhages present. The mesenteric glands were not enlarged. The bladder was quite collapsed and contained no urine. The head was not opened.

Apart from the standing question as to whether "blackwater" fever is a disease of itself it is desired to be known if the condition of the kidneys in these cases is such as to cause a mechanical suppression, especially in view of the fact that such urine as may be passed is sometimes only slightly albuminous. Steps have been taken for the further investigation of the histo-pathological condition of the organs.

CASE 2.—The second case—that of a West Indian negro soldier—occurred about the same time in the same barracks and the symptoms were much the same throughout except that jaundice was not appreciable and there was not any hæmoglobinuria. There was, however, intense albuminuria and for two days suppression with vomiting and hiccough. Ring parasites in small numbers were found in the blood on the third day of illness and after the man had been taking quinine, but they were not seen on any other day. From the first to the seventh day the temperature varied between 103·2° and 98°F. On the seventh, eighth, and ninth days it was normal, but on the evening of the tenth day it rose to 100·4°, from which point, with intermissions, it rose to 103°, when death occurred on the seventeenth day.

The patient made an apparent recovery; urine was passed in full amount and was, especially towards the end, only faintly albuminous. He was, however, depressed and hysterical and was therefore transferred to the hills—half an hour's journey in a hammock—for change. But the improvement was temporary only, the man complained of great weakness, the temperature rose, slight hypostatic congestion of the bases of both lungs was noticed, and death took place on the seventeenth day of illness. Towards the end this patient had diarrhœa—a symptom which has been present early or late in the course of two or three other cases which have come under my notice. The post-mortem examination made the cause of this diarrhœa clear.

Necropsy.—The post-mortem appearances were almost identical in this case, which (as far as could be judged with the naked eye, at any rate) was not hæmoglobinuric, with those in the first case, which was markedly hæmoglobinuric, only that they were more advanced, especially in the alimentary tract. The condition of the last-mentioned is the most striking feature of the cases and, so far as recent literature goes, at all events, seems to have been taken little or no notice of by other observers. The body was that of a well-built man, but was now much emaciated. There were thrombosis of the left femoral vein with œdema of the leg. The lungs showed only slight hypostatic congestion and œdema at their bases. The heart was of normal size. There was fatty infiltration of the wall of the right ventricle. The heart muscle was very soft and was of a pale yellow colour, this being specially noticeable beneath the endocardium of the ventricles and on the papillary muscle and was due to fatty degeneration of the muscle. Both mitral and tricuspid orifices were slightly dilated, otherwise the valvular apparatus was normal. The aorta also was quite healthy in appearance. The spleen was of normal size, weighing five and a half ounces; it was firmly bound down to the surrounding parts by adhesions. On section numerous abscesses were found in it, altogether about 12 in number, and they varied from about the size of a millet seed to as large as a hazel-nut. Several of the abscesses were just beneath the capsule and at these points the adhesions were very firm. On examining the pus large numbers of bacilli coli were found in it. The spleen pulp was very congested but was quite firm. The Malpighian bodies were rather swollen and the trabeculæ were thickened and prominent. The liver was enlarged, weighing 4 pounds 11 ounces, the enlargement being chiefly of the left lobe. The whole organ was soft and was much congested; on section it presented a deep walnut colour with yellowish markings due to fatty degeneration of the hepatic cells. Each kidney weighed six and a half ounces without its intimate capsules. They were sim[illegible] The whole of the cortex [illegible] of a walnut colour with a [illegible] to fatty degeneration of the renal epithelium. The cortical vessels were much congested and there were numerous [illegible] stomach contained about six ounces of the fluid mixed with bright red blood. The entire mucous membrane was of a dark red colour, being extremely congested, and there were numerous submucous hæmorrhages. The duodenum was in a similar condition to that of the stomach, the mucous membrane being of the same deep red colour, and submucous hæmorrhages were frequent. Some blood was also present in the lumen. Throughout the whole of the small intestine patches of submucous hæmorrhages occurred every few inches. The mucous membrane of the large intestine right down to the rectum was of a uniform bright red colour, being intensely congested. No ulceration was found at all in the alimentary tract. There was no blood in the small intestine beyond the duodenum, the contents being simply bile-stained. The mesenteric glands were considerably enlarged. The bladder contained no urine.

Remarks by DR TAYLOR.—In comparing the post-mortem appearances in these two cases the great similarity between them is at once apparent—in fact, the one description might almost serve for both. As far as one could tell from naked-eye examination the state of the liver and kidneys was the same in both cases. The presence of abscesses in the spleen in Case 2 must have been caused by absorption of organisms from the intestine. Both spleens contained blood pigment and many degenerated red corpuscles, though these were most marked in Case 1. The great disturbance of the alimentary tract during life in blackwater fever is easily accounted for by the condition of the stomach and intestine found after death, and a similar condition may in all probability be found in some of the other tropical fevers where gastric and intestinal disturbances are of such frequent occurrence. The various tissues have been sent home to get sections made and a report on their histological appearances will be made at a future date.

Both of these cases were under my personal care, but I (F.S.) am indebted to Lieutenant S. B Smith, R A.M.C., of Mount Aureol Hospital, for clinical notes of the latter days in the second case, and he performed the post-mortem examination with Dr. Taylor and myself.

Sierra Leone.

THE PHARMACOLOGY OF PYRACONITINE AND METHYLBENZACONINE CONSIDERED IN RELATION TO THEIR CHEMICAL CONSTITUTION.[1]

BY J. THEODORE CASH, M D. EDIN., F.R.S.,
REGIUS PROFESSOR OF MATERIA MEDICA IN THE UNIVERSITY OF ABERDEEN;

AND

WYNDHAM R. DUNSTAN, M.A., F.R.S.,
DIRECTOR OF THE SCIENTIFIC DEPARTMENT OF THE IMPERIAL INSTITUTE.

IN a previous paper[2] we have shown that an entire change in the physiological action ensues on the withdrawal of the acetyl group from aconitine as is seen in the action of benzaconine, the first hydrolytic product of aconitine, from which it differs in containing an atom of hydrogen in the place of one acetyl group. This alkaloid is devoid of the characteristic physiological action and extraordinary toxicity of aconitine, whilst in respect of its action on the heart it is in the main antagonistic to that of the parent alkaloid. In order to study further the remarkable dependence of the physiological action on the presence of the acetyl group we have examined the action of two derivatives of aconitine which we have obtained in this research—viz., pyraconitine and methylbenzaconine.

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[1] Abstract of a paper read before the Royal Society on June 20th, 1901.

[2] Philosophical Transactions, 1898, pp. 190, 239.

Pyraconitine was first prepared by one of us[3] by heating aconitine at its melting point, when the acetyl group is expelled as one molecule of acetic acid and the alkaloid pyraconitine remains. This compound therefore differs in composition from aconitine by the loss of one molecule of acetic acid and from benzaconine by one molecule of water.

Methylbenzaconine was obtained from aconitine by heating it with methyl alcohol in a closed tube.[4] A remarkable reaction takes place, in which the acetyl group is ejected as acetic acid, a methyl group taking its place. This alkaloid therefore differs from aconitine in containing a methyl group in the place of the acetyl group, and from benzaconine in containing a methyl group in the place of one atom of hydrogen. *The examination of its physiological action would therefore* be the means of studying the result of replacing in aconitine the negative radical acetyl by the positive methyl group and also of studying the effect of the introduction of methyl in modifying the physiological action of benzaconine.

The acetyl group of aconitine evidently occupies an exceptional position in the molecule of aconitine. So far as we are aware it is the only acetyl compound at present known which exchanges this group for methyl when it is heated with methyl alcohol. We have examined the behaviour of numbers of different types of acetyl derivatives from this point of view and can find none analogous to aconitine. For the study of their physiological action these alkaloids have been specially purified and employed as hydrobromides in aqueous solution.

Contrasting the physiological action of pyraconitine with that of aconitine, as described in the present paper, we find, as might be anticipated from our previous results, that through the removal of the acetyl group the great toxicity of aconitine is nearly entirely abolished and the characteristic features of aconitine poisoning are no longer produced by pyraconitine.

Contrasting the physiological actions of benzaconine and pyraconitine which differ from each other empirically by one molecule of water, pyraconitine, the anhydride, is the more active compound. Both these alkaloids, divested of the acetyl group of aconitine, are relatively weak and feebly toxic when compared with the parent alkaloid.

Although benzaconine and pyraconine exhibit a strong similarity in the physiological effects which they produce, there are differences between them which are probably more considerable than they would be if pyraconitine were merely the anhydride of benzaconine.

The substitution in aconitine of methyl for acetyl which occurs in the formation of methyl benzaconine has led to a very considerable reduction in toxicity and has introduced a curare-like effect similar to that first observed by Crum Brown and Fraser[5] to result from the introduction of methyl into the molecule of an alkaloid. Methyl benzaconine is however more toxic and generally more powerful than benzaconine, owing to the presence of the methyl group.

Action of pyraconitine.—The main effects of pyraconitine may be thus summarised. Its local application is devoid of the effects characteristic of the aconitines. Its chief action upon the heart is to cause slowing, partly from vagus irritation, partly from depression in function of intrinsic rhythmical and motor mechanisms. There is less tendency to want of sequence in the cardiac chamber walls than is observed *after the aconitines and benzaconine.* The vagus apparatus remains active in degree after doses somewhat in excess of the lethal, the slowed heart of pyraconitine being accelerated both by vagotomy and by atropine. Activity of respiration is reduced (by central depression) to a degree incompatible with life, as is the case after aconitine and benzaconine. The peripheral motor nerves and muscular tissues are not at this time markedly affected. Artificial respiration prolongs life, but the slowed heart and greatly reduced blood-pressure tend to a fatal issue. The spinal cord is impaired in its reflex function, apparently secondarily to reduced circulation in its structure. A tendency to tonic spasm in frogs is late in appearing and of moderate degree. It has not been seen after destruction of brain and medulla. It is further associated with a curious condition of exaggerated motility. Neither muscular nor intra-muscular nervous tissue is strongly influenced by pyraconitine in lethal or somewhat hyper-lethal doses. The lethal dose per kilogramme frog's weight is practically about 12 times tha which is lethal per kilogramme rabbit's weight.

Contrasted effects of pyraconitine and benzaconine.—O these two alkaloids pyraconitine is approximately six t seven times more toxic towards mammals (rabbits an *guinea-pigs)* than is benzaconine, *and* five to *six* times mor so towards frogs. They are alike in their action upo mammals, in so far as they are non-irritant, that they slo the respiration without preliminary acceleration, that the slow the heart and reduce the blood-pressure to a very lo level, that they cause paresis and in guinea-pigs clonic movements, and that respiratory failure is the immediate cause o death. They differ in so far that pyraconitine acts mor rapidly, but for a shorter period, whilst the fatal terminatio *of poisoning is preceded by convulsions, which are very rar* after benzaconine. Benzaconine alters the sequence of th ventricles upon the auricles much more usually and to a greate extent than pyraconitine, though if a sequence is develope it has the same general character (the auricular second bea being blocked from the ventricle). Whilst pyraconitin stimulates the cardiac vagus both centrally and within th heart (section and atropine causing acceleration), and finall occasions only a limited reduction in its activity, benzaconin produces but little stimulation and ultimately suspends th vagus inhibitory action. Under these conditions atropine is of course, inoperative. Both accelerate the heart in small but slow it in large, dose, and both may disorder the sequence but vagus inhibition is much more interfered with by benzaconine. Frogs poisoned by benzaconine lose the power o voluntary movement, then reflex disappears, and finally th circulation is arrested; but after pyraconitine reflex outlast the heart's action. Late spasm occurs after the latter, no after the former. Whilst in lethal doses pyraconitine has n effect beyond somewhat favouring fatigue and reducin excitability of motor nerves, benzaconine greatly impair their function and in thorough poisoning may suspend i entirely.

Action of methylbenzaconine.—The action of methylbenzaconine may be summed up as follows. It is very feebl in its toxicity when contrasted with aconitine, but is somewhat stronger than benzaconine. Small and medium doses, whilst slowing the heart, do not cause any failure in sequence, but larger doses have this effect. They act upon the rhythm of the organ, involving the movement of the auricle and ventricle whilst ultimately the sequence of the latter upon the former is impaired, so that it follows only a certain proportion of the auricular "leads." This block is not removed by atropine. Whilst the passage of the ventricle into diastole is at first retarded, the contractile power of the myocardium is ultimately reduced by methylbenzaconine. The cardiac vagus is depressed in action and its inhibitory function is ultimately suspended by large doses, neither section of the vagus nor atropine administration relieving the slow and faulty action of the organ. There is evidence of slight primary stimulation of reflex cord centres when ligature of vessels prevents the masking of this condition by the peripheral action of the poison. The subsequent impairment in cord reflexes is later in occurring and of much shorter duration than the action of methylbenzaconine upon intra muscular motor nerves. In mammals the paralytic symptoms are predominant; the fall of temperature is in part attributable to this cause as well as to changes in the circulation. The clonic movement *and salivation (observed in* a certain stage of the action of methylbenzaconine, especially upon guinea-pigs) are suggestive of the action of a near ally of aconitine In frogs, however, there is no semblance to an aconitine effect, unless its very feeble action towards sensory nerves or its much more powerful action upon motor nerves be thus viewed. Motor nerves are greatly affected by doses which are distinctly below the lethal for cold-blooded animals, the action being curare-like in character. Muscular tissue is, after the action of large doses, more susceptible of fatiguing influences. Fibrillation in muscles to which the poison has access is more common than after aconitine or any other derivative examined. These observations support in the main the contention of

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Dunstan and Carr: Transactions of the Chemical Society, 1894, vol. lxv., p. 176.

[4] Proceedings of the Chemical Society, 1896, p. 159.

Transactions of the Royal Society of Edinburgh, 1869, vol. xxv., p. 192.

Crum Brown with Fraser that the introduction of methyl into the molecule of certain spasm-producing alkaloids masks the effect of these by occasioning a curare-like action at the periphery

Contrasted effects of methylbenzaconine and aconitine —The toxicity of aconitine is, roughly, from 80 to 100 times that of methylbenzaconine towards rabbits and guinea-pigs and much the same proportion holds for summer and winter frogs respectively Whilst slight tendency to salivation and retching movements are produced by methylbenzaconine, and are in so far suggestive of a slight aconitine action, the absence of initial acceleration of respiration, of local irritation, and dyspnœal convulsions and the predominance of paralytic symptoms, are points of difference The action upon the heart is entirely distinct for the pulse is slowed by methylbenzaconine, the auricles eventually beating more rapidly than the ventricles, the action of the poison proceeds uniformly and without the intermissions which characterise aconitine, whilst the early phenomena of vagus stimulation have little in common The general symptoms of poisoning in frogs have scarcely a point of similarity, quiescence, rapid failure of reflex and voluntary movement without impairment of the cardiac action, being distinctive of methyl benzaconine, whilst excitement with great motility and persistence of voluntary movement follow aconitine Fibrillation is much more pronounced after the former, though it is only a transitory phenomenon. The action on the heart differs widely in frogs as it does in mammals whilst the curare like action of the derivative on motor nerves is not produced by aconitine in doses which just suffice to arrest the heart It is true that large but sub lethal doses of aconitine are followed by a condition of almost complete paralysis which lasts for several days, but during this time there is slight voluntary and reflex movement the nerve endings are not put out of action and the circulation is usually of the feeblest character, all conditions which are not found in the period of quiescence following methyl benzaconine

Contrasted effects of methylbenzaconine and benzaconine —Methylbenzaconine is from three to four times more toxic towards rabbits and guinea pigs than benzaconine and from twice to thrice as toxic towards frogs (*Rana temporaria* and *Rana esculentus*) In mammals, slight salivation, retching movements, and muscular tremor are characteristic effects of the former, but dyspnœa ataxia, and paresis are also seen after benzaconine Of the two, methylbenzaconine is distinctly less depressant towards the heart. Slowing of the pulse and want of sequence of ventricular upon auricular action occurs after both, but is a much earlier symptom after benzaconine, which causes more disorder in the motor mechanism On the other hand the intra cardiac vagus is put out of function more readily by methylbenzaconine Death after either poison is rarely preceded by spasm Neither of the two compounds causes any local irritation in frogs, but methylbenzaconine produces active fibrillation in the muscles, to which it gains access and develops a complete curare-like action much more prominently than does benzaconine, the heart continuing to beat strongly Benzaconine, in dose sufficient to cause such an effect at the periphery, acts disastrously upon the circulation In partial poisoning by methylbenzaconine the characteristic rapid failure of the intra muscular motor nerves on stimulation is well marked, but the subsequent recovery on resting so characteristic of benzaconine, has not been observed

CONGENITAL SPONTANEOUS GANGRENE

BY C E RICHMOND, F R C S Eng ,

HONORARY SURGEON TO THE WARRINGTON INFIRMARY

THE report of Dr Armstrong Bowes's case of spontaneous gangrene in an infant in THE LANCET of August 31st 1901, p 686, leads me to publish the following case

In May, 1898 I saw in consultation with my friend Mr D C M Hunt of Lymm a case of which I herewith give a *verbatim* rescript from my case book

"Girl baby One week old Nature of case acute inflammatory gangrene (congenital) Date, May 3rd 1898 Mother had one previous confinement (premature) This one at full term Labour natural with slight delay after delivery of head *When born* child showed two areas of acute dusky inflammatory redness, one just below occiput, the other over and around the seventh cervical vertebra Redness also on scalp Three days after birth upper area sloughed (without any black patch) Black patch—i e , gangrenous slough—formed in centre of lower inflamed area When seen by me (May 3rd) black slough was separating and dull dusky redness extended down back and across neck. On site of upper area of redness was simple 'atonic' ulceration the size of a florin and some superficial 'weeping' sloughs on scalp (atonic ulcerations) May 5th Area of redness extended round scalp and chest still duskily and passively congested. Condition worse Black slough separated over back of neck, leaving somewhat brawny, dry looking surface Same appearance on occiput Superficial skin necrosis extending on scalp General dulness and tendency towards torpor Internal strabismus has supervened (query indication of central cerebral mischief of which superficial gangrene is trophic evidence? or pseudo-ptomaine infection of nerve-centres due to septic absorption from sloughs &c ?) Prognosis as bad as possible May 8th Patient died No p m No evidence or history of syphilis

The foregoing is a literal transcript of my notes of the case taken in my case book at the time I may say that at the first visit I unhesitatingly gave a fatal prognosis to the parents which was only too soon verified though the child at the time seemed to be in fair health On thinking the matter over I am entirely of opinion that the lesion was trophic from nerve central mischief and not from any septic lesion absorption That this central mischief preceded birth is evidenced by the peculiar nature of the diseased areas and the fact that they existed at birth I think I used the correct term when I described the process as acute inflammatory gangrene The pathology of such a condition must necessarily be obscure I confess to not being well acquainted with the literature of such cases but whether they occur intra uterine or at some period subsequently to birth they point I think to a community of origin and that a central nerve one in the onset The strabismus would favour this view as also would the grave constitutional effects out of all proportion with the local lesions These lesions I think from their character to be distinctive evidence of trophic deficiency for which no local cause can be adequately assigned If a local cause plays any part it is that of injury—slight probably—to an area of already deficient trophic vitality

I have never practised midwifery and therefore my opportunities of observing the newly-born are not very extensive My memory holds two similar cases though I have only notes of this one The parents in this case were well to-do but I am of opinion that amongst the poorer classes such cases will be found to be of much more frequent occurrence as probably experienced obstetric practitioners can testify

Warrington

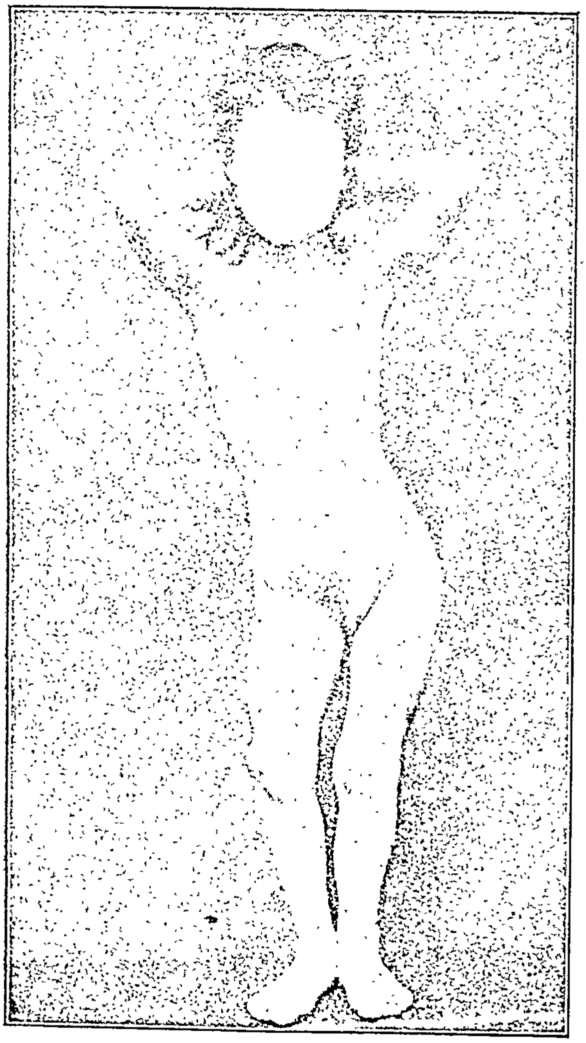
ADDED MILK IN BUTTER —At the South-Western Police-court London, on Sept 12th Messrs Pearks, Gunston and Tee grocers were summoned at the instance of the Wandsworth Borough Council for selling butter which contained an amount of moisture 6 5 per cent above the accepted standard of 16 per cent The basis of this butter was colonial butter—a particularly dry article which the defendants first softened and then incorporated in a mixer with a certain proportion of added milk It was said that about 500 tons of this butter were produced weekly and it was sold with a label which contained the words, "This choicest butter, blended with pure English full cream milk by new and improved machinery whereby it retains about 20 to 23 per cent. of moisture and acquires that delicacy of flavour which has made Pearks's butter so famous" Counsel for the defence submitted that by the label the purchaser was informed of the nature of what he was buying and therefore was in no way deceived The magistrate in giving judgment found firstly that the object of the defendants was to introduce additional moisture and so increase the bulk weight or measure of the butter and secondly that the addition was made fraudulently He inflicted a penalty of £10 with £5 5s costs and gave permission to have a case stated. The same defendants were for a precisely similar offence fined £20 at Peterborough on Sept 10th and £20 and £5 5s costs at Wellingborough on Sept 13th at the instance of the Northamptonshire County Council

A CASE OF DEFORMITY ARISING FROM ARRESTED GROWTH IN ONE LIMB REMEDIED BY EXSECTION OF BONE FROM THE OTHER.

BY G. P. NEWBOLT, M.B. DURH., F.R.C.S. ENG.,
HONORARY SURGEON TO THE ROYAL SOUTHERN HOSPITAL, LIVERPOOL.

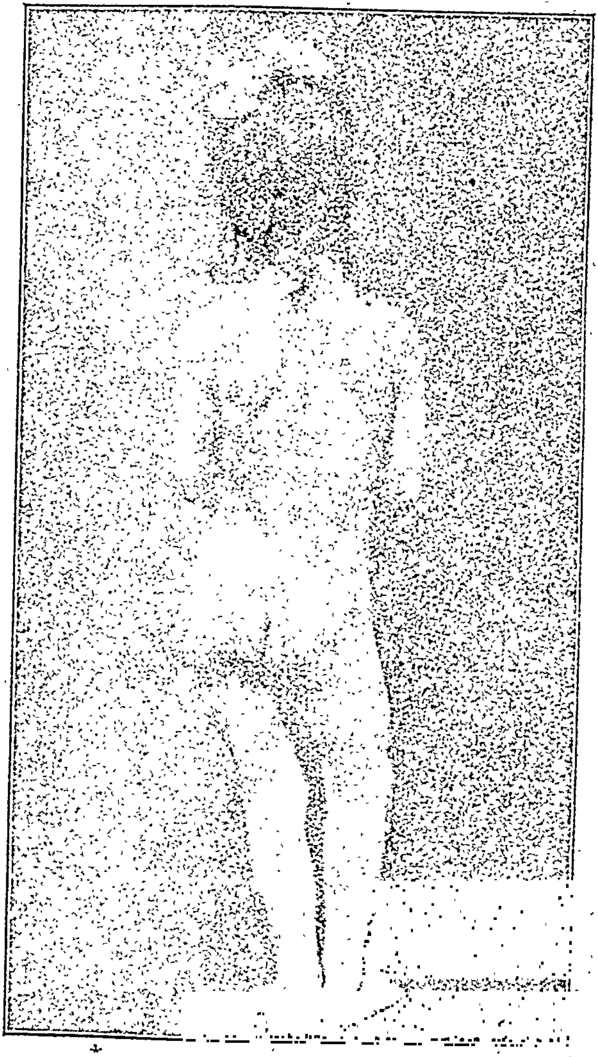
A GIRL, aged 11 years, was admitted to the Royal Southern Hospital under my care on May 15th, 1900, suffering from deformity probably the result of rickets. She was an orphan and it was difficult to get a very reliable history, but she was born with a cleft palate which had been closed by operation, and near each knee was the mark of what I took to be an osteotomy wound. On examination there was flexion deformity of both hips. The left leg was two and a quarter inches longer than the right and the limb was adducted very considerably. There was genu varum affecting the right knee and this limb was somewhat abducted. A scar was visible on the inner side of this knee about the level of the upper end of the tibia. The contracted state of the adductors of the left thigh prevented any abduction of this limb without using force. There was lateral curvature of the spine with the convexity to the right most marked in the lumbar region. The right shoulder was higher than the left; the left loin angle was marked; the angle of the left scapula was close to the spine and the right some way from it. There was also a prominent left hip, so that altogether the child was much deformed, as Fig. 1 and Fig. 2 show. In order to walk she adducted the left thigh and flexed both hip and knee; she also abducted the right leg and flexed the right hip.

FIG. 1.



Before operation. Front view.

FIG. 2.



Before operation. Back view.

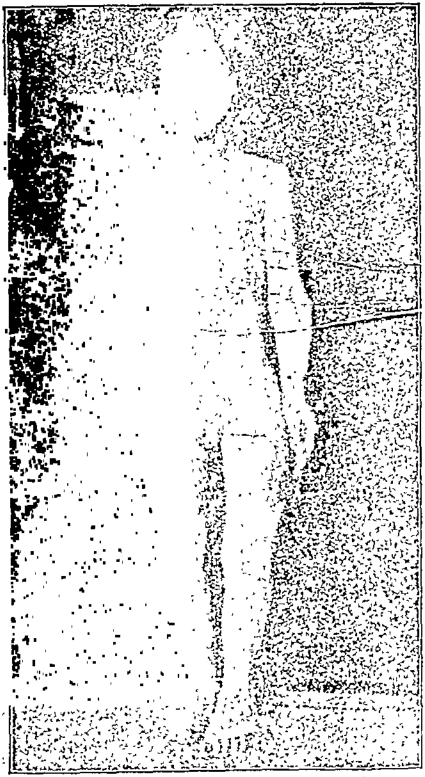
The measurements were as follows. Height: three feet six inches; normally it should have been four feet five and a half inches. Right limb, real length, 18¼ inches; left limb, 20½ inches; difference, two and a quarter inches. Right limb, apparent length, 21 inches; left limb, 22½ inches; difference, one and a half inches. The right femur measured nine inches and the left 11¼ inches, so that the difference occurred in this bone. There were about 15° of flexion deformity in the left hip and a little less in the right.

On May 29th, 1900, I sawed through the right femur above the condyles and corrected the deformity, putting good extension on the limb. At the same time I forcibly corrected the flexion at the hips and overcame the adduction. When she had recovered from the operation I found that by putting a couple of inches under the right foot the child was fairly straight.

On July 24th, 1900, I cut down on the left femur from the outer side, making a four-inch incision; having exposed the periosteum I separated it from the bone and tied all bleeding points. Next I measured off one and three-quarter inches with a wire gauge and bored holes above and below the part I intended to remove. With a chain saw passed round the bone I cut out the portion required and then wired the two ends together. The periosteum was sewn over the wire, the separated muscles were sutured, and the wound was closed.

The limb was put up on a Thomas's bed-splint and firmly fixed. The wound had healed and the stitches were removed at the first dressing, two weeks after operation. On Oct. 3rd, about 10 weeks after operation, I allowed the patient to walk, and Fig. 3 and Fig. 4 show her condition in December.

FIG. 3.



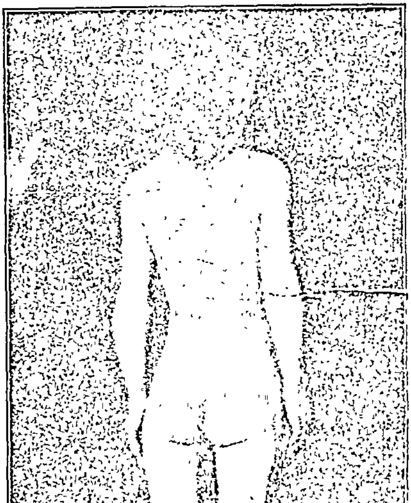
After operation. Front view.

On Jan. 5th, 1901, the measurements were as follows. Apparent right, 22 inches; left, 22½ inches; real right, 19½ inches; real left, 20 inches—a difference of half an inch. That is to say, the right limb had grown one and a quarter inches during the last eight months, which is a fair average taking the normal rate as two and a quarter inches per annum for the whole body. Mr. C. T. Holland kindly took an x-ray photograph of the wired bone.

My reasons for not removing the full amount of bone were the following. I feared that the muscles of the thigh might not contract sufficiently and that the knee-joint would be left in a weak and flail-like condition, a thing which I have seen occur occasionally in cases of fracture of the shaft of the femur with much shortening, and I thought that by letting the patient get about fairly early there would be some absorption of the newly-joined ends of the bone, and that this would diminish the superfluous half-inch. Apparently this has not happened, and it points to the fact that patients may get about early on an accurately-adjusted transverse fracture without shortening resulting. It is easy to prove that if in oblique fractures patients walk too soon shortening occurs by measuring the limb some months later.

Some may criticis [illegible] operation and say, Why did you not use a thick boot? [illegible] by the right leg not growing ap [illegible] first place, a surgical boot with two and a quarter inches of cork in it is an expensive luxury, and if once supplied would never have been replaced. If the shortening had gone on it is probable that at least four inches of thickening would have been necessary. Now, if the shortening continues a slight thickening of the heel each year is all that will be needed until the girl is old enough to look after herself and her shoe-leather. As to whether the deformity will recur I am not sure. The shortening is either due to an osteotomy damaging the epiphysis or to arrested growth from rickets. There is a beautiful specimen of the latter condition in St. Bartholomew's Hospital Museum, of which Mr. Keetley gives an illustration in his recent work on Orthopædic Surgery.[1] I am inclined to think that the deformity in my case was due to this condition. Free use of both limbs now that they are fairly equal may end in their remaining so, and up to the present the measurements continue to be satisfactory. One thing is certain, that if no treatment had been adopted the eventual result would have been very marked deformity—i.e., great shortening, incurable adduction of the left limb, deformity of the pelvis, and very marked lateral curvature with rotatory changes in the vertebræ, such as no treatment would have overcome. It seems to me that this operation is applicable to many cases in which one leg is much shorter than the other, such as in cases of old fracture, old excision of the knee with shortening, hip disease with short leg, &c.; in many of these there would not be the objection that subsequent shortening might occur. Judging from the small amount of discomfort which this girl endured, the operation if carefully done is not a severe one and does not compare with that done for a mal-united or un-united fracture of the femur.

FIG. 4.



After operation. Back view.

Liverpool.

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[1] Page 63, Fig. 32.

SIX CASES OF EXCISION OF THE LARYNX.

By F. G. HARVEY, F.R.C.S. Edin.,
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As the recorded cases of complete excision of the larynx are comparatively few, and the details of the method, as far as I know, have not been fully described, I think it may be of interest to publish these cases.

The complete removal of the larynx by the method which aims at cutting the trachea and lungs off completely from the pharyngeal cavity, and obtaining primary union of the parts divided when severing the larynx from its connexions, was, I believe, first described by Rötter, and to him I am mainly indebted. I have not seen his paper, but merely an abstract of it, and I propose now to offer somewhat fuller details of the method, in the hope that it may be of use to those who have not seen the operation or to those who, like myself, have seen no detailed account. I shall follow in the main Rötter's description. I claim no originality, but shall speak a little in detail on some points which have appeared to me to offer practical difficulty.

The operation may be performed by separating the trachea and cricoid cartilage from the œsophagus, commencing from above and working downwards or commencing from below and working upwards. I will describe the latter method. I assume the proper preparation of the patient for a long and serious operation, strict antiseptic precautions, and the proper warming and ventilation of the operating room, with as little exposure of the body as possible.

The first step, after administering chloroform to the patient, is to make a vertical incision extending from the hyoid bone to a point as low as the fourth or fifth ring of the trachea. A transverse cut should be made along the whole length of the under surface of the hyoid bone through skin and fascia, dividing the anterior jugular veins which must be tied. The sterno-hyoid, the omo-hyoid, and the thyro-hyoid muscles are divided at their insertion into the hyoid close to the bone, and the flaps thus formed are reflected downwards and outwards to either side. The thyroid isthmus should then be divided between two ligatures and the lobes of the thyroid separated from the trachea. When the trachea is completely bared it may be divided from before backwards and the lower portion separated from its attachments to the œsophagus and stitched to the skin. A Hahn's cannula will now be introduced, all bleeding will be arrested, and the parts immediately around the lower portion of the severed trachea will be packed with gauze. It will be found necessary to remove the Hahn's cannula from time to time and to clear the trachea of any blood which may have found its way into it. The patient at this point must not be deeply under the influence of the chloroform, as we shall then have warning of any blood trickling into the lungs by his coughing; if this occurs it will be well to sponge out the trachea by introducing for some distance a swab or sponge on a holder. The next step will be to dissect off the upper portion of the trachea from the œsophagus and the muscles from the lateral surface of the cricoid. The inferior cornu of the thyroid is next bared by detaching and reflecting the crico-thyroid and inferior constrictor muscles. The muscles and perichondrium in front of the thyroid will now be separated and reflected as far back as the superior cornu, which latter will next be freed by dividing the periosteum on its surface, and pushing it along with the lateral wall of the pharynx and the loose areolar tissue backwards until the posterior lateral border of the cricoid is reached The outer two-thirds of the lateral portion of the thyro hyoid membrane, which is attached to the superior border of the thyroid cartilage, will then be divided transversely and cautiously at the point of junction of its upper and middle thirds; and when the adjacent mucous membrane is reached this must be picked up with forceps and divided, whereby the upper portion of the epiglottis can be seized and drawn forwards. The anterior wall of the pharynx is thus opened, and by pulling the epiglottis strongly forward and with it the whole larynx the knife can be placed on the posterior surface of the cricoid, and by cutting downwards the anterior wall of the œsophagus will be opened. Care must be taken at this point to limit the cut to the parts which are covered in front by the posterior surface of the cricoid; if this is not done the lateral wall of the pharynx and the œsophagus will be unnecessarily encroached upon and too much of their anterior walls will be removed, thus rendering it difficult to approximate their edges. The whole larynx is thus completely detached, and the defect in the pharyngeal mucous membrane must now be made good by inserting sutures quite close to the cut edges and so preventing in-turning of the epithelial surfaces. The sewing up must be water-tight with fine catgut sutures so as to form a Y-shaped stitched line, then a row of Lembert's sutures must be added transfixing the muscular and cellular coats of the œsophagus and pharynx. The third layer unites the stumps of the pharyngeal constrictors, and the fourth layer brings together the divided sterno-hyoid and thyro-hyoid muscles. Finally the T-shaped skin incision will be united, leaving only a three-cornered cavity above, which may be packed with iodoform gauze; thus, only the above cavity and the tracheotomy will remain unclosed. The Hann's cannula may be removed in 24 hours. Nutriment will be administered by the rectum for from 24 to 48 hours, after which milk may be given by the mouth. Rötter suggests that the trachea should be divided from behind forwards, but it is far more easy, expeditious, and safe to divide it as I have described. I need hardly emphasise the importance of keeping blood out of the lungs, the whole success turning on this point and the accurate suturing of the pharynx and œsophagus. Of the six cases here noted it will be seen that three were treated by this method. Of the remaining three, one was treated by the older method with a preliminary tracheotomy and stitching the pharynx to the skin; the second can hardly be classed as an excision, inasmuch as the whole of the larynx, when the soft parts covering it were reflected, was capable of being lifted off.

Case 1.—A man, aged 49 years, came to the Hospital for Diseases of the Throat on July 17th, 1894. He had been a patient 12 months previously and he was then advised to have his larynx removed but would not consent. When he was admitted on the second occasion the disease was thought to be too far advanced for operative interference and it was only at his urgent solicitation that I consented to make the attempt, after having explained to him that I did not hold out any hope of success. The diagnosis, which was verified by subsequent examination, was that of squamous epithelioma, and the prognosis was one of early asphyxia if the patient were unrelieved by tracheotomy. The method of operating was as follows. A preliminary low tracheotomy was performed some fortnight before the major operation, which latter was done on August 14th. Chloroform was first administered and then the tracheotomy tube was removed and the wound was slightly enlarged. A Hahn's cannula was inserted into the trachea, an incision was made down the front of the neck from the hyoid level to the upper part of the tracheotomy wound, and another incision was made transversely along the under surface of the hyoid bone. The tissues were then dissected off the thyroid and cricoid cartilages. There was a small piece of growth coming through the crico-thyroid membrane. The larynx was removed, leaving a portion of the left thyroid cartilage; the edges of the mucous membrane were stitched to the skin and the transverse incision was closed by sutures. Bleeding was slight and the patient bore the operation well. A soft rubber feeding-tube was put in the œsophagus and fixed. With regard to the after-history the general condition remained good after the operation, the temperature ranging between 98·8° and 99·6° F., the pulse and respiration being about 80 and 19 respectively. A plastic operation was subsequently undertaken to cure the opening in the gullet. The patient has since remained in excellent health, carrying on his duties uninterruptedly, and when seen a few weeks ago his condition was in every way satisfactory. He has an artificial larynx whereby he can speak quite well by closing with his finger the outer opening of the tracheal tube.

Case 2.—The patient was a female, aged 29 years. The diagnosis was that of carcinoma of the larynx. The prognosis was one of early asphyxia if the patient were unrelieved by tracheotomy. The operation was performed on August 22nd, 1894, the method adopted being as follows. A vertical incision in the middle line of the neck from the hyoid to just above the sternal notch and a horizontal incision along the lower border of the hyoid bone were made; the flaps thus formed were reflected downwards and upwards, together with the whole of the soft structures covering the front of the larynx When this was done it was found that the whole of the cartilages of the larynx were so thinned and brittle that the larynx did not admit of being removed in its entirety, but crumbled away piecemeal, even on gentle manipulation When thus removed it was found that the disease had involved, and in a great measure destroyed the anterior wall of the pharynx and upper portion of the œsophagus No vestige of the larynx remained and it was not possible to restore any part of the pharynx by suturing It was with difficulty that the distal end of the œsophagus was reached and secured to the edges of the wound above and behind the trachea. A tracheotomy tube was placed in the trachea at a rather lower level With regard to the after history the patient remained in the hospital for several months and was then transferred to the cancer wards of the Middlesex Hospital where I understand that after a sojourn of some weeks she died the immediate cause being hæmorrhage in the vicinity of the wound

CASE 3 —The patient was a man, aged 64 years Carcinoma of the larynx was diagnosed A few days prior to the operation a tracheotomy had to be hurriedly performed owing to a sudden attack of dyspnœa At the operation which was done on August 22nd 1895, a Hahn's cannula was inserted, the thyroid cartilage was split in the middle line, and *the growth was found to be localised to the right* side The right half of the larynx was entirely removed The operation presented no difficulty With regard to the after history the patient progressed favourably until *the 29th, when during the morning he was somewhat restless* In the evening of the same day, whilst sitting up and without any premonitory symptoms his breathing became embarrassed, he quickly lost consciousness and died *in a few minutes No post mortem examination* was allowed and I am quite unable to account for his death as up to the morning of the day he died no untoward symptoms had manifested themselves

CASE 4 —The patient was a man aged 52 years He was a stout but flabby man who had indulged somewhat freely in alcohol He consulted me in July 1896 He was then suffering from hoarseness, but his breathing at this time was free As regards laryngoscopic appearances the right ventricular band was much swollen and there was an ulcer on the posterior part of the right vocal cord A portion of the growth was removed and was found to be malignant. A few days later his breathing became embarrassed, necessitating tracheotomy As the growth was so extensive I advised him to have the larynx removed but to this he would not consent though not averse to a thyrotomy On August 13th the larynx was split and an extensive growth on both sides was found The ventricular band and nearly the whole of the mucous membrane were removed, the crico thyroid membrane was divided and pure carbolic acid was applied especially to the lower angle of the right ala and cricoid The patient made a good recovery I saw him again in October, when there was a large fungating mass projecting from the interior of the larynx and involving the tracheotomy wound Nothing short of complete excision offered any chance of recovery, so I proceeded on Oct 22nd to remove the larynx commencing from above downwards and finally severing the trachea below the insertion of the tracheotomy tube The skin and muscles some inch and a half around the tracheotomy wound were completely cut away and the cervical glands were removed from the sheath of the jugular vein in the lower part of the neck He made an uninterrupted recovery, *taking milk by the mouth in 36 hours* Six weeks later it was found necessary to remove another gland on the opposite side of the neck. In January 1897 there was a recurrence of the growth in the neck involving *the sterno mastoid muscle on the right which was deemed* too extensive for removal The patient gradually sank and died from asthenia, the growth having involved the neck and thorax, but the trachea remained free and there was no dyspnœa. This case appeared to be of an unusually malignant nature and it is much to be regretted that the patient did not submit in the first instance to a complete excision of the parts

CASE 5 —The patient was a man aged 61 years Tracheotomy was performed in May 1897, for the relief of dyspnœa On Oct 8th he was found to be almost voiceless and unable to rest at night owing to frequent blocking of the tube with thick and blood stained phlegm The laryngoscopic appearances were as follows There was a large swelling on the left side of the epiglottis The ary-epiglottic fold ventricular band and adjoining parts were involved in the infiltration There were marked irregular isolated nodules on the epiglottis the right arytenoid was red and [illegible] to sight and touch, and the [illegible] One gland was enlarged [illegible] side At the operation, on the 12th the growth was found to have perforated the crico thyroid membrane on the left side and the sterno-hyoid muscle was found to be infiltrated as far up as the hyoid. The excision was commenced from the upper end and the tracheotomy wound was not interfered with until the final severance of the larynx from its connexions The piece of the hyoid to which the muscle was attached was cut away with bone forceps The wound was dressed with boric lint kept constantly wet At the expiration of 24 hours the patient was able to take milk by the mouth On the 23rd there was a slight leakage of milk through the wound It was deemed [illegible] gical tube for a fe[illegible] taking food [illegible] recovery As regards his after history, he gained some 2 stones in weight and remained in excellent health for a twelvemonth when he had an attack of acute pneumonia and died in a few days There was no sign of any recurrence of the disease

CASE 6 *The patient was a man aged 48 years* On admission to the hospital he was seen to be a big man but not in good condition The heart was slightly enlarged the pulse was regular the lungs had moist sounds at *their bases and the liver was not enlarged* The urine was acid its specific gravity being 1030 with no albumin or sugar He could only take fluids but had no pain As regards the laryngoscopic appearances there was a sessile growth of the size of a large bean situated on an infiltrated base just below the right aryteno epiglottidean fold and running obliquely down over the ventricular band and hiding the anterior two thirds of the vocal cord The right side of the larynx was fixed and the posterior third of the vocal cord which alone was visible was seen to be motionless and white The left side of the larynx and the vocal cord moved freely A piece of the growth was removed and examined microscopically the diagnosis of epithelioma being confirmed There was an indefinite thickening on the right side of the neck opposite the level of the thyroid cartilage (?enlarged gland) The respiration was comfortable although there did not seem to be very much room The voice was hoarse The history was that until six months before his admission to the hospital the patient had never had any trouble with the throat. About that time he had a little difficulty in swallowing and a feeling of gurgling in the throat *About two months before the operation he had* pneumonia the temperature reaching 105° F and he suffered from great dyspnœa so much so that tracheotomy was contemplated During the next two months he was hoarse on and off *gradually getting worse* and there was increased difficulty in swallowing, the cough was often severe with much phlegm in the throat and occasional slight earache He could swallow solids until two days before his admission He had been a heavy smoker and also drank freely had suffered from winter cough and there had been lately some wasting There was a specific history 25 years before He had been taking iodide of potassium without any benefit On July 23th 1900 I excised the larynx and then found that on the right side at the level of the inferior cornu of the thyroid the growth had perforated into the neck through the posterior part of the crico thyroid membrane As regards the after history his health was good and his condition satisfactory up to the following December when he presented himself for examination An enlarged gland was found and removed from the sheath of the jugular vein above the level of the great cornu of the hyoid *bone on the right side* He has now a Gluck's artificial larynx whereby a loud whisper can be produced and conversation can be carried on and his health appears to be quite satisfactory

Cavendish place W

POISONING BY CARBOLIC ACID —At Redditch on Sept 11th a man was accidentally poisoned by carbolic acid being given to him *instead* of some medicine which he was taking for a cold Death took place in 20 minutes before medical assistance could be obtained The carbolic acid was intended [illegible] *the medicine*

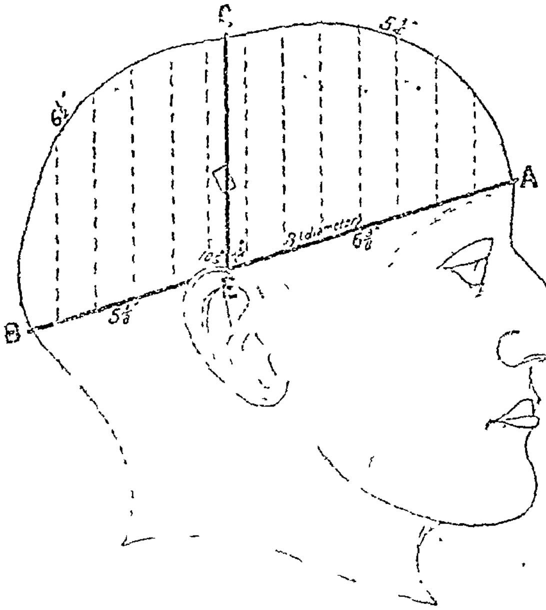
THE LOCALISATION OF FOREIGN BODIES BY THE X RAYS.

BY WILLIAM R. FOX, L.R.C.S., L.R.C.P. EDIN.,
HONORARY PHYSICIAN TO THE MELBOURNE BENEVOLENT ASYLUM.

THE localisation of foreign bodies by means of the x rays has been the subject of much study since the introduction of this valuable adjunct to surgery generally. It was, of course, soon recognised that x-ray photographs were merely photographs of shadows and hence were liable to all the distortion and exaggeration which are so essentially a shadow's characteristics. To eliminate these sources of error in estimating the position of some object deeply buried in the tissues of the human body several very ingenious contrivances have been brought under the notice of the profession, notable amongst them being the Dennis fluorometer of the Rochester Fluorometer Company of Rochester, New York.[1] the localiser of Professor Rémy of Paris, and the method of Mr. Barrel of Bristol,[2] and that of Professor Waymouth Reid of Dundee.[3] Careful consideration of these and other instruments for a similar purpose will enable one to discover that the *underlying principle is the same* in each, and that it is the only principle yet brought forward which, when properly used, will completely eliminate error. The first step in the localisation of an object is to determine definitely the position of a plane or section of the body in which that object lies; the second is to determine accurately the position of a second and separate plane in which it also lies. Now since the object lies in both these planes it can only lie in that part of each of them which is common to both—namely, their intersection. Now the intersection of two planes is a straight line, hence the object whose position is to be determined must lie on this line, and it is then only necessary to get a measurement from either end of this line, or measurements from both ends of it, to determine accurately the position of the object. This may be well illustrated by taking two small sheets of cardboard or stiff paper, and making a slit or cut in each from the mid-point of one side half way across to the other side, keeping the cut equidistant from each end, and then sliding the uncut half of the mid-line of each sheet into the cut or slit portion of the other, the sheets being at right angles to each other. These two sheets of paper or cardboard then represent the two planes mentioned above and it will be seen that their intersection is a straight line and that a measurement from either end would absolutely fix the position of any particular point on this line To ensure absolute accuracy in taking the x-ray photographs these planes must be at right angles to each other, but the error resulting from a small deviation from the rectangular position, unless over large areas, is so small that it may be neglected. Now, the method to be described of applying this principle to practical purposes has the great merit of being so simple that anyone can easily master it; instead, too, of complicated and costly instruments it only requires two pieces of ordinary wire; and it is so easy to make that anyone can put it together in a few minutes.

These advantages cannot be over-estimated in those numerous cases in which prompt surgical interference is necessary to save life, such, for instance, as a bullet imbedded in some dangerous locality. Such a case led to my working out this method. Mr. P. W. Fraser, M.R.C.S. Eng., was shot in the head with a revolver in this city about a year ago. The bullet is still firmly imbedded in his brain in spite of operations carried out at the time of the injury with a view of removing it. Recently I was asked to take some x-ray photographs of it and to localise it. In order to fix the position of the first plane so that it can always be easily found again, it is necessary to have it passing through certain well-known and easily ascertained bony points. In this case I selected for this purpose the occipital protuberance behind and the superciliary ridges in front. A piece of 30-ampère fuse wire was then bent into a ring passing over these bony points, as shown by B D A E in Fig. 2 It will be seen on reference to Fig. 1 that the bullet does not lie in this plane, but it was necessary to work from it, because if the wire ring were removed it was possible easily and quickly to replace it in this position. Theoretically, of course, another plane parallel in all directions to this one but passing through the bullet was made use of, as will be shown later. If the head, with the ring on, is now examined on the fluorescent screen it will be seen that there is one position, and one position only, in which the shadow of the wire on the nearer side of the head coincides in position with the shadow of the wire on the far side of the head, and the ring then appears as a perfectly straight line, as shown by B E A in Fig. 1. This really means that the plane bounded by the wire ring is exactly edgewise to the platinum anode of the x-ray tube, or, in other words, that if this plane were extended in the direction of the tube it would pass through its platinum anode. Care is, of course, taken that the ring is perfectly flat—that is, that when laid on a flat surface the ring will touch it all round. Having now got a well-defined plane or section to use as a base line I proceed to pick out a second plane intersecting the first one but passing through the bullet. This is done by taking another piece of electric fuse wire and bending it to fit over the vault of the head from side to side, thus giving it somewhat the shape of a half hoop. By watching its shadow on the fluorescent screen this second piece of wire can be moved to and fro along the sides of the ring in position on the head until, with the ring showing on the screen as a single straight line, this second piece shows also as a single straight line, C E on Fig. 1, intersecting the bullet. It will be found that to obtain this result the platinum anode of the x-ray tube must be in a straight line with the two points D and E. Care must now be taken to see that the two legs of the half hoop, C E and C D in Fig. 3, where they intersect the wire ring, are equally distant from B, the central point of the back of the head, and consequently also at a distance from A, the central point of the front of the head, equal on each side, though not necessarily the same as the distance from B. If they are not equidistant they must be moved till they are so, showing at the same time as a single straight line intersecting the shadow of the bullet. The electric fuse wire is then carefully soldered to the ring, the redundant ends are cut off, and all distances as well as the angle which it makes with the ring are carefully measured. The measurements shown in the figures were all taken either direct from Mr. Fraser's head or from an x-ray photograph of it. The two measurements marked "diameter"—namely, from A to B and from D to E—are direct measurements taken with calipers. If necessary an x-ray picture may now be taken to show that the position is correct. If it is so the appearance of the picture is shown diagrammatically by Fig. 1.

FIG. 1.



Side view.

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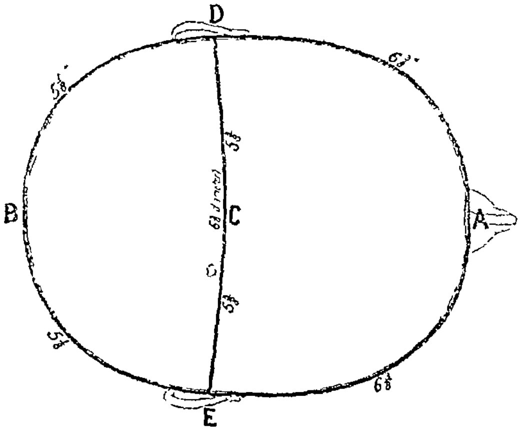
[1] Scientific American, Feb. 12th, 1898.

[2] The Archives of the Roentgen Ray, vol. v., No. 1.

[3] Walsh: The Roentgen Rays in Medical Work.

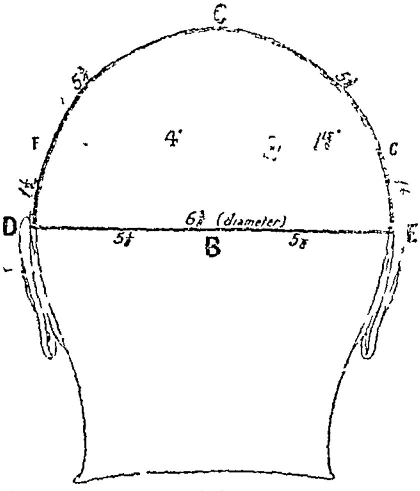
This is what has been practically so far effected. Suppose the head to be divided into a number of slices of equal width and parallel to C D in Fig 1, just as a loaf is cut into slices for bread-and butter, I have by the above method picked out the particular slice or section in which the bullet lies. The dotted lines in Fig 1 indicate the divisions between such imaginary slices and the bullet is shown situated in the eighth slice or section counting from the forehead If this particular slice could now be placed flat on a photographic plate and an x ray picture be taken of it the exact position of the bullet in the slice must surely be obtained. As this cannot be done I do the next best thing to it—namely, place the head on a photographic plate in such a position that the slice is parallel in all directions to the plate This is easily done by seeing that the three points D C and E are all equidistant from it. The long diameter of the head is in this position vertical, or nearly so, to the plate. An x ray picture then taken with the platinum anode of the tube situated in a straight line with the two points B and A, so that the ring B D A E throws its shadow as a straight line on the plate shown by D B E in Fig 3, will give an exact picture of the slice or section of the head in which the bullet lies Owing to the fact that the slice is not flat on the plate but is raised some few inches from it, the resulting picture is exaggerated but the exaggeration is practically equal in all parts of it, hence the scale of exaggeration is at once found by measuring with a pair of calipers the true transverse diameter D E on the head itself, and also the apparent diameter between the same points—the two points of junction of the wires—on the photograph The ratio between these two will at once give the scale from which all measurements can be calculated The ratio in the case referred to came out exactly as 5 is to 4 hence one fifth had to be deducted from all measurements on the photograph to get the true measurements On this photograph a line is now drawn through the centre of the bullet and parallel to the straight line D B E in Fig 3 representing the shadow of the ring B D A E The height at which this line cuts the two sides of the wire half hoop over the head, as well as the distance of the bullet from each end of this line are carefully measured and reduced to true measurement by the scale already mentioned It is then plotted on Fig 3 in which it is represented by the dotted line F G This means that with the framework in position on the head the surgeon must measure from the points D and E—the junctions of the two wires—one and a half inches up the vertical wire on each side to obtain two new points F and G a straight line joining which will go through the centre of the bullet at a distance of 1⅝ inches from G and four inches from F The selection of this line F G is really making use of another plane parallel to B D A E but intersecting the bullet as was mentioned at first would have to be done later Thus the position of the bullet is accurately and exactly fixed In order to test the accuracy of the result it is only necessary to use an incandescent electric lamp, say not bigger than a small marble, placed exactly in the position lately occupied by the platinum anode of the x ray tube, and by its means to project the shadow of the wire framework without the head in it on to a

FIG 2.



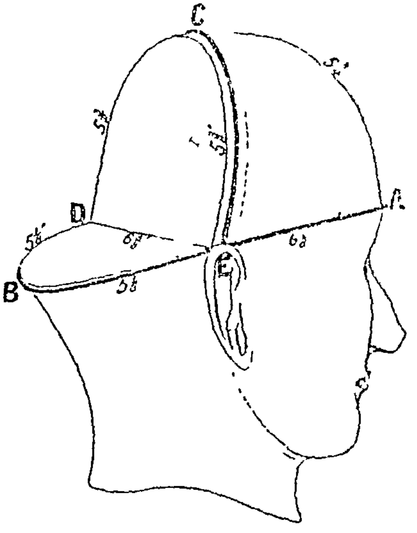
Top view.

FIG 3



Back view

FIG 4



Appearance in all sections posterior to the bullet [illegible] perfectly flat print of the photograph itself. Care must be taken that the framework is placed exactly in the position in which it was when the photograph was taken, and if this is done properly the shadow of the framework cast by the little electric light will be found to be exactly superimposed on its image in the photograph. If now a duplicate bullet or foreign body supported by a wire projecting from a small stand be slowly moved into the framework until it occupies the position obtained from the actual measurements in Fig. 3, the accuracy or otherwise of these measurements is at once demonstrated by the shadow of the bullet as cast by the light exactly coinciding or not with the position of its image in the photograph. In the particular case quoted it was found that the position as given by the measurements was the only possible one in which the bullet would in every way coincide with its image in the photographs.

To apply this method to other parts of the body the wire framework would have to be made in a different way, varying, of course, with the circumstances of each case. To show the appearance of a head if all the sections posterior to the bullet were removed, Fig. 4 was drawn. This could be done on the dead subject with the object of showing, for instance, what portions of the brain the bullet was affecting and what would have to be traversed in order to reach it. Of all the various instruments and methods mentioned at first for localisation by the x rays Professor Waymouth Reid's, at first sight, closely resembles that which I have brought forward in this paper. Very important and essential differences, however, exist between them. Professor Reid only takes one photograph and that apparently without the precaution of having the wire right round the head and seeing that its shadow shows as a straight line. The latter is exceedingly important if strict accuracy is desired. Apparently he endeavours to map out by means of the wire on the cranial surface some well-known brain landmark, such as the Sylvian line, whereas by my method the second wire is moved to and fro along the first wire ring until it picks out the precise transverse section which contains the bullet quite independently of any landmarks at all. Professor Reid gives as an excellent reason for not taking the second cross-photograph the fact that the first was followed by considerable hair-shedding. This fortunately has not occurred in my cases.

In conclusion I must express my obligation to Mr. C. Woodhouse for the great care and skill exercised by him in the production of the diagrams.

Melbourne, Victoria.

SOME REMARKS ON, AND SUGGESTED AMENDMENTS TO, THE HABITUAL INEBRIATES ACTS.

BY L. A. PARRY, M.D., B.S. LOND., F.R.C.S. ENG.

So far three Acts of Parliament have been passed dealing with the question of habitual inebriates, those of 1879, 1888, and 1898. The first of these remained in force for 10 years only, the 1888 Act was simply a renewal of the previous one with some slight and unimportant modifications, and so for all practical purposes they may be considered as one. These Acts deal only with the habitual drunkard who voluntarily seeks cure. They have no reference to the chronic inebriate who does not wish to amend his ways but prefers to continue making himself a plague and expense to his fellow citizens. They simply enjoin that any habitual drunkard who wishes to enter a retreat may, provided he is sober at the time and has complied with certain formalities, be admitted for a specified period, the period to be selected by the applicant. After once signing the applicant has no power to leave till the time has expired provided that it does not exceed 12 months; but under certain conditions he can be discharged by a justice of the peace. If the applicant escapes during his period of voluntary detention he can be recaptured, and if he breaks the rules of the retreat he is liable to a fine of £5 or to suffer seven days' imprisonment.

This is undoubtedly a very good Act as far as it goes, but unfortunately so very small a proportion of heavy and continual drinkers have sufficient strength of mind to submit to the treatment with the hope of obtaining cure of their terrible habits that quite a limited number of individuals take advantage of it. The third Act, which was passed in 1898 and which came into force at the commencement of 1899, differs essentially from the preceding in that it introduces the element of compulsion—the habitual inebriate may under certain circumstances be *compelled* to go to an inebriate reformatory. So far rather less than 18 months have elapsed since the commencement of the working of the Act, but this time has sufficed to reveal a large number of points in which the law is deficient.

Section 1, sub-section 1, deals with the habitual drunkard guilty of crime. It enacts that where a person is convicted on indictment of an offence punishable with imprisonment or penal servitude, if the court is satisfied from the evidence that the offence was committed under the influence of drink or that drunkenness was a contributing cause of the offence, and the offender admits that he is or is found by the jury to be an habitual drunkard, the court may, in addition to, or in substitution for, any other sentence, order that he be detained for a term not exceeding three years in any State inebriate reformatory or in any certified inebriate reformatory the managers of which are willing to receive him. There is no fault to be found with this except that it leaves it to the discretion of the magistrate to decide whether the prisoner shall or shall not be detained in an inebriate home. It would be better that it should be compulsory on the part of the convicting authority to send the habitual drunkard to one of these retreats rather than that it should be left to any particular magistrate who may hold strong views on the temperance question or the reverse. It must be remembered that the Act does not say that a crime committed under the influence of drink is to be punished in this way, but only such a crime committed under the influence of drink by *an habitual inebriate.* This is an important distinction. It would be unfair, perhaps, to give a man a severe extra punishment for committing a crime whilst drunk if the drunkenness were a solitary instance of alcoholic excess, but if the individual is in the habit of getting drunk then let us do our best to prevent him from carrying out further crimes under the influence of drink by endeavouring to eradicate the drinking habit.

Section 2 is the most important of the whole Act. It runs as follows:—

> Any person who commits any of the offences mentioned in the first schedule of this Act, and who within the twelve months preceding the date of the commission of the offence has been convicted summarily at least three times of any offences so mentioned, and who is an habitual drunkard, shall be liable upon conviction, on indictment, or, if he consents to be dealt with summarily, on summary conviction, to be detained for a term not exceeding three years in any certified inebriate reformatory the managers of which are willing to receive him.

The first schedule includes such offences as being found drunk in any public place, being drunk when in possession of loaded firearms, or being drunk on board a passenger steamer and refusing to leave when requested, &c.—in brief, of being drunk under circumstances which are likely to excite the attention of the police. Now the points to which special attention are needed here are many. Firstly, and perhaps most important of all, there is the same point to which reference was made in the discussion of the last section, that is, it is not made incumbent on the magistrate, judge, or other convicting authority to send the drunkard to the inebriates' home. It is left to his choice. Different magistrates take such different views as to the number of times previous convictions for drunkenness are necessary before sending to these homes; some will not do it at all, some wait till 20 or 30 or more convictions have occurred, and others are content with the three times specified in the Act. This renders it necessary that the law should declare that the inebriate should be sent to a reformatory after a certain number of convictions and not leave it to individual opinion. I insert here a few cuttings from newspapers in support of my assertion as to the large number of convictions which are required by some magistrates before they will commit the alcoholic to a home.

From the *Daily Express*:—

> Convicted over 100 times for drunkenness and nine times for attempted suicide, Ellen Macdermott, a flower-seller, was on Saturday sent back to prison for a week for being drunk in the City. And there are homes for inebriates!

From the same paper:—

> Six women who had been convicted 70 or 80 times for drunkenness were each sent yesterday to Bristol Inebriates' Home for two years.

Why should these women be allowed to drink themselves into disease and death and to entail on the taxpayers the expense of repeated police court proceedings? Would it not be more rational at once to put such people into a home and try to reform them and not wait till from 70 to 100 convictions were recorded against them? Even this number does not seem sufficient according to the views of the magistrate who tried the case first quoted above, for he simply sentenced her to one week's imprisonment. It may seem rather a Draconian code, but it is in the best interests both of the individual and the community to put these people under control at the earliest possible moment.

The following sections, 3 to 12, deal with the provision of inebriate homes—a part of the subject which though at first sight may seem of minor importance is in reality of the very greatest moment, for in the practical working of the Act it has been found that one of its greatest drawbacks—a drawback so serious that many experienced magistrates have pronounced the Act useless—is the difficulty of finding homes for the prisoners to be sent to. Over and over again it has been deemed necessary to send a prisoner to one of these retreats, and they have had to be subsequently discharged on account of the inability of the authorities to find a vacancy. This clearly proves that up to the present adequate provision has not been made for such people. As examples let me quote the following. A prisoner was tried under the Inebriates Act at Brighton, and having been found guilty of being an habitual drunkard was ordered to be sent to a home. None could be found and she was therefore discharged. She was drunk again the same evening. The following is from the *Evening News* and refers to a woman charged with being drunk in the streets:—

> A son of the prisoner asked the magistrate to deal with the case under the Inebriates Act. He was the support of the family and in a good position. For a long time past, however, the prisoner's conduct, her drinking habits, and her language had become unbearable. He had been obliged in consequence to send his younger sisters away to a boarding school.
>
> Mr. Fordham: Was she found in the county of Middlesex or the county of London?
>
> The Constable: London.
>
> Mr. Fordham: Then I cannot help you. The Act is a dead letter in London. The London County Council have, it is true, provided a small place for a few people, but that was filled up as soon as it was opened, and there can be no vacancies for a long time yet. All that I can advise you to do is to leave her.

Upon whom, then, is the duty of providing proper accommodation for these cases thrown by the Act? Firstly, the Secretary of State has power to establish State reformatories, and, secondly, county and borough councils and private individuals may, with the consent of the Secretary, establish such homes. As to State reformatories, so far none have been founded, but the Government have at last determined to establish one, which will probably be open shortly. Again, at present very few of the county and borough authorities have availed themselves of their power under the Act to found these homes, and the Act, therefore, is to a large extent a dead letter in consequence. The London County Council has recognised that so far the Act has never had a fair trial, and they are endeavouring to remedy the defects in accommodation for chronic alcoholics convicted under the Act. Mr. Gomme, Clerk of the Council, in a communication to me on this subject, says: "Few applications have been received from the London courts for the reception of males, and the Council has not felt justified in incurring expenditure to erect a reformatory for male inebriates without further evidence of its needs. The subject is not, however, lost sight of, and such measures will be taken as experience of the working of the Inebriates Acts may indicate as desirable." I may mention that Mr. Gomme only refers here to males, not females (who are the worst offenders). I think the lack of application for males, too, is partly due to the fact that it is well-known that there is no accommodation for them and therefore it is useless to apply.

The following extracts from the reports of the Inebriate Acts Committee of the London County Council show to what extent the Council has up to the present proceeded in this matter.

Nov. 2nd, 1900.

[illegible]

1.—By Section 1 [illegible] provided that habitual drunkards [illegible] es punishable with imprisonment [illegible] r the influence of or through drink [illegible] reformatory or a [illegible] State power to [illegible] to make regulations for [illegible] r of inmates from a State [illegible] n special cases from a certified [illegible] cases received at certified reformatories are persons committed under Section 2 of the Act, that is persons convicted of [illegible] therewith who have been within [illegible] the commission of the offence [illegible] times of similar offences and [illegible] objects of certified reformatories and the principles on which they should be managed are set out very clearly in the report of the departmental committee which was appointed to [illegible]

[illegible] s thus laid down, and it is our [illegible] Farmfield in accordance with the [illegible] perience has not yet of course been very extensive, but we have had indications of the desirability [illegible] not to be amenable [illegible] departmental com- [illegible] erect has decided [illegible] at Duxhurst next [illegible] "I find satisfactory [illegible] nt of classification [illegible] formatories ...... Dangerous cases are [illegible] be answerable." In a circular dated [illegible] State, after stating that he had given [illegible] stion of exercising his power of estab[illegible] id: "The department has been con[illegible] culty that it has been unable to form any estimate which I can regard as even approximately trustworthy of the number of persons for whom provision should be made in a State reformatory." It will be remembered that the Council was confronted with the same difficulty as regards a certified reformatory, but has, [illegible] already [illegible] State [illegible] much [illegible] mental [illegible] ified reformatories [illegible] of accommodation required may not yet be available, but the principle to be acted upon would appear to be that adopted by the Council of providing a certain amount of accommodation to meet present requirements and making provision with a view to necessary extension in the future. We accordingly recommend "That a letter be addressed to the Secretary of State urging the desirability of a State reformatory being established for the reception of persons committed under the Inebriates Act, 1898, who cannot be suitably dealt with in certified reformatories." (Adopted.)

5th December, 1900.

Royal Victoria Homes, Brent[illegible].—Negotiations.

[illegible] the information of the Council, the [illegible]

[illegible] it was ready. It is [illegible] Secretary of State for orders of transfer, but the managers subsequently intimated to the Home Office that they would only require one vacancy [illegible] kept at Farmfield, as all the London patients except one [illegible] licences. No order has been received for the transfer of any of the patients to Farmfield except a woman who was charged when out on licence from Brentry and sent to Farmfield from the Clerkenwell Police-court. The offer of 1s. per day as from 12th June [illegible] has not been accepted but a claim of £[illegible] 9d. has been made for [illegible] out of pocket expenses in respect of London patients. The liability for this has, under the solicitor's advice, been repudiated. A subsequent [illegible] offer has been received from the managers of the homes to receive London patients under a five years' agreement, on payment of £20 per annum for each bed reserved under the agreement, whether occupied or not. Having regard to arrangements we contemplate for the provision of additional accommodation at Farmfield we have not felt justified in recommending the acceptance of these terms or the arrangement of an agreement for so long a period. In a letter since received it is stated that the terms offered by the managers are the only ones they are authorised by their board to adopt, but an offer is made to lay before the Board any suggestions we may have to make in the matter. In view of the manner in which previous suggestions have been received and the improbability of any mutually satisfactory arrangement being arrived at, we have not felt that any object would be served by availing ourselves of this offer.

Female Inebriates—Additional Accommodation—Capital Vote (original outlay) £20,000.

2.—We have to report that the accommodation for which the Farmfield Reformatory is certified is now occupied and that no more women can at present be received at the reformatory. The Council is aware that there are 17 London cases at Duxhurst and 43 at Ashford under agreements between the Council and the managers of these homes, so that provision has now been made for 90 cases by the Council, and beyond 13 places for Roman Catholic women at Ashford there is no further accommodation immediately available. We have had several applications from the London courts for the admission of female inebriates since Farmfield was full, and the following return, which has been forwarded to the Home Office by the chief magistrate, indicates the need of the early provision of further accommodation.

Return of the number of persons repeatedly convicted of offences of drunkenness at the metropolitan police-courts during the year ended Oct. 31st, 1900:—

Court.	Number of persons convicted.							
	3 times.		4 to 5 times.		6 to 10 times.		Above 10 times.	
	M.	F.	M.	F.	M.	F.	M.	F.
Bow-street ...	16	13	14	30	5	12	1	—
Clerkenwell	3	10	4	10	1	3	—	—
Marlborough-street	7	22	2	14	6	11	—	1
West London	16	25	8	17	4	9	1	—
Marylebone	21	50	8	20	—	9	—	1
Westminster... ...	7	9	1	—	2	—	—	—
South-Western ...	5	16	7	11	—	14	—	—
Lambeth	8	18	5	22	1	14	—	2
Southwark	18	40	11	36	4	20	—	4
Greenwich	8	12	6	14	—	1	—	—
Woolwich	11	18	9	24	2	10	—	—
Thames	28	16	28	6	11	—	1	—
Worship street ...	1	7	3	18	2	4	1	1
North London ...	12	2	13	1	3	—	—	—
Totals	161	258	119	223	41	107	4	9

In view of these figures and our own experience we have felt it our duty to take immediate measures for the provision of additional accommodation at Farmfield where, the Council will remember, there is ample room for expansion. We have had before us alternative plans and estimates prepared by the architect providing for the accommodation of 80 more women. Regard has been had in the preparation of the plans to the possible need of a further extension of the buildings in future. The plan which we have selected as the most suitable is for a central administration [illegible] compounds, each containing cottage [illegible] 20 patients, thus affording a possibility [illegible], if the work under the Act is to prove a success, our experience has already shown to be an absolute necessity. In order that measures may be at once taken for getting the work put in hand so as to have the urgently needed accommodation available as quickly as possible it is hoped that the Council may feel justified in suspending the Standing Order as to capital expenditure amounting to over £5000 to avoid the decision on our recommendation standing over until after the Christmas recess. We recommend: (*a*) That Standing Order No. 34 with regard to recommendations or proposals involving expenditure upon capital account of sums exceeding £5000 be suspended to enable the Council to vote without an interval of seven days upon the following recommendations. (*b*) That the estimate of £20,000 submitted by the Finance Committee be approved and that an expenditure of that sum be sanctioned for the construction and furnishing of additional buildings for the accommodation of 80 female inebriates on the Farmfield estate and for incidental works and expenses in connexion therewith. (*c*) That the Inebriates Acts Committee be authorised to invite tenders and take other necessary measures for the execution of the works. (Adopted.)

But, excellent as the action of the London County Council is, this is not sufficient. What is required is that all county councils should do the same, and as they will not do it voluntarily the Act should be so amended that county and borough councils should be compelled to provide adequate accommodation for their inebriates. Small districts could combine or could by arrangement contribute towards an establishment maintained by a large council. In this way there would be no discharge of prisoners on account of inability to find proper accommodation.

The great omission from all these Acts is this, there is no provision whatever made for chronic drunkards who never put themselves into the hands of the police, who always indulge in their own homes, and who keep there when they are drunk. They wreck and ruin their own lives and those of all connected with them, they destroy the happiness of many and many a home, and yet there is no law by which they can be touched. I believe the sooner they are treated in the same manner as lunatics the better it will be for everybody. Let it be, just as it is in the case of the insane, in the power of the nearest of kin or some other responsible person to get the chronic alcoholic committed by a justice of the peace, after two independent medical men have certified as to the fact of the chronic inebriety, to a home for drunkards till he or she (unfortunately, only too often the latter) is cured. These people are worse than lunatics—they do more harm both to themselves and others than do insane people, and yet we are so tender of the "liberty of the subject" (here only the liberty to drink themselves into misery and death) that we will not treat them in a way which is for their own and everybody else's good. Until some such clause as this is inserted no Act of Parliament will be complete. So far we have no power whatever to deal with the chronic drunkard who manages to indulge in his vice in private; the law must eventually give the power—the sooner the better.

Hove, Sussex.

APPENDICITIS: SOME GENERAL REMARKS ON THE PATHOLOGY AND TREATMENT.

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THE following essential facts in reference to appendicitis are no doubt quite familiar to my fellow practitioners, but I record them because in my practice they have recently served to confirm accepted teaching. I have verified as far as possible the observations which I have made by research at the Royal College of Surgeons of England, the Royal College of Physicians of London, St. Bartholomew's Hospital, and the Guards' Hospital, London.

Appendicitis means inflammation of the vermiform appendix. It is to be distinguished from a similar condition of the cæcum known as "cæcitis" and of the ileum known as "ileitis." Appendicitis may be divided into the following varieties which differ from one another rather in degree than in kind and correspond with the varieties of inflammation to be met with in other parts of the body: (1) acute appendicitis—(*a*) with local inflammation of the peritoneum or the cellular tissue, (*b*) ending in suppuration and abscess, (*c*) ending in gangrene, and (*d*) ending in perforation; (2) chronic appendicitis; (3) relapsing appendicitis; and (4) latent appendicitis.

PATHOLOGY.

Disease of the appendix vermiformis is very common and morbid changes are met with in about 20 per cent. of all bodies examined post mortem. On post-mortem examination it may be found in one of the following conditions of inflammation: (1) confined to the surface of the lumen; (2) involving one or more of its coats; or (3) "perforating" its peritoneal coat or dissecting between the layers of its mesentery. The inflammation present may be of the simple, specific, or malignant variety.

Conditions of the appendix.—1. Appendicitis with abscess may be found to have tracked in one of the following directions: (1) into the cæcum; (2) into the cellular tissue; (3) into the abdominal wall; (4) into the rectum; (5) into the uterus or its appendages; (6) into the bladder; (7) into the peritoneal cavity either direct or after being extraperitoneal; (8) involving the sheath of the psoas muscle or opening up the iliac vessels (rare); (9) through the sciatic or obturator foraminæ or through one of the abdominal "rings"; or (10) in the extra-peritoneal variety it may burrow up behind the colon and perforate the diaphragm, giving rise to pleurisy, pneumonia, or pericarditis. In appendicitis with perforation into the peritoneal cavity there is a tendency for the pus to travel in the most dependent positions (i.e., into the recto-vesical pouch); both the true and also ligaments of the bladder are frequently involved in this variety of inflammation. 2. The appendix may be (*a*) twisted upon itself or kinked, giving rise to mucocele, empyema, gangrene, or perforation; (*b*) it may be the seat of one or more stricture, or may be obliterated from old inflammation or ulceration; or (*c*) it may constitute an intussusception or hernia (the appendix may be found completely invaginated or forming a partial or complete hernia of one of the following varieties—inguinal, femoral, obturator, umbilical, or ventral); (*d*) it may be considerably elongated and lying in one of the following positions—over the pelvic brim or adherent to the abdominal wall or to any structure mentioned as in relation with it; or (*e*) it may be the seat of embolus or thrombosis, or of tubercle, carcinoma (primary or secondary), or secondary deposits of actinomycosis or, again, of parasites or worms. The tendency of any one of these conditions of inflammation is to obliterate the process.

In suppurative appendicitis with perforation and acute diffuse septic peritonitis pus very rarely extends higher than the transverse mesocolon.

Appendicitis may terminate in resolution, complex adhesions, suppuration (intra- or extra-peritoneal), or gangrene with or without perforation. The terminations of the suppurative or gangrenous varieties after operation may be (1) in resolution; (2) recovery with adhesions; (3) fistula; or (4) death from pyæmia, lardaceous disease, or exhaustion.

Bacteriology.—The bacillus coli communis is constant, but except in diseased or damaged tissues or tissues whose vitality is lowered is inactive. In disease the following additional varieties have been demonstrated: cocci, micrococci, diplococci, pneumococci, bacilli, tubercle bacilli, leptothrix, saccharomyces, and some others.[1]

Causes.—The causes of appendicitis may be simple, specific, or malignant. The exciting causes are numerous. Some of the commonest may be classified as indigestion arising from any of the usual causes; cold; injury; foreign bodies; concretions; constipation due to pressure and chemical irritation lowering the vitality of the wall of the tube and thus being the seat of action of the bacillus; diarrhœa, dysenteric, typhoidal, and tuberculous causes; [illegible] ary and secondary). [illegible] The symptoms may be divided [illegible] There are three cardinal symptoms—(1) pain, (2) tenderness, and (3) rigidity; and two others are usually present—viz., fever and constipation. The intensity of the symptoms varies somewhat with the degree and variety of the inflammation as in other parts as well as to the structures implicated.

In diagnosis the questions which present themselves are three in number: (1) Is this a case of appendicitis? (2) What is the probable condition of the appendix? and (3) What variety of appendicitis is it? With regard to the first of these questions the following diseases may have to be excluded by differential diagnosis, each condition mentioned having a specific history and cardinal symptoms of its own: (*a*) colic—intestinal, renal, hepatic, pancreatic, and splenic; (*b*) obstruction—acute (strangulated intestine), pseudo-strangulation, perforation of the gastro-intestinal tract other than appendicitis, hæmatocele, parasites and worms; (*c*) if fever is present typhoid fever and pneumonia before consolidation; and (*d*) intussusception in children. In the chronic and relapsing varieties of appendicitis the following diseases more or less simulate appendicitis: tuberculosis of the cæcum, cancer of the cæcum, psoas abscess, perinephritic abscess, disease of the uterus, ovaries, or Fallopian tubes, and hip-joint disease. The following considerations may help us in our diagnosis: the seat of pain; the occupation of the patient; the history of the present illness, past illnesses and environment; the present condition as evidenced by pain, tenderness, rigidity, the cachexia of the patient, facial expression, pulse, tongue, temperature, respiration, the urine, the stool, the vomit, and the expectoration; auscultation of the abdomen and chest; the use of the exploring needle; and laparotomy.

In connexion with the second question the same considerations which helped us to answer the first question are applicable to this one.

Respecting the third question, What is the variety of appendicitis? we must as with the second question be guided by the same considerations together with the acuteness of the symptoms, the duration of the disease, and the local signs present. If peritonitis be present in addition to fever and vomiting there is usually painful micturition or retention of urine, rigors, and one or both legs are drawn up. The abdomen is tympanitic in front owing to the presence of free gas and is partially dull in the flanks. The right lower quadrant of the abdomen, in addition to being exquisitely tender and fixed, is sometimes resonant, sometimes dull, depending upon the presence or absence of free gas and the condition of the parts between the finger and the appendix. Even in ultra-acute appendicitis the temperature frequently does not rise above 103° F. or the pulse exceed 120, but there are present all the usual signs of collapse accompanied by rigors and vomiting. The vomit is usually greenish in colour but in the latest stages if the patient is not operated upon it becomes more or less fæcal in character.

Course and prognosis.—The tendency of appendicitis is to recovery. Appendicitis may be so slight as merely to give rise to a feeling of slight discomfort without even laying the patient up. On the other hand, it may give rise to all the signs and symptoms of acute septic peritonitis. Any intermediate stage may be met with. In appendicitis 11 per cent. of the cases are fatal. With abscess it is about 30 per cent., but when surgically treated it is put as low as 2 per cent. Some of the most acute cases end fatally in from 36 to 48 hours, more commonly about the end of the first week. In 50 per cent. of fatal cases death takes place within eight days. An ordinary attack of appendicitis lasts from seven days to three weeks. The extra-peritoneal variety of abscess, if surgically treated, offers a most favourable prognosis. In the intra-peritoneal variety prompt action is needed and except in the early stages radical measures, which will be described under "treatment," are imperative. In about 8 per cent. of the cases the pus enters the peritoneal cavity by dissecting between the layers of its meso-appendix.

TREATMENT

The general rules in the treatment of inflammation of the vermiform appendix are the same as in the treatment of inflammation in other parts. When appendicitis is suspected or diagnosed the patient should be placed at rest in the recumbent position. The diet should be restricted, nutritious, and spare, very little being given by the mouth. The application of warm fomentations and leeches in the right iliac fossa or at the seat of the pain is sometimes of benefit, especially in the earlier stages of acute case. A mild saline aperient should be employed in the early stages so as to clear out the intestine and should be followed by a simple enema. If there is much distension there should be added a little turpentine to the enema and the rectal tube should be passed from time to time. When the diagnosis of variety has been made out, and not before, a little opium may be given either as an injection of morphia (one-sixth of a grain) or in the form of the liquor opii sedativus 10 minims twice in the day, according to the amount of distress. If the symptoms are acute no food should be given by the mouth except a few spoonfuls of milk and a little ice to suck to relieve thirst, the patient being fed by rectal enemas. The treatment should correspond to that for acute peritonitis combined with a little antiseptic, say, salol 10 grains three times in the 24 hours. Cases of acute, chronic, and relapsing or latent appendicitis are best treated in this way unless ultra-acute symptoms have presented themselves.

Operative measures.—The great majority of cases call for *no operative treatment*. In ultra-acute cases operation should be performed early. Operations for appendicitis do [illegible] in the not differ [illegible] extra abdomen [illegible] In peritoneal the extra-peritoneal variety the incision should be made as low as possible so as to avoid opening the general peritoneum—i.e., half an inch above Poupart's ligament along the outer half according to the point of maximum dulness and resistance with the patient under an anæsthetic. During the incision the muscular fibres should be separated according to McBurney's method. Appendicitis with intra-peritoneal mischief and septic peritonitis requires very careful packing and sponging so as to try to prevent septic extravasation.

In early acute septic inflammation without suppuration an incision should be made and the appendix removed and then should be a thorough sponging away of all septic material. If there has been some days delay or the peritonitis is very acute from the first an incision is made over the seat of the appendix and it is removed. An incision is then made at a point midway between the ensiform cartilage and the umbilicus and carried as far as the pubes. The intestines are turned out and cleaned, being kept by an assistant at the body temperature by the application of hot sterilised towels. With the intestines thus turned out the peritoneum can be thoroughly flushed and sponged free from all pus and extravasated fluid, special attention being paid to the recto-vesical pouch and other cul-de-sacs of the abdominal cavity. When every visible particle of septic material has been removed we have next to deal with the intestines. When they have been flushed and sponged incisions should be made into the distended coils in sufficient number to empty them of gas and liquid fæces and the peritoneum should be united by Lembert's method. The intestines are then returned into the abdomen and a drainage-tube is inserted at the lower part and the abdominal wall is sewn up with silk-worm gut. Shock should be counteracted by the usual methods as far as possible—i.e., the limbs should be wrapped in cotton-wool and the operation should be performed on a hot-water bed or table. Time must not be wasted during the operation. Subcutaneous injection of strychnine and brandy injections per rectum should be administered. The decision of the surgeon as to prolonging an operation in a given case must depend on the condition of the patient and cannot be decided by rule. Amputation of the appendix in these cases is sometimes easy and sometimes difficult or impossible on account of extensive adhesions. The operation should be done with strict antiseptic precautions. When a second incision has to be made the first should be closed temporarily with gauze and collodion flexile after sewing up.

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[1] Javel and Laur, Leipzig, 1893; Lockwood, 1901.

Amputation of the appendix.—The appendix should be clamped three-quarters of an inch from its base. The first incision should be made through the serous and part of the muscular coat: this is turned back, and the remainder is cut through; the stump is then touched with a wooden match dipped in carbolic acid, the flap turned over it, and it is sewn up, first of all the mucous coats and then the serous coats, by Lembert's suture. A little graft of omentum may be placed over this. If the appendix is sloughing or gangrenous it should be tied with catgut and snipped off with the scissors. An indiarubber tube of large size is then passed to the bottom of the cavity in suppurative cases; in non-suppurating cases the wound is closed. The cavity in suppurating cases is best drained by suction—i.e, passing a smaller tube attached to a syringe to the bottom of the larger one and thus drawing off the contents and repeating the proceeding at each dressing. All tubes, syringes, &c., should be kept in carbolic solution, 1 in 20. The after-treatment is similar to the after-treatment of other abdominal operations except that in the gangrenous and perforative varieties of appendicitis with peritonitis the cavity is very difficult to drain and irrigation must be limited to cleansing the tube and the superficial parts. The sinuses remaining in these cases exhibit a tendency to close spontaneously in time, but are usually very slow and difficult to heal. The appendix should be removed during a quiescent period for preference, but when an abscess is present the surgeon should operate at once. There is no fixed day for operating, but too early and too late operation are to be strongly condemned. In the relapsing variety of appendicitis the operation should be performed after the second attack in the quiescent period unless ultra acute symptoms supervene, in which case operative measures should be taken at once.

CONCLUSIONS.

1. Although in America the exploring syringe has been used with considerable success as an aid to diagnosis, still, on account of the septic condition of the parts and the depth of tissue as well as the possibility of missing the pus, a laparotomy would appear preferable and is usually practised in this country. The exploring syringe is no doubt of use in a few cases.

2. In addition to making a counter opening in the loin or in the female behind the cervix uteri I am of opinion that aspiration or a small counter opening per perineum or per rectum when the pus is collected in these localities may prove of practical value and in some cases the passage of a drainage-tube or gauze wick.

3. It is well to remember in making incisions when peritonitis is present (1) that the peritoneum is of a dull red colour, and it is often as much as half an inch in thickness; (2) that adhesions must be divided and not torn through; (3) that the visceral and parietal layers of peritoneum are usually adherent; (4) that the small intestines are often glued together and if opened by accident they should be united by Lembert's sutures; (5) that the bladder is sometimes dilated and adherent; (6) that each bit of omentum should be transfixed and tied at both ends; (7) that if the whole appendix cannot be moved tie and dissect away part of it; (8) that the amount of pus present in the peritoneal cavity in perforation cases varies from a few drachms or ounces in the direct perforating variety to as much as a couple of pints when the abscess has been first of all extra-peritoneal and afterwards burst into that cavity; (9) that 70 per cent. of cases of appendicitis get well on careful medicinal treatment alone, and that although a new set of false teeth, attention to the bowels and to diet have warded off relapse, gangrenous appendicitis occurs in upwards of 15 per cent. of cases; and (10) that all cases of appendicitis may develop into the ultra-acute variety requiring surgical treatment, but that the tendency of appendicitis is to recovery.

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THREE POINTS IN PRACTICAL MIDWIFERY.

BY G. W. ORD, M.R.C.S. ENG., L.R.C.P. LOND.

SOME 12 years ago I arrived home from a confinement in a state of exaltation: I had saved a life, not the mother's, but the child's, and, as I thought, in an entirely new and original manner. The presentation was a breech, and for certain reasons it was highly important that a living son should be born. In due course the body was born; there was the much-desired son, three-quarters of him, and with a pulsating cord. Then followed the usual hitch; the head absolutely refused to leave the mother, the cord ceased pulsating, and it seemed that the child would be born asphyxiated. I had a catheter in my bag, as it chanced a silver male instrument, and feeling my way I passed it into the child's mouth. The child cried down the catheter, the chest became inflated, and my anxiety ceased, for I saw no reason why the child, if needs be, could not remain in that position with the catheter in his month for several hours. A minute later I passed another catheter—this time a female instrument—to double the air-supply, and the thought of an old picture with a shepherd playing the tibiæ crossed my mind. "Age, tibicen, refer ad labias tibias, suffla celeriter tibi buccas." In the end, six or seven minutes later, the head was born and all was satisfactory, though I remember the father for weeks afterwards making a fuss about a little hard lump in the child's arm at the site of an injection of ether. On my arrival home I searched to see if my method had been anticipated, and in Playfair's work on midwifery I found it, but inasmuch as the method has been a surprise to every medical man to whom I have told the tale I consider my case, if generally known, may be a means of saving infant life, the mortality in breech presentations varying from one in 11 to one in three and one-fifth. Playfair, indeed, says of the catheter method that it is "not reliable." In my case the catheter did its work perfectly, and I cannot conceive a single argument against it; moreover, Playfair gives none. With the whole body born it would appear easy to drag, by manipulation, the head into the world, so that the catheter seems unnecessary. In practice, however, a delay of three or four minutes frequently occurs, enough, apparently, to account for the high mortality.

I wish to touch upon another matter in which I have had experience. Hour-glass contraction of the uterus, I am positive, is not caused by traction on the cord, as Playfair believes, but by traction on the infant, who is thereby too rapidly removed from the uterus. This is, I believe, a new assertion and I must therefore justify it. In the earlier years of my practice, though I never used traction on the cord and always waited for from 15 to 20 minutes by the watch before attempting "expression," yet I had numerous cases of hour-glass contraction. In none of the cases had ergot been given. Especially did I find contraction occur after instrumental delivery. For the last six or eight years I have pursued the method of "expressing" the child after the birth of the head and have had no hour-glass cases when

I have been present before the birth of the child. I cite two cases. I attended two women each in three confinements and each woman had hour-glass contraction with the first two children. At the third confinement in each case, pursuing a policy of *vis a tergo* only on the child, I found, as I expected, the placenta easily expressible after a wait of a quarter of an hour. I have, however, never considered hour-glass contraction a "bugbear." It is only a delay and a nuisance. The hæmorrhage in my cases has been trifling and the non-separated, not the adherent, placenta is easily peeled off when once the hand gets through the constriction. As a delay and a nuisance, however, it is well avoided, and if by a warning against traction on the child one can do so my object in writing will be achieved.

It appeared to me in the hour-glass cases (1) that the contraction took place when the infant had been rather quickly delivered and when the placenta was situated in the fundal region of the uterus, therefore that there are two factors required for its occurrence; (2) that the fundal portion of the uterus was tightly contracted around the placenta whilst the lower portion of the uterus was lax and flabby (Dr. Herman, however, says that "the contraction of the circular fibres of the lower uterine segment ...... morbidly persists."); (3) that the amount of hæmorrhage was only normal, as might be expected from the tonic contraction of that portion of the uterus containing the sinuses; and (4) that the constriction, which to commence with would only admit one finger besides the funis, was, generally speaking, situated quite half way or higher in the uterine cavity.

Again, I am not at all certain that traction on the infant is not responsible for many cases of pronounced scoliosis at a later age. I do not mean mere amenability of the spinal column, for that, if looked for, will be found to be an unexpectedly frequent occurrence. I think investigation would probably show that an inordinate number of the badly twisted spines had been breech or transverse presentations at birth. Certainly this is so in the few cases about which I have made inquiries. Thus out of eight cases three were breech, two were probably and two were possibly breech presentations, and one was vertex (this last suffers from marked rachitis). To deliver breech presentations traction on the child is nearly always made use of. Now in the mechanism of breech delivery it is said that the shoulders *do not follow the movements of the hips and that consequently the spine is rotated.* Rotation and traction will necessarily stretch the vertebral ligaments and we ought not *to be surprised that when the child becomes a certain weight*—i.e., at from seven to 12 years of age—twisting should occur along the line of least resistance—that is, along the line of overstretched or torn intervertebral ligaments, *for a torn or overstrained ligament never entirely recovers its pristine strength.*

To conclude, in this paper I have touched on three topics and I hope I have made three points: (1) that the catheter in the course of a breech delivery is capable of saving life; (2) that hour-glass contraction of the uterus is avoidable; and (3) that scoliosis is possibly caused by traction on the infant's body during birth and that we should realise the damage we may be doing to the spine when pulling in the various directions as we are advised in text-books and be wary accordingly. Besides the possible scoliosis, the foundation of which we may be laying by traction on the infant's body, there is another and a more serious danger which we may be unwittingly incurring during that operation—the suprarenal capsules may be injured and death of the child follow. I quote from Dr. Clifford Allbutt[1]: "As the result of traumatism during birth hæmorrhages frequently occur into the suprarenal capsules. On an examination of 130 stillborn children Dr. H. Spencer found extravasations into these organs in 26. These hæmorrhages occurred more often in difficult labours and were more frequently met with in pelvic than in cephalic presentations." Speaking generally, I believe in the soundness of the use of the catheter with an after-coming head if any hitch occurs as opposed to traction on the infant's body.

Richmond, Surrey.

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[1] System of Medicine, vol. iv., p. 567.

TOTNES COTTAGE HOSPITAL.—Dr. William Berry Kellock of Stamford-hill, London, has subscribed £500 to be added to the perpetual endowment fund of the Totnes Cottage Hospital as a memorial to his late wife.

A Mirror

OF

HOSPITAL PRACTICE, BRITISH AND FOREIGN.

> Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

LONDON FEVER HOSPITAL.

A CASE OF EXTENSIVE HÆMORRHAGE INTO THE FLOOR OF *THE MOUTH AND EPISTAXIS OCCURRING IN A HÆMOPHILIAC* DURING THE COURSE OF SCARLET FEVER; RECOVERY.

(Under the care of Dr. CHARLES R. BOX.)

IT is curious that medical literature contains hardly any records of the behaviour of hæmophiliacs in the course of the specific fevers, but this very fact demonstrates that as a rule their tendency to bleeding does not specially manifest itself on these occasions. The following case is remarkable and is very deserving of record.

A youth, aged 16 years, was admitted into the London Fever Hospital certified as suffering from scarlet fever. He was apparently in good health until two days before admission, when he shivered and vomited. When admitted the

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elbows. The tonsils were reddened and moderately swollen; the submaxillary glands were slightly enlarged. The posterior cervical glands were not involved. The tongue was coated white and cleaning on its anterior part. The urine on admission contained no albumin. There was no evidence of any visceral disease. The temperature was 102·4° F. After being in hospital three days the temperature fell to normal and the patient felt quite well. On the eighth day of the disease the temperature began to rise and next day a trace of albumin appeared in the urine. Two days later the temperature reached 102·2° and rheumatism with lumbar pains was present. The tonsils were swollen, the left submaxillary glands were again enlarged and tender, and the albumin was increasing in quantity. On the inner side of the left arm just above the elbow a discoloured area of about the size of a florin appeared, evidently a subcutaneous hæmorrhage. There were no other hæmorrhages and the patient was inclined to think that he had bruised his arm on the side of the bedstead. The next night sleep was much disturbed and at four in the morning there were pain in the left side of the jaw and some difficulty in swallowing. The submaxillary region was much swollen, tense, and tender. The floor of the mouth was infiltrated with blood extravasated into its tissues and the tongue was pressed upwards towards the roof. A few hours later profuse epistaxis occurred and was once repeated. The local application of hazeline and calcium chloride in solution appeared to stop this. The temperature remained febrile. Further careful inquiry was now made as to the previous history of the patient and his family. As a boy he had lost a considerable quantity of blood after a tooth extraction. His mother's uncles and mother's sisters' sons were "bleeders" and other more remote male relatives suffered from the same tendency. Most had lived to a good age.

The hæmorrhage into the floor of the mouth continued to increase and the patient presented exactly the appearance of one suffering from Ludwig's angina. Feeding was a matter of the greatest difficulty. The external swelling extended far down towards the sternum and increasing stridor caused the greatest apprehension, for the difficulties and dangers attendant upon tracheotomy would have been most formidable. Fortunately, however, at this stage improvement commenced and under the influence of an ice-collar and full doses of calcium chloride the extravasation ceased to extend. Ulceration of the mucous membrane of the mouth now threatened and there appeared to be considerable danger of the extravasated blood becoming infected in this way. Absorption, however, proceeded apace and the mucous membrane assumed a healthier appearance. Six days after its onset the extravasation had entirely disappeared. An area of pleural friction now developed in the right axillary region and was accompanied by considerable pain. The friction was not accompanied by signs of effusion of fluid or of lung consolidation, and cleared up almost as quickly as it commenced. It was possibly due to local hæmorrhage. A few punctiform hæmorrhages also appeared on the soft palate. On the twenty-sixth day of the disease there was a sharp attack of cervical adenitis, with fever, and some increase in the quantity of albumin in the urine, a trace of albumin having been almost constantly present from the beginning. The adenitis subsided quickly and the albuminuria gradually diminished. The patient was discharged on the fiftieth day.

Remarks by Dr. BOX.—This case is of such exceptional character as to deserve to be recorded. True hæmophilic manifestations are rarely met with during the course of the specific fevers; in fact, in my experience the case is unique and I have not been able to find a record of anything similar. A case like the foregoing naturally raises the question of the dependence of the hæmorrhagic form of the specific fevers upon a hæmophilic tendency in the individuals attacked. There appears to be no evidence which would enable one to assert that this is so. So remarkable a coincidence could not fail to have attracted attention long before now, and cases would be sure to have been recorded. On the other hand, I have heard of several instances where the children of "bleeder" families have recovered from attacks of the specific fevers without any hæmorrhagic manifestations and such cases must be of frequent occurrence. The distribution of the hæmorrhages in the floor of the mouth and in the arm in this case was such as to suggest that some slight injury was concerned in their production rather than that they were dependent upon the scarlatinal infection. The bleeding in the floor of the mouth might well have been induced by the use of the throat spatula and that near the elbow by a blow, as suggested by the patient. The epistaxis is not so easy to account for in similar fashion. The rapidity with which the effusion subsided under the influence of the ice collar and full doses of calcium chloride was remarkable. I am much indebted to Dr. C. Todd, who at the time was acting as assistant medical officer, for his careful observations and investigations of the case.

CHATHAM NAVAL HOSPITAL.

A CASE OF HEPATIC ABSCESS; OPERATION; RECOVERY.

(Under the care of Surgeon R. F. BATE, R.N.)

OUR knowledge of the etiology of abscess of the liver is still incomplete. Many of these abscesses, probably a majority, are produced by septic emboli carried from an ulcerated surface in the stomach or intestines by the portal vein to the liver. There are others, however, which are in all probability produced by micro-organisms which have obtained access to the liver by the channel of the bile-ducts. Other abscesses are produced by suppuration occurring in hydatid cysts. With our present knowledge we are unable always to distinguish between these various forms, and bacteriology can afford us valuable assistance in discriminating between them. It is therefore always highly desirable that a bacteriological examination should be made of the pus evacuated from an hepatic abscess. The following case shows how very satisfactory is the modern treatment of this serious condition. The case is published by permission of the Director-General of the Medical Department of the Navy.

A man, aged 24 years, was admitted into the Chatham Naval Hospital on June 7th, 1901, from H.M.S. *Wildfire*. The patient had been on the sick list since May 28th, suffering from acute pains in the left hypochondriac region, cough, and debility with febrile symptoms. A swelling gradually formed in the epigastric region. He had had no liver trouble previously; he was 20 months on the East Indian station, being invalided for beri-beri in November last. On examination there was a tense swelling occupying the epigastric region and reaching to within one and a half inches of the umbilicus, which was dull on percussion, with fluctuation present, and was apparently connected with the left lobe of the liver. There was enlargement of the spleen, the tongue was thickly coated, and the evening temperature was 100·8° F.

An exploratory puncture was made over the swelling and a drop of light yellow fluid was withdrawn which on examination showed pus cells. The abdominal wall was prepared for operation, and on June 11th at 11 A.M. the patient was given the A.C.E. mixture. A slightly oblique abdominal incision for three and a half inches was made over the most prominent point of the tumour, and the tissues were carefully divided down to the peritoneum, which was fortunately found to be adherent to the abscess. This was then opened freely, care being taken to prevent matter from entering the abdomen by packing around with large flat sponges. 16 ounces of sweet-smelling pus were withdrawn. Only a couple of small vessels in the abdominal wall had to be ligatured and there was but moderate venous oozing from the liver substance. Six deep fishing gut sutures were introduced by a curved needle through the margins of the abscess wall and the peritoneum, and were carried deeply through the tissues of the abdominal incision. A large drainage-tube was then introduced and the abscess cavity was washed out with saline solution; a couple of gauze plugs were also inserted. The abdominal wound was closed by six catgut sutures and a few horse-hair stitches and a dressing of iodoform and sal alembroth wool applied.

At 5 P.M. the wound was re-dressed, serous oozing being present on the dressings. The patient had vomited bile-stained fluid. The evening temperature was 98·2° On June 12th the temperature was 98° and the pulse was 76 and of good volume. The tongue was slightly coated. Bilious vomiting continued off and on to 1 A.M. The wound was re-dressed; the plugs of gauze were removed; there was slight blood-stained watery discharge, not offensive. The tube was syringed out with warm boric lotion. On the 13th there was a less amount of watery blood-stained discharge on the dressings. The tube was shortened half an inch. The bilious vomiting ceased. The tube was removed on the 15th and gauze plugs alone were used. On the 17th the upper sutures were removed. The temperature and the pulse were normal. From the 17th to the 23rd the patient did well, being ordered on the latter date boiled fish diet. The wound was granulating satisfactorily. On the 30th the wound had healed and he was discharged to duty.

Reviews and Notices of Books.

The Theory and Practice of Military Hygiene. By EDWARD L. MUNSON, A.M., M.D., Captain, Medical Department, United States Army. Illustrated by Eight Plates and nearly 400 Engravings. London: Baillière, Tindall, and Cox. 1901. Pp. 980. Price 32*s.*

THIS is in many respects a remarkable book. It contains such an amount and variety of information that its production represents an enormous expenditure of time and labour as may be well imagined when its author tells us that although no bibliographical index is given some 2700 authorities have been referred to and consulted. The author has not simply depended upon his experiences in the United States army, but he has drawn his material from the history of all armies.

When Parkes, as professor of military hygiene at the Army Medical School, first brought out his work on Practical Hygiene the subject was new, the reduction of the laws of health and hygiene to a scientific basis, and their systematic application to armies in the field, in warfare, in camp, and in garrison, had not been attempted, and his book was consequently at that time an epoch-making one. It conferred an immense benefit on the army and has given rise to a number of lineal descendants in the series of new editions that followed. At the present moment the subject of military hygiene is a vast one which is bound to go on growing in importance. But it will grow also in difficulty of practical application, owing to the diverse channels of infection and the complex nature of the problems which bacteriological investigations have opened out, although these have tended to lend more precision to our aims and scientific methods of unravelling and tracing out disease causes. The author of the volume under review tells us that the more complete works on general hygiene contain much material which has no applicability to the military service and that on the other hand they leave unnoticed a large number of subjects a knowledge of which is of the highest importance to the military sanitarian. This is so. His aim has been to furnish a text book dealing directly with the sanitary problems peculiar to the military service which shall be available not only as a book of reference for medical officers in connexion with their sanitary duties, but also as a practical guide to officers of the line with respect to the care of troops over whom they have control. We may say at once that he has succeeded.

The first two chapters dealing with the Selection and Development of the Recruit contain a lot of well arranged information of an interesting and instructive character. Speaking generally, it may be emphatically said that where the physical standard required of army recruits is high the rates of sickness and death are proportionately low. It is a platitude to state that the health efficiency and mobility of an army greatly depend upon the careful selection of its material in the first instance but the close correlation which exists between the physical and moral development of races and individuals is too often apt to be regarded in the abstract rather than from the concrete and practical point of view. Contrary to the opinion generally entertained the standing army of the United States contains no large proportion of men of foreign birth. Statistically speaking about 70 69 per cent we are told are born in the United States. As in our own service recruits for the regular army of that country are in time of peace mainly drawn from the lower walks of life and the labouring classes, but in time of war and particularly in the volunteer forces all sorts and conditions of men moved by patriotic or military ardour and various motives are attracted to the service. Speaking generally it is found that the better classes of society are also better physically, except in the matter of vision for imperfect or defective eyesight increases with ascent in the social scale. (And here we may parenthetically remark that considering the great advances which have been made in modern arms and warfare the test standard of vision laid down for British officers cannot be regarded as too exacting, on the contrary it should probably be raised or the use of glasses permitted.) As regards the age at which the recruit should be taken—well we must in this country take him when we can get him, but the age at which the British soldier of naturally sound constitution may for the moment be regarded as of the greatest value is probably from 25 to 30 or possibly 35 years of age and Dr Johnson was probably not far wrong in his impromptu birthday lines to Mrs Thrale about life declining after 35 years. Soldiers of all armies during their first two years of service it has to be borne in mind seem to be disproportionately liable to typhoid fever especially those of our own army in India. The chapter on the selection of recruits is full of ancient saws and modern instances drawn from all sources of recent military experience, and that on the development of the recruit which is illustrated by plates showing the stages of improvement under physical training is excellent.

The March in Campaign forms the subject of the next chapter. It may be profitably read and referred to by medical and combatant officers alike but we pass over it to speak more fully of Chapter IV. This deals with Water, not so much in connexion with its bacteriological and chemical side as from a military service and practical sanitary point of view. The subjects of quantity sources storage and supply are first considered then drinking water in its relation to disease and the methods employed for determination of its quality, together with its chemical and bacteriological examination and purification are passed in review. The only safe standard to be aimed at is to secure at first a pure source of water supply free from all risk of contamination and then to keep the water so until it reaches the lips of those drinking it. Unfortunately, this cannot always be done especially in time of war. The subject in connexion with water borne diseases as everyone knows is a very big and a most difficult one to deal with from an army service point of view. The dissemination of the specific micro organism producing typhoid fever is ordinarily—though probably not exclusively—accomplished through the agency of contaminated water. The suddenness of the outbreak and the simultaneous occurrence of a large number of cases are indicative of an epidemic of typhoid fever attributable to water infection whereas in camp epidemics due to defective sanitation the onset is usually much more gradual. Assuming the typhoid bacillus to be veritably and indeed the specific cause of that fever it must have a far wider distribution in nature than is commonly supposed. The elimination of typhoid bacilli by the kidneys affords a ready means of the spread of the disease which has not yet sufficiently engaged the attention of medical officers. The more extended application of Widal's tests and the Ehrlich diazo reaction with Horton Smith's investigations and Sanarelli's experimental results open out new fields for inquiry. The provision transport and exclusive use of boiled water on field service are apparently impracticable. Pasteur Chamberland filters have not proved altogether satisfactory or sufficiently durable for campaign work. The subject of the prevention of enteric fever in war it must be confessed bristles with practical difficulties at the present time. Many more or less elaborate forms of apparatus for the sterilisation of water by heat have been designed. Vaillard and Desmaroux's apparatus for example is a very ingeniously contrived and effective steriliser, but it has not all its parts accessible for repair and is too costly and intricate in construction and not sufficiently portable for field service. The Waterhouse Forbes water steriliser is very fully described and highly commended at pages 138 *et seq.* of the volume under review. It is portable can be taken apart and made into bundles so that two such sterilisers can be carried on a pack mule, and it is alleged to be very efficient and economical. As the result of exhaustive experiments the Waterhouse Forbes apparatus was officially recommended as being superior to any other filters or water sterilisers submitted for trial in the United States and as being well suited for the abundant supply of sterile cold water to troops. A sample of the new and improved apparatus should we think be obtained from America and tried in this country and also in South Africa at the present time. Chapter XX., on Diseases of the Soldier (page 674 *et seq.*) may well be read in connexion with the chapter about Water for in it will be found a very full and up-to-date notice of typhoid fever. The subject of malaria is of course dealt with in connexion with the results of recent researches in proof of the Manson Ross theory. The author does not discard water as a possible cause or vehicle of malaria. What has now we think, to be ascertained is whether the malarial parasite has any extra corporeal phase of existence which has yet to be discovered.

The fifth chapter on the Ration of the Soldier is an admirable one and no other work with which we are acquainted contains the same amount and variety of information. Passing over Military Clothing and Equipment we come to a chapter on Camp Sites and Camps and the sanitary administration of the latter and then on to the Barracks Quarters and Hospitals in which the subjects are practically handled and accompanied by numerous illustrations. Touching the question of hospital tents we may call attention to the Munson hospital tent (page 900) and refer-our readers to a brief description of it as adopted by the medical department of the United States army and shown at the Pan-American Exposition at Buffalo (*vide* The Lancet, Sept. 14th, 1901, p. 750). Ventilation in connexion with cubic space and superficial area, heating and lighting, and the influence of these on health and disease, are adequately and judicially considered. We are glad to notice that in the barracks now being constructed in the United States provision will be made for an allowance of from 660 to 720 cubic feet per head, but it is very properly added that it should not be assumed that no further improvement is desirable in this respect. "From what has been said establishing the floor space at about 85 feet per man and the height of the room at from 11½ to 12 feet, it follows that the amount of cubic air space which should be available is, in round numbers, 1000 cubic feet." This amount agrees with theoretical standards based upon the results of a considerable number of experimental observations. Cubic space is a matter largely governed by financial considerations, but these have not the same prohibitive effect in a rich country with a relatively small army, which is the position of the United States. The allowance in the British army of 600 cubic feet per head is, it is needless to say, too small to admit of anything like 3000 cubic feet of fresh air per head per hour passing through without making the barrack-rooms altogether too cold and draughty. We do not find any allusion as to the introduction of the cubicle system into the soldiers' barracks of the United States army, about which much has been said of late, but these observations have, of course, a very direct bearing on the question, and on the problem of ventilation under the new and altered conditions which will be brought about by that system.

The chapters on the Disposal of Excreta, Sewage, and Refuse, and the Personal Cleanliness of the Soldier, do not call for special notice: it is sufficient to say that they are good and full of information. Chapters XIV. and XV. on Military Mortality and Morbidity and on Diseases of the Soldier respectively strike us as being unusually full and complete and well put together, and the same may be said of the chapters on Disinfection, the Habits of the Soldier as Affecting Efficiency, and the pertinent and useful remarks on Sanitary Inspections. The author's remarks on the prevalence of venereal disease in armies are very sensible and well worth reading. There is, after all, as it seems to us and as we have always maintained, nothing which has any real influence on the incidence of these diseases except sanitary control of them.

The work is profusely illustrated, well indexed, and well printed and got up. It is scarcely necessary to add, for it will be seen from all we have said, that we have formed a high opinion of this book. It is what it pretends to be, and the author has spared no pains in his efforts to collate and to analyse information from all available sources and to bring it up to date, while putting his own stamp upon it by setting forth at the same time his own views and the results of his own experience. We can heartily commend it as a very valuable, if not indispensable, book for army medical officers and all interested in the theory and practice of military hygiene. Captain Munson and the Medical Department of the United States Army are to be congratulated on its appearance.

Handbook of Public Health, Laboratory Work, and Food Inspection. By O. W. Andrews, M.B., B.S. Durh., D.P.H. Camb., Staff Surgeon R.N. London: Baillière, Tindall, and Cox. 1901. Pp. 292. Price 7*s.* 6*d.*

This work is divided into three parts, a classification based upon lectures delivered by the author to the surgeons under instruction at the Royal Naval Hospital, Haslar. In Part I. the main points to be observed in the inspection of fish, flesh, and fowl intended for human food are considered. The characteristic feature of this part of the work is a series of excellent illustrations of fishes (poisonous and non-poisonous). The inspection of carcasses and of meat and a discussion of the humane methods of slaughtering occur in the section dealing with parasitic diseases. Part II., which is the longest section in the book, is devoted to the chemical analysis and examination of water, air, milk, and other foods, wines, and the like. So far as we have examined the analytical processes described we have found them reliable. This is due to the author's evident familiarity with the literature dealing with modern methods of analysis. He quotes methods of food analysis which have appeared from time to time in the *Analyst* and refers to the work of many well-known analysts. Microscopic illustrations are given of the various starches. In the chapter on Wines the author draws largely from the report of The Lancet Commission on Sherry which appeared in The Lancet of Oct. 29th, 1898, p. 1135. Part III. contains a description of the relationship of meteorology to disease and the author includes an account of meteorological phenomena sufficient for the needs of the student studying for the Diploma of Public Health. It includes a description of the meteorological instruments used in weather forecasts. The bacteriological portions of the work are somewhat brief, but the author has selected certain essential points for fuller treatment, as, for example, the tuberculin test and the bacteriological examination of water. The book has been written with an evident regard to the needs of those studying for public health diplomas and great care has been taken to make the compilation reliable. We believe that the medical student will find Dr. Andrews's hand-book on public health work an excellent practical guide.

Handbuch der Toxikologie. Von Professor A. J. Kunkel. Volume II. Jena: Gustav Fischer. 1901. Pp. 1100. Price 12 marks.

The handbook under review constitutes the second and final volume of Professor A. J. Kunkel's important work on toxicology. As in the first volume an arrangement has been adopted which is founded on the chemical constitution, and not on the special action of the toxic bodies with which this work is concerned. In view of our limited knowledge as to the relationship between chemical constitution and physiological action this is probably the only feasible and rational arrangement, although in the interests of toxicologists, who may have frequent occasion to refer to these pages for information on matters of detail, an alphabetical arrangement in dictionary form would have had much to recommend it. Although the author has experienced considerable difficulty in assigning to their respective chemical departments, and in defining the exact differences between, the closely related decomposition products of exogenous and autochthonous origin it must be admitted that the distinctions have been satisfactorily enforced without unnecessary overlapping or repetition of facts.

In view of the interest which, owing to the researches of Mott and Halliburton, has been recently centred on the subject of the choline group of ptomaines or leucomaines, we naturally turn to the pages devoted to this subject by Professor Kunkel. Choline itself is chiefly considered as a product of extraneous decomposition, being one of the first bodies to appear and one of the first to disappear in the process of prolonged decomposition of nuclein containing substances of animal origin. It has a wide distribution in the animal body, but is chiefly regarded as originating from the contents of the bowels. Its *spontaneous* appearance apart from the action of bacteria is admitted, though its pathological significance in the chemistry of nerve degeneration is not referred to and its toxic action is stated to be very feeble To the physiological action of peptones considerable space is devoted, while the numerous false deductions which have been based on their supposed toxic action are fully considered, and where necessary refuted Taking all available evidence into consideration, the author inclines to the belief that the majority of the early experiments which were conducted to establish their toxic properties were unreliable for the reason that the presence of toxalbumin was not excluded. Pure peptones free from albumoses, when injected directly into the circulation, apart from causing an immediate fall in the blood pressure, exercise no seriously toxic influence on the animal function, and further, if the injection of peptones be confined to the descending aorta so that some time must elapse before the injected material can reach the chambers of the heart, even this temporary fall in blood pressure can be avoided It seems that peptones are rapidly destroyed or organised as they circulate in the blood stream The poisonous properties of other bodies belonging to the albumose or proteose group, including snake poisons are exhaustively dealt with, but little or no reference is made to any possible chemical or molecular distinction by which it may be eventually possible to differentiate between the toxic and non toxic varieties This speculative side of the question although a matter of extreme interest to physiologists is perhaps justly regarded as outside the scope of a handbook of toxicology On the other hand, we cannot help thinking that such important bodies as albumoses should not have been left without some sort of a definition

We make no attempt to give an adequate idea of the amount of ground covered by the second volume of Professor Kunkel's "Toxicology" Practically speaking, all bodies containing carbon in their elementary composition and possessing toxic properties of any importance find a place in this very exhaustive and accurate work of reference. The index has apparently been compiled with great attention to detail, so that those who seek special information can do so without previous knowledge of the chemical group to which the body they are searching for belongs

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The Physiological Action of Drugs By M S PEMBREY, M A., M D Oxon., Joint Lecturer on Physiology in Guy's Hospital Medical School, and C D F PHILLIPS M D LL D Aberd., Examiner in Materia Medica and Therapeutics in the University of Aberdeen London Edwin Arnold 1901 8vo Pp 100 Price 4*s* 6*d*

ALTHOUGH the authors of this manual modestly describe it as an elementary work the experiments given in it which should be carefully executed by the student will form a good introduction to the investigation of the action of medicines upon the living human subject The most earnest antivivisectionist can hardly take exception to operations done and medicines administered to frogs the brain and spinal cord of which have been destroyed and it is now known that much information can be gained from such mutilated animals The introductory experiments explain the method of pithing a frog and the mode of applying electric and thermic stimuli to the muscles and especially to the heart Numerous tracings are given showing the effects on muscular contraction and on the cardiac beats of the administration of distilled normal saline solutions of tap water saline solutions, and of solutions in distilled or tap water of alcohol, ether, chloroform chloral hydrate, strychnine hydrastin, morphine, caffein curara nicotine cocaine, pilocarpine, muscarine, veratrine, digitalin physostigmine and extract of suprarenal gland The tracings show the effects described in the text very clearly The book will prove useful if the student remembers that whilst the action of the above named drugs on nerve muscle and heart is satisfactorily demonstrated by the tracings, these tracings do not explain the peculiar action of the several drugs on the animal economy, for example no attempt is made to say why hydrastin acts as a purgative or morphia causes sleep The tracings lead the physiologist to draw inferences that are probably correct but they do no more

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LIBRARY TABLE

A Short Manual of Inorganic Chemistry By A DUPRÉ Ph D, F R S, F I C, F C S, and H WILSON HAKE Ph D F I C, F C S *Third edition.* London Charles Griffin and Co, Limited 1901 Pp 406 Price 9*s* —The authors adhere to the dry as dust method of teaching chemistry presenting general principles before facts and maintaining that general principles can be clearly comprehended by a student who has no previous knowledge of chemistry whatever That may be so in isolated examples, but on the whole we do not believe this to be the best plan. The student's interest in chemistry should be first aroused and his powers of observation stimulated, and this is best done by the practical rather than the mathematical method Surely a student is attracted to his subject better by what he observes than by what he reads. Experiments are more likely to engage the interest of the majority of students than hieroglyphics on the black board Besides many experiments may be conducted showing approximately that definite quantities are concerned in the various inter actions as in double decomposition and thus the way to theory is opened up This method seems to us naturally to invoke the spirit of inquiry in the beginner, chemical fundamental laws will come to his assistance later The authors' method will doubtless appeal at once to students of a mathematical bent but in most classes this kind of student is not the rule The descriptive matter in the book before us is excellent and up-to-date The plan under which the elements and compounds are described is also good A note on the Physiological Action of the Elements and their Compounds is an important addition to a book intended evidently for medical students The feature of the work is the adoption of the periodic system of classification a step which is scientifically correct Considering the limitations of the book the authors have made the most of their opportunity, presenting a short manual bristling with facts, and in which practical and theoretical considerations are intelligibly put

Studies from the Royal Victoria Hospital Montreal Vol I No 1 (*Ophthalmology* I) By W GORDON M BYERS M D, assistant oculist and aurist, Royal Victoria Hospital, Demonstrator in Ophthalmology McGill University Toronto Carveth and Co 1901 8vo pp 82.—The subject of the first essay of the first volume of 'Studies from the Royal Victoria Hospital of Montreal' is on the Primary Intradural Tumours of the Optic Nerve or Fibromatosis Nervi Optici and constitutes a valuable addition to our knowledge of a rare form of disease Dr Byers himself has had two cases under his care the details of which he gives and has collected notices of no less than 153 cases described by different authors in our own and in continental literature Such tumours appear to be more frequent in women than in men and to be often due to traumatism or to infectious febrile disease In regard to their pathological character a large proportion were of the nature of sarcoma myxoma myxo-sarcoma fibro-sarcoma and myxo-fibroma which collectively represent nearly 60 per cent of all the cases Whilst removal is to be recommended every effort should be made to keep the globe in position We have much pleasure in recommending this essay as a typical monograph and great credit is due to Dr Byers for his valuable contribution to ophthalmology.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 21, 1901.

The Outbreak of Small-pox in London.

THE reappearance of small-pox in London, and its prevalence in St. Pancras at the present time, lead us to consider the probability that for some years we shall be liable to more frequent visitation from this disease than we have experienced for a considerable period. It is now 30 years since the great epidemic of 1871, which extended over Europe and especially affected London, killing in that year as many as 7912 persons in the metropolis. In 1872, 1877, and 1878 the death-rate from small-pox exceeded the mean of the period 1841-99 and again in 1881, 1884, and 1885, since when only in 1893 did more than 100 deaths from small-pox occur in any one year. There is much reason for thinking that we need not anticipate during coming years any such mortality as that which occurred in 1871, the causes of which have been made clear by Mr. W. H. POWER's study of the distribution of the disease in the neighbourhood of the metropolitan small-pox hospitals. The lesson which the Principal Medical Officer to the Local Government Board taught the medical profession and the public, and which led to the removal of cases of small-pox out of London, will not be forgotten, and London will not experience again such a visitation as that of 1871. Nevertheless, the period has come when small-pox may be expected to be more prevalent, recurring at intervals with increasing severity until a maximum is reached, after which the disease will again decline—as after 1871.

Last year small-pox showed a tendency to increase, some 70 persons in London being attacked. Its prevalence and distribution during the present year can be learnt from the tabular statement which the weekly returns of the Registrar-General now contain. During the first six months 14 cases were notified and they occurred in 10 of the metropolitan boroughs. Since the middle of June cases have occurred in London in each week, a marked prevalence manifesting itself in St. Pancras in the week ending August 24th and extending into the neighbouring boroughs of St. Marylebone and Holborn. The number of cases notified in London in that week were 22, followed by 60 in the following week, then by 27 in the week ending Sept. 7th, and by 53 in the week ending Sept. 14th. The original focus appears to have been a group of streets occupied by poor persons on the borders of St. Pancras and St. Marylebone, but the disease is now extending into more remote districts. The fatality of the outbreak cannot yet be stated, but it is known that London has received small-pox from Paris and that the disease has appeared in the hæmorrhagic form; and in this connexion it will be recollected that the small-pox of 1871 appeared to have travelled from the continent. And while London is now free from the risks of aggregation of cases of small-pox in its midst it has a new danger to reckon with in the number of young children who, since the appointment of the Royal Commission on Vaccination, have escaped the protection which vaccination affords. For some years, so far as the published figures show, from a quarter to one-third of the children who have been born in London have "not been accounted for" in respect of vaccination. In St. Pancras and St. Marylebone the number of children not known to be vaccinated fails to reach this proportion, but in the unions of Bethnal Green, Hackney, Mile End Old Town, and Shoreditch the proportion has been far greater, the returns of the Local Government Board for the year 1897 showing 71·7 per cent. "not accounted for" for Bethnal Green, 70 per cent. for Hackney, 63 per cent. for Mile End Old Town, and 67·4 per cent. for Shoreditch. The extension of small-pox into these districts might therefore be attended with considerable loss of child life. A further danger is undoubtedly due to the fact that the comparative absence of small-pox from London in recent years has prevented many of the younger medical practitioners from having experience of its appearances, and in its mild form it is not unlikely to escape recognition. Indeed, we understand that an unrecognised case of small-pox from Paris in the early summer is believed to have been responsible for a hæmorrhagic case which received infection from this source. This obvious danger has led to a suggestion by Mr. WYNTER BLYTH that the Metropolitan Asylums Board should publish illustrations of actual cases for the information of those practitioners who have not had experience of the different appearances of the disease.

The machinery which now exists for the protection of the community against small-pox by vaccination is calculated to cause difficulty by leading to neglect of vaccination during periods of absence of small-pox, while there will be greater need of the services of the public vaccinator during times of prevalence. The efficiency with which the vaccination of persons in invaded houses and localities can be effected is certain to be prejudiced by the fact that there is still separation between the health authority and the vaccination authority. The medical officer of health may bring to the knowledge of the vaccination officer every case of small-pox which is reported to him, but the vaccination officer is not under his control or that of the authority he serves, and between such act on his part and the appearance of the public vaccinator on the scene there is room for failure. The concentration in the hands of the health authorities of all the functions concerned in the prevention of small-pox is, we think, needed. Similarly an intimate relation between the health authority and the board school authority is urgently required. The part played by school attendance in giving opportunity for the spread of infectious disease, of diphtheria, scarlet fever, and measles, is now well-recognised, and the increase in the number of unvaccinated children may not unlikely lead to school attendance acting in a somewhat similar manner in the distribution of small-pox. The health authority can now require the exclusion from school of particular children and, if it is thought necessary, the closing of a school. The interest of the school authority is undoubtedly to prevent any interruption of the education of the children in their charge, and they could in respect of small-pox do much in the direction of prevention if they would allow the condition of the children as to vaccination to be ascertained at the school. It is stated that a request that they should do this has been made to them, but as yet no reply has been received. While in Germany the enforcement of the vaccination law practically hangs on school attendances, in England no such position exists. The difficulty indicates the need for some closer alliance between the health and education authorities; and it is thought by some possible that this will eventually be effected by the creation of the county councils as education authorities. In the meantime we sincerely trust that the London School Board will do everything in its power to give facilities for the stamping-out of the small-pox which threatens London at the present time, and which not unlikely may spread from London to other parts of the country.

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The Work of the Government Laboratory.

THE Government Laboratory has developed into one of the most active institutions under official control. Judging from the last annual report which has just been issued it would be difficult to imagine any administrative work of a more miscellaneous character than that carried out under the direction of the principal Government chemist, Dr. T. E. THORPE. The Admiralty, the War Office, the Board of Agriculture, the Board of Trade, the Home Office, the India Office, the Local Government Board, the Post Office, Trinity House, and the Inland Revenue Office (one of the most important of all consultative departments from a State point of view), all freely seek the advice of the Government chemists in Clement's Inn. The number of samples referred to the Government Laboratory under the Sale of Food and Drugs Act, and involving analytical inquiry, is a comparatively insignificant item in the programme of work. During the past official year not more than 78 samples were so referred, and 72 per cent. of the certificates of analysis furnished by public analysts were upheld. This function of the Laboratory has not been lost sight of, but the far-reaching nature of the duties now undertaken by the institution make it appear comparatively unimportant.

The events of the year included between March, 1900, and March, 1901, conspired to throw considerable pressure upon the work of the Government analysts. The continuation of the war, for example, easily accounts for the increased number of samples that were submitted by the War Office, a regular weekly supply of samples having been examined which involved the temporary increase of the Laboratory staff. It is satisfactory to know that the systematic examination of samples of food and drink, representing supplies delivered by contractors for army use, has had an excellent effect in raising the average quality of such articles, besides in some instances lowering the cost. Many of the samples thus submitted proved to be adulterated, amongst them being butter, baking-powder, cocoa-paste, mustard, jam, and marmalade—we do not exhaust the list. The India Office has also submitted samples for control to the Government Laboratory. As illustrating the advisability of such a step the following may be quoted. The India Office ordered 23,000 tins of condensed milk on one occasion which was conditional on the milk containing not less than 10 per cent. of butter fat. On examination of several tins the percentage of fat was found to range from 8·71 to 9·12. Considerable analytical work was done on behalf of the Local Government Board in connexion with public health matters during the year, while in two directions extraordinary help has been rendered by the institution to the country. The Departmental Committee appointed to investigate the use of Preservatives in Food had the assistance of the Government chemists. Dr. THORPE states in the report that the labours of this Committee are approaching conclusion and we believe that a provisional report has been drawn up. Again, the appointment of the Royal Commission on Arsenical Poisoning, which had its origin in the disasters caused by the use of poisoned beer in Manchester and one or two other centres, threw extra work this year upon the Government Laboratory. The results of the examination of a great number of samples of brewing materials, wort, and beer were communicated to the Royal Commission, of which Dr. THORPE was a member, and these results were of the greatest assistance to the Commissioners. Further experiments of a valuable kind have also been conducted in the Government Laboratory during the past year as to the solubility of lead frits used in glazing. Later a Departmental Committee was appointed by the Board of Agriculture to inquire into, and to report upon, regulations for the sale of milk and cream, and the results of a great number of analyses of these products conducted in the Government Laboratory were available for the consideration of this Committee. Information of a valuable kind relating to the methods of analysis was thus obtained, and standards of quality or composition in regard to milk were ultimately recommended which passed into lawful requirements on the first day of this month.

It is evident from all this that something more is done in the Government Laboratory than the mere routine demanded by the great Government departments of Customs and Excise. In these latter departments, however, most excellent work is being done in detecting and checking ingenious but fraudulent practices. Of course, this work of scientific detection is conducted principally for safeguarding Revenue interests, but this often means also the protection of the consumer. For example, there are certain ingredients the addition of which to tobacco is deemed illegal; and of 32 fluids examined this year, comprising oils, flavouring substances, and preservative liquids, it was reported that 13 could be legally used in manufactured tobacco, but that 19 were illegal. In one glaring instance the manufacturers of a preservative solution were fined the full penalty of £200 for supplying the illegal fluid to a tobacco manufacturer. Of 61 samples of tobacco taken from manufacturers for analysis 17 were found to be genuine. 11 of the adulterated samples containing either liquorice or glycerine. Rather more than one-half of the samples contained salicylic acid used in the "liquoring" water. In one instance a seizure was made at a factory where the acid was found ready for use with tobacco and penalties were imposed amounting to £240. An ingenious design to give tobacco the appearance of being moist seems lately to have grown into practice. It was observed that occasionally some specimens of roll and cake tobacco which from a physical examination seemed to contain moisture in excess of the legal limit actually contained moisture considerably below that limit (30 per cent.). The apparent anomaly was soon explained by the fact that the appearance of such tobacco was due not to excessive moisture but to oil. The oil used was olive oil. It is interesting to consider in what way the addition of olive oil or salicylic acid to tobacco would affect the smoker. Conceivably the smoke from such tobacco would contain injurious members of the acrylic and phenylic series. It is satisfactory, however, to know that a legal limit in regard to the addition of oil has been made, while salicylic acid (which is probably employed to prevent mildewing or fermentation) has been interdicted altogether. In the returns recording the tobacco exports the figures are remarkable in showing how increasingly popular is the practice of smoking cigarettes, while it is also shown that the consumption of British-made cigars is increasing abroad. The large increase in the number of consignments of tobacco exported "on drawback"—i.e., without having paid duty as imports on this side—is due to the shipments for the use of the troops serving in South Africa. We are reminded here to notice another ingenious expedient of avoiding the demands of revenue. The plan in question is had recourse to in connexion with the exportation of medicinal tinctures, flavouring essences, and perfumes "on drawback," but it has been brought to light and effectually checked As is well known, the rate of duty on the spirit present in tinctures, essences, and perfumes is very small as compared with that on spirit intended, or capable of being used, for potable and other purposes. To avoid payment of this higher rate of duty orders are occasionally sent from abroad to include in the consignment considerable quantities of alcohol coming under the category of tinctures and perfumes or essences which are so slightly coloured or flavoured as to be available for other purposes. By a similar device it is attempted to supply wood naphtha for methylating purposes or for "spoiling" alcohol, but which proved to be much too pure to be suitable for the purpose.

The total number of analyses and examinations made at the Government Laboratory in the past official year was no less than 72,422. equal to about 230 samples per working day. This is a most creditable performance and one which we may safely attribute to the energy and skill of Dr. THORPE and to his well-known administrative capacity. To him largely has the present excellent organisation and equipment of the new Government Laboratory been due. And in this record of the past year's work may be found evidence of the fact that Dr. THORPE finds time, in spite of the great number of technical operations conducted, to undertake pure scientific inquiry. As illustrations of this may be mentioned the investigation on the exact composition of lead silicates for glazing ware, and a research directed to the isolation and recognition of the poisonous principle in yew trees.

The Death of President McKinley.

IT has been said that no injury of the skull is of so little moment that it can be neglected, and that none is so severe that it need be despaired of, and this is almost equally true of wounds of the abdomen. And as this fact influences our prognosis at the moment of infliction of an abdominal wound, so it should influence our prognosis until health is fully restored. In no part of the body are sinister surprises more likely to be met with than in the abdomen. Patients who have progressed, and are progressing, most favourably cannot be considered to be out of danger until they have ceased to be patients. The dangers and pitfalls are many. Great as is our knowledge to-day of the injuries of the abdomen, many as are the resources of the surgeon, skilful as may be his operations, yet there are elements in any case of abdominal injury which may render in vain all his knowledge, his resources, and his skill. A fatal result after an abdominal operation for injury may ensue from many causes. In the forefront stands sepsis; this is by far the most common, and therefore the most important, cause of death in these cases. Infection may have occurred, and indeed generally does occur, at the time of infliction of the injury, or at all events before the surgeon sees the patient; or it may take place in the course of the operative procedures: or later. Only second in importance to sepsis comes shock. The nervous supply of the abdominal viscera is so extensive that comparatively slight injuries may be followed by such great depression of the heart's action and of the vaso-motor centre that the patient cannot rally. Shock is of chief importance for the first few hours after the injury, but for many days, or even weeks, the vital powers are depressed, and this depression if not sufficient of itself to cause death, may lend its aid to other harmful influences. Hæmorrhage, too, is a common cause of death in these cases; and even if the patient survives, the depression resulting from loss of much blood may be felt for months or years. When in an injury of the abdomen a hollow viscus is perforated a further danger appears. The extravasation of the contents will not merely introduce further sepsis, but will also add the irritation resulting from the chemical nature of the extravasated material. Among so many rocks on which he may be wrecked it is not strange that the surgeon cannot always steer his patient into safety. To the surgeon practised in abdominal surgery all these facts are well known, and he will be the least surprised at the result which may follow in any abdominal case who has himself performed operations on the abdomen.

President McKINLEY was a man, past middle age indeed, but still in good health Abstemious in living and devoted to study, he lacked physical exercise. He was shot by a revolver, and the bullet entered the abdominal cavity, passing through both walls of the stomach, injuring the pancreas slightly, tearing the upper end of the kidney, and lodging in the deep muscles of the back The official report of the medical men attending the necropsy stated:—

> "The bullet passed through both walls of the stomach near its lower border. Both holes had been found to be perfectly closed by the stitches, but the tissues around each hole had become gangrenous. After passing through the

stomach the bullet passed into the back walls of the abdomen, hitting and tearing the upper end of the kidney. This portion of the bullet track was also gangrenous, the gangrene involving the pancreas. There was no sign of peritonitis or disease of other organs. The heart walls were very thin. There was no evidence of any attempt at repair on the part of nature, and death resulted from gangrene which affected the stomach around the bullet wound as well as the tissues around the further course of the bullet. Death was unavoidable by any surgical or medical treatment and was the direct result of the bullet wound.

In considering the reason or reasons of the *fatal issue* of the case we may leave out of consideration the bullet itself; where it was lodged it could do no harm and time and the patient's strength would have been wasted in searching for it. The injury to the kidney also appears to have been of but little moment and need not be further considered. The damage to the pancreas was probably unimportant, though it has been suggested that the escape of pancreatic juice may have caused, or assisted in causing, the "gangrene" of the bullet track described in the account of the necropsy. This is hardly likely as the "gangrene" was found also in the wounds of the stomach wall. The peritoneum and the wounds of the stomach remain to be considered. There seems to be no evidence that at any time was there any peritonitis, and this was confirmed by the *absence of leucocytosis, the blood having been examined* several times during the patient's life. It does *not appear* from the account of the necropsy that any bacteriological examination was made of the peritoneal wall or fluid. Still we shall probably not be wrong in assuming that no peritonitis was present. The empty condition of the stomach prevented extravasation occurring, at least to any great extent. The wounds in the stomach wall were sutured with a minimum of delay and apparently no leaking occurred. How shall we account for the "gangrene" of the margins of the wound? There is no need to suspect any poisoned bullet, and the supposition that such a bullet was used was probably due to the fervid imagination of a reporter, not unwilling to pile horror upon horror. It is by no means rare to find after revolver *wounds of the stomach wall that but little attempt at* repair is made. This is to be attributed in part to the local action of the gastric juice and in part to the patient's general state. The pathological condition has been met with before and will doubtlessly often occur again. Surgery does all of which it is at present capable. The wound is carefully sutured and the peritoneal cavity is aseptic, and yet healing does not occur. The bruised gastric wall has not sufficient vitality to recover and it makes no effort.

The favourable prognosis which was put forth at first was so far justified that in some cases recovery might have followed, but the issue hardly comes as a surprise. The injuries were terrible, the patient was no longer young, and the circumstances were such as to produce even in a man of *iron* courage the maximum of shock. If we may venture to criticise any portion of the treatment we feel inclined to suggest that the feeding by the mouth was somewhat in excess of that which is usually considered advisable. But while we say *this* we *know that to the* brilliant surgeons and experienced physicians around President MCKINLEY's bed there may have been indications for the bolder treatment impossible to be disregarded. In short on a careful review of the whole case we feel justified in saying that surgery did its best; the sad result is to be ascribed to the lack of vitality of the tissues themselves.

Annotations.

"Ne quid nimis."

CHRONIC INVALIDISM IN WOMEN

THE frequency with which the condition of chronic invalidism known as neurasthenia is met with at the present *time is a matter of much interest*. *Dr Playfair* has done well in calling attention to this most important class of cases in his lecture upon Chronic Invalidism in Women published in the present issue of THE LANCET. As he truly points out it is only of recent years that the real nature of the disease has been recognised and unfortunately even to-day it not uncommonly happens that a well marked case of nervous exhaustion is sent to the gynæcologist because the medical attendant regards some local condition as the source of the whole mischief. This is more likely to happen when the practitioner's experience of general practice has not been of long duration and we do not see how it can be prevented. The complete ignorance of students with regard *to such cases is well known. The condition is one that* receives but scanty notice from the lecturer on medicine while the obstetric physician has too much to treat of in his short course of lectures to devote any time to a subject which is really no part of his particular branch. The result is that many students enter upon their career with but vague conception of what a case of neurasthenia really is and with no idea of the proper mode of treating such a case when they meet with it. To Dr Playfair more than to any other teacher is due the *credit of having devoted much* attention to these cases and he was the first to bring before the notice of the profession in this country the brilliant results to be obtained by the judicious use of the Weir-Mitchell method of treatment. Unfortunately, the method has been misapplied and abused, and the result is that some men are inclined to condemn it unduly and hastily. That it is capable of giving good results there is abundant evidence to show, but as Dr Playfair points out it requires to be supplemented by qualities *on the part of the* medical attendant and the nurse in charge which are only too often absent. The expense, too, inseparable from the treatment is in many instances a bar to its employment. *Fortunately* the great majority of such cases belong to the better classes but it is a mistake to suppose that neurasthenia or chronic invalidism is never met with amongst poor women; it does occur and in such instances the prospect of cure is of the most remote character. Dr Playfair has clearly pointed out the main conditions that tend to produce this disease. The stress and worry of modern life have much to answer for, and although it is true that most of such strain falls upon the male members of the community, yet there are many women who have to bear their full share and indeed often more than their full share of the troubles of life. Mental worry is a most important etiological factor and we are inclined to think that the fact that many women, owing to the disproportion of the sexes in this country, are condemned to the task of earning a livelihood and *of fighting* their own battle in life is a cause that cannot be overlooked. Whatever the etiology may be the condition when recognised is not difficult to treat properly and the results are most satisfactory. *Dr Playfair* is perhaps inclined to be a little optimistic about the chances of relapsing cases. Many patients are unable to carry out the course of after-treatment which he recommends and returning to their homes long before they should resume their life in the midst of the very surroundings which originally produced their break-down. We may well hope, in view of the greater stress laid upon the physical culture of young girls in the present age and the undoubted improvement in their physique that has resulted, that the number of cases of neurasthenia may diminish. But even here it is necessary to utter a note of warning. Women are too apt to forget that the pursuit of various athletic exercises calls for an amount of what we may call preliminary training upon the part of the muscles which in the case of many young girls is entirely wanting. Unless, like their young brothers, they have been brought up to exercise their muscles from their earliest days, the attempt to take an active part in the many manly games that are so in vogue at present at the large girls' schools in this country not uncommonly leads to disaster. The great benefits that will result from the pursuit of various outdoor games is undoubted, but at the same time the pleasure and excitement of the game and a healthy desire to emulate the feats of their older and often stronger companions lead many young girls, unless judiciously restrained, to tax their strength to an undue degree and to acquire only harm from what in moderation could not fail to be of the greatest possible benefit to them. Physical over-exertion as well as mental over-strain are equally to be avoided if cases of nervous exhaustion are to be banished from the catalogue of diseases.

A PROVINCIAL MEDICAL LIBRARY.

THE library of the Bristol Medico-Chirurgical Society, together with that of the Faculty of Medicine of University College, Bristol, forms the Bristol Medical Library with altogether over 20,000 volumes. Mr. L. M. Griffiths, M.R.C.S. Eng., is the honorary librarian, and at the last annual meeting of the Library Association he read an interesting paper entitled, "Some Things of General Interest in the Bristol Medical Library," a reprint of which paper has been forwarded to us. The paper deals chiefly with Bristol as a health resort and the reputation which it gained owing to the Hotwells at Clifton. The medical profession seems to have been rather at a discount, for, according to an author named Owen, who wrote a book about the Hotwells, "it were well if those gentlemen's fees were all the ill that sometimes attend their officious services." The water of the well was much affected by the great earthquake at Lisbon, and people, thinking that the end of the world was upon them, "flew to the churches, where prayers were offered to avert the apparent approach of their destruction." The water of the Hotwells was exploited in London by Dr. D. W. Linden who also practised in Clifton during the summer. He published a book on the subject which was prefaced by a poetical panegyric on himself written by a friend. This "poem" was in the very best style of "The Loves of the Plants," or perhaps we should say "The Loves of the Triangles." Mr. Griffiths quotes the following:—

"And when no more these *Earthly Streams* afford
That Health to him, to others they restor'd;
When Galen's Sons shall his sad Loss deplore;
His Skill, in Consultations, reap no more.
When the *Castalian* Nymphs, in Mournful Tale,
The *Universal Friend's* Departure wail;
Seraphs, to deck them, and emblaze his Fame,
Shall o'er the Skies bespangle *Linden's* name;
In glittering Characters, it there shall shine,
A *Constellation* in the *Watry* Sign·
While, bath'd in Bliss, he wafts at full Content,
In *Heavenly Streams*, above the Firmament."

This is something like advertisement. Among other interesting matters Mr. Griffiths gives a list of the holidays granted to Government officials at the Custom House and elsewhere. It is a curious list, containing such diverse "feasts" as All Souls' Day, the landing of William of Orange, the landing of George I., and the burning of London. It is of interest to find All Souls' Day officially commemorated at the end of the eighteenth century, and if we remember right the day is still commemorated in the Oxford almanack. In 1798 Dr. Beddoes opened a pneumatic institution for the treatment of disease by inhalation where his assistant was Humphry Davy who while at work discovered the properties of nitrous oxide. We hope that Mr. Griffiths will continue his researches into the treasures of the Medical Library, for he has a keen eye for the curious.

METROPOLITAN HOSPITAL SUNDAY FUND: ILLNESS OF MR. CUSTANCE.

AT a special meeting of the council of the Metropolitan Hospital Sunday Fund, held at the Mansion House on Sept. 11th, the Lord Mayor presiding, a letter was read from Mr. Henry N. Custance stating that on account of failing health he tendered his resignation of the office of secretary which he had held for 28 years. The council decided to give him six months' further leave of absence from Nov. 1st next, in the hope that at the expiration of that period he would be able to resume his work. Several speakers, including Sir Sydney Waterlow, who as Lord Mayor in 1873 founded the Fund, bore testimony to the admirable manner in which Mr. Custance had performed his duties.

THE CHEAP PISTOL.

THERE is an aspect of the murder of President McKinley which we sincerely hope will not be lost sight of by the Legislature either in our own country or in the United States. Only a few weeks ago[1] we called attention to the number of crimes committed in England with the cheap pistol, pointing out that it is of no use either as a sporting weapon or as a protection against violence, but is only a source of danger to citizens and a temptation to the reckless and weak-minded; while we protested against the idea that the trade in such articles was one worthy of protection or consideration. A more lurid illustration of our arguments could not have been found than the recent hideous, meaningless, and miserable crime at Buffalo. We have seen no details as to the nature of the weapon employed by Czolgosz, as to how he obtained it, or what he paid for it, but that it was what we denounced as a "cheap pistol," such as can be bought without let or hindrance for a few shillings by any schoolboy, lunatic, or criminal in this country or in the United States, we have no kind of doubt from what happened. Two shots were fired within a foot or two of the victim. One bullet did not even reach the body; the other, encountering soft tissues only, did its deadly work of laceration among them, without having sufficient energy imparted to it to pass out. We have no information, as we have said, concerning the way in which the murderer bought his weapon, but we have no hesitation in asserting that had the only revolver allowed to be sold or carried in the United States been a weapon of heavy calibre, such as is issued to the army or the navy, and had such a weapon, moreover, been subject to an appropriate duty when sold to a civilian—even without further restrictions being placed upon its purchase—either it would have been beyond the means of Czolgosz to obtain it, or he would not have been able to possess it without exciting remark. Such a weapon, moreover, would have been difficult to carry and almost impossible to draw and handle in the presence of detectives without attracting immediate attention. With precisely such a cheap weapon as we have denounced our own monarch's life was attempted upon the continent shortly before his accession, and now we have seen in the death of the President of the

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[1] THE LANCET, July 27th, 1901, p. 220.

United States what such a weapon can do when chance favours it, absolutely useless as it is for all lawful purposes. We call the attention of those who frame our laws to the dangers which beset those who occupy exalted positions; dangers largely increased by the fact that any would-be criminal, sane or insane, can buy a more or less effective firearm for the price of an old song without the most casual and superficial question being asked as to his identity or his purpose. The law, however strengthened and amended, may not be able entirely to prevent criminals from carrying weapons concealed on their persons and from using them if they will take the risk of doing so, but we need not allow such engines of destruction to be within the reach of every purse, nor need we let their unrestricted exposure for sale constitute an incentive to crime for those too weak to resist the suggestion.

SCENT.

A CONSIDERABLE difference of opinion exists in regard to the propriety of using scent upon the person. The practice is of oriental origin and had for its original object the desire to make the person pleasing to the opposite sex. Not a few quaint customs, however, have turned out in practice to have other influences than were originally designed, and this may prove to be the case with the personal use of perfume. It should be remembered that the basis of all perfumes is an essential oil of some kind, derived either naturally from flowers or leaves or artificially by a synthetic process. In either case the essential oil is a powerful antiseptic and possesses disinfecting properties not less in degree than those of carbolic acid itself. As is well known, the essential oils absorb atmospheric oxygen, forming an unstable compound easily lending oxygen for the work of purification. Pine oil, eucalyptus oil, and turpentine act readily in this manner—a fact which probably accounts for the salubrity of the air of pine forests and eucalyptus woods. The use of scent by many women is excessive, and by men is looked upon as effeminate—a prejudice that we confess to sharing—and yet the question naturally arises, As we study our environment to please the eye by colour and natural effects and to please the ear by musical notes, why should we not make similar endeavour to please the nose by agreeable and fragrant odours? Each sense may suffer offence and there is no reason why each sense should not be equally defended in this regard. And the use of scent on the pocket-handkerchief, which is where we commonly find it, is calculated to exercise a higher office than merely to please the sense of smell. The handkerchief may easily prove a source of infection, for it is made to be the common receptacle of secretions from the nose and mouth, and the employment of an antiseptic handkerchief is perfectly consistent with the dictates of common bacteriological evidences. The liberal use of scent on the handkerchief is calculated to make it antiseptic and to destroy the germs in it, owing to the action partly of the spirit of the scent and partly of the essential oils dissolved in the spirit. Before, therefore, we condemn the persons who use scent upon the handkerchief for practising a foppish or luxurious habit we should remember that they may actually be doing good to their neighbours by checking the distribution of infectious materials.

AUTO-EXTIRPATION OF THE LARYNX.

THE amount of self-mutilation of which the mentally unsound are capable is very remarkable. It is doubtful if any more striking example of this has ever occurred than a case described in the *Comptes Rendus* of the Forensic Medicine Section at the recent Paris Congress. A woman, 42 years of age, went with a neighbour to the public baths. While they were waiting for admittance the friend suddenly missed her and, not succeeding in finding her, returned home. The neighbour went to the woman's rooms but found them closed and knocked at the door in vain. After nearly two hours the neighbour, learning that the woman had been seen to return, went and told the husband, who entered the room through a window. The woman was found alive, lying in a pool of blood with her throat cut. A medical man arrived about half an hour later and began to dress the wound, when to his astonishment he found that the larynx was missing. He searched the room for it and found it some feet away, and near it was the table-knife with which the deed had been done. The hæmorrhage had ceased and a few stitches were put in. The patient was sent to a hospital and died some eight or nine hours after she had cut her throat. There was not the slightest doubt that the case was one of suicide. The portion removed consisted of the entire larynx, a part of the thyroid gland, the anterior wall of the pharynx, and the front and upper part of the œsophagus. The carotid arteries, the internal jugular veins, and the vagi were not wounded. The larynx showed numerous cuts, but none of the skin of the neck had been removed with it. A small cut on the terminal phalanx of the left middle finger induced Dr Szigeti, who reported the case, to believe that the woman with a knife in her right hand incised the skin and cut across the upper end of the larynx and with her left hand she tore it away. The importance and interest of this case can hardly be over-estimated. It is important to recognise that these extensive injuries can be self-inflicted, for a charge of murder in such a case might easily receive much support from the apparent impossibility of such an injury being suicidal. In this way the case compares well with one recorded in our columns last week by Mr. C. A. J. Wright of Leytonstone.[1] A paper in this number of THE LANCET by Mr. F. G. Harvey on Excision of the Larynx is of interest when read in connexion with this case; for the paper shows the difficulty of the operation which this unfortunate woman managed somehow or other to perform upon herself.

ISOLATION HOSPITALS.

A CIRCULAR has recently been addressed by the Local Government Board to the councils of boroughs other than county boroughs and to urban and rural district councils calling their attention to the provisions of the Isolation Hospitals Act of 1901, which has recently received the Royal assent, and which has amended the Act of 1893, giving increased facilities to local authorities for the provision of isolation hospitals within the areas under their care. The need for legislation of this class, and for emphasising the powers which it gives, is well illustrated by a report which lies before us of a recent meeting of the Leominster Rural District Council, at which Mr. H. Jones, the medical officer of health of the district, asked for information as to the steps which he would be expected to take in case of an outbreak of infectious disease among the hop-pickers, such as had, so he informed the council, already taken place in two other districts in the county—in one of which a child had had to be isolated in a barn. There being no isolation hospital in the Leominster Rural District the chairman was empowered to confer with the borough authorities who appear to have a hospital for infectious cases under their control; and no doubt by the aid of the new Act, and with the assistance of the Local Government Board's circular, a practical conclusion will be arrived at. It is obvious that in any district, whether liable to the incursion of hop-pickers or not, epidemics of infectious diseases demand better accommodation for patients than barns. The Isolation Hospitals Act of 1901, among other topics dealt with, enables district councils and joint boards, which have provided hospitals under the Public Health Act of 1875, to transfer these hospitals to the county council, and gives directions with regard to the expenses incurred by the county council in connexion with the transfer. It further provides for the contribution by county councils to isolation hospitals provided by local authorities under the Public Health Act of 1875, whereas hitherto county councils have been enabled by the Isolation Hospitals Act of 1893 to contribute only to hospitals instituted under this last-named Act. Fresh facilities are given to hospital committees to enable them to obtain temporary accommodation for patients when there is an unusual strain upon their existing resources, and various technical difficulties which have hitherto puzzled or obstructed hospital committees are cleared away. Progress in matters affecting the public health is gradual and the result of statutes followed by amending Acts is a body of regulations which are somewhat complicated and difficult to grasp, even by those constantly in touch with them; but the progress is welcome in whatever form it is embodied. Even as a temporary measure and in extreme need the use of such a building as a barn strikes us as highly undesirable, owing principally to the fact that it must present almost insuperable difficulties to those charged with disinfecting it.

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[1] THE LANCET, Sept. 14th, p. 744

"NEXT TO GODLINESS."

CONSIDERING the extent to which the benefits of fresh air have been exploited of recent years in connexion particularly with the cure of phthisis, it might naturally be expected that in public places a state of affairs would not now be tolerated which is contrary to the recommendations of medical authority. We are all perfectly aware of the necessity for free ventilation. We understand why indiscriminate spitting is an abominable danger, and how close rooms and stuffy omnibuses and over-filled railway-carriages increase the chances of infection even for healthy persons. Moreover, we know that in the presence of an infected person, as where one member of a family is the subject of pulmonary tuberculosis, a constant supply of pure air in plenty is a paramount necessity for the health of those who are bound to live under the same roof as the sufferer. So much, then, being matter of common knowledge, it is little short of marvellous to see in what kind of atmosphere this enlightened public is content to confine itself at certain times. A visit to the courts of law, or to churches of every denomination, might well lead to a belief that to these places resorted a class of beings for whom fresh air was a dangerous thing to be carefully excluded, and that only in a thick, carboniferous, organically tainted atmosphere could the brain of man discern truth through the mazes of legal bewilderment or his soul respond to the solemn claims of a religious service. There can be no greater mistake than to neglect the conditions of atmosphere in which mental labours, be they legal or of any other kind, are undertaken. The weariness, the headache, the indifference to food or inability to assimilate it, that are apt to follow a day in the courts or a few hours in a church are often the result of a foul atmosphere. The theatre and the church, viewed from a low, but practical standpoint, have much in common. In matters of ventilation, however, the modern theatre has advanced in a way which religious communities might imitate with advantage. There can be nothing unholy in a pure atmosphere. The first clergyman who devotes a "collection" to the construction of efficient ventilation for his church will deserve well of his congregation, and will most assuredly take an effective step towards increasing its numbers. How many women, we wonder, are subject to fainting attacks and to headaches in church and nowhere else? There must be thousands who absent themselves for no other reason. A place of worship in which the air was fresh and pure would be as strong an ally to the claims of religion as can well be thought of. Doctrine may ask us to mortify the flesh; she nowhere demands that we should also pollute our lungs.

THE PROTECTION OF PARTURIENT WOMEN AND THEIR OFFSPRING.

WE have received the account of a scheme adopted by the Medical Guild of Manchester for the protection of parturient women and their offspring. This scheme provides for putting within the reach of the poorer classes the assistance both of a trained nurse and of a qualified medical practitioner, and is recommended as a basis for future legislation. Provision is made for the supply by the local authority of trained, examined, and registered obstetric nurses free of all charge, the nursing being supplied to women living in the district, whose circumstances shall justify it, during their confinement and during the puerperal period. At the same time the local authority is to have the power to issue to each suitable applicant for a nurse a note requisitioning the services of a medical man; this note when accepted by a medical practitioner to constitute an engagement on his part to render such assistance as may be necessary in the confinement, the note to be redeemed by the local authority from the medical practitioner at a rate to be determined hereafter. The local authority is to have the power to determine the suitability of applicants. We welcome a scheme put forward in the honest attempt to deal with a question of the first importance in medical practice, but even while doing so we cannot pretend to think that the Medical Guild of Manchester have solved the problem. To compare the greater with the less, just as poverty cannot be abolished by an Act of Parliament saying that it shall no longer exist, so no clause in a scheme, however carefully drawn, can wipe out the midwife—at any rate, not yet. For good or for ill she is a present-day institution. It is, of course, better for a woman to be attended by a medical practitioner and a nurse than by a midwife single-handed. At the same time any scheme which attempts entirely to abolish the class of midwives is almost assured of failure. It is, and will be, impossible to prevent women from employing midwives in place of medical men if they so choose, and even if a law were passed to stop such a practice—which legislation we shall never see—it would be impossible to enforce it. Such a scheme as the one that we are now considering could only apply to those women whose condition would entitle them to the services of a nurse and medical man free of all charge. Surely such a measure, even if it were not abused (as it very likely would be), would lead to the pauperisation of a large number of persons, since all the women attended under such circumstances would be practically receiving outdoor relief at the expense of the ratepayers. It seems to us quite certain that any measure which would tend to increase the already heavy poor-rates, and which would throw an increased burden upon the taxpayers, is bound to be rejected by the public. And it is the wives and children of the public whose welfare is in question. It has been urged with some weight that the present system by which large numbers of women are attended in their confinements for nothing by medical students in connexion with the large maternity charities of our medical schools tends directly to pauperisation of the women. It certainly does. Knowing that in case of need almost everything will be supplied to them, they in many instances make little or no provision for their approaching confinement, and the necessity for thrift to provide for the expenses which under ordinary circumstances must attend such an event is entirely absent. The public, however, through the medical profession, directly benefit by the hospital midwifery. It is necessary to train medical students, and by the care of such cases, under the supervision of first-class surgeons and physicians, the recruits to our ranks learn their obstetric medicine. But it is quite another matter when we have to consider a proposal which would encourage improvidence all over the country. The expenses of such a scheme as the one formulated by the Manchester Medical Guild would be very great, since the local authority would have to pay not only the salary of the nurses, but also the fees of the medical practitioners. Unless, too, it were associated with a law totally to prohibit the employment of midwives—which we regard as an impossibility—it would of necessity fail, since there would still remain a considerable class of women, not suitable applicants for the relief, who would prefer the cheap services of a midwife to the more expensive ones of a medical man. The scheme is similar in its main outlines to that proposed by Dr. McCook Weir in his Bill brought before the profession in 1898. It will be necessary, however, in our opinion, for the Manchester Medical Guild to furnish further details as to its practical working before it can be considered to be within the range of possible politics We hope that they will do so, for the subject is enormously important, and discussion from all points of view, especially when based upon a thorough design to deal with the problem, cannot fail to be useful.

DIPHTHERIAL INFECTION FROM HEALTHY PERSONS.

THE existence of diphtheria bacilli in the throats of healthy persons is a great difficulty in preventing the spread of the disease, a fact which has often been pointed out and discussed in these columns. Dr. F. P. Denny, bacteriologist of the local Board of Health, states that in Brookline, near Boston, U.S.A., during an epidemic of diphtheria, when a child was taken ill with the disease, cultures were taken from the throats of those who sat near them in school, and diphtheria bacilli were found in the throats of some who were perfectly healthy. He also refers to an outbreak of diphtheria among a milkman's customers three weeks after two of his children were sent to hospital with diphtheria. Cultures were made from his household, when three healthy men, two of whom milked the cows, were found to harbour diphtheria bacilli which were virulent to guinea-pigs The following case, recorded in the *Boston Medical and Surgical Journal* of August 29th by Dr. F. W. White, shows how healthy persons may be a source of infection. A child, aged two years, living in a tenement house in Boston, had membrane on the tonsils and the diphtheria bacillus was found in the throat. The illness began on Dec. 12th, 1900. nder antitoxin convalescence was rapid. But for the following three months cultures were obtained from the throat which were virulent to guinea-pigs. On Feb. 1st, 1901, the rooms were fumigated On March 1st the culture from the throat was negative, the house was fumigated, and the child was released from isolation On March 3rd cultures from the child's throat and from the throat of two out of four persons exposed to him—a boy aged four years and a girl aged 18 years—yielded diphtheria bacilli. The two latter had not been ill at any time during the three months Two children—a boy aged seven years and a girl aged four years—came to the house just after the release of the patient and were exposed to the other children for a day or two and then returned home. Within five days the girl developed a moderate attack of diphtheria. She was not attending school at this time and was not exposed, as far as is known, to any other source of infection. The moral of these cases is that a single negative culture from the throat is not sufficient to guarantee the absence of diphtheria, and that the throats of those who come in contact with patients suffering from diphtheria should be examined for the bacilli before they are allowed to mix with healthy persons. No doubt the latter rule is somewhat a "counsel of perfection." But at least it is quite possible for persons who are in close contact with diphtheria patients to avoid the society of children.

VITAL STATISTICS OF THE JAPANESE NAVY.

THE medico-statistical report of the Japanese navy for 1897, being the fifth annual issue and the latest published, shows an apparent increase of sickness together with an actual decrease of mortality. In previous reports only severe cases of disease were included, but in that for 1897 all absences from duty on medical or surgical grounds are entered in accordance with the practice now prevalent in most of, if not all, the navies of the world. The average strength of the Japanese navy in 1897 was 14,964 officers and men, an augmentation of nearly 2000 on that of the preceding year. This total was made up as follows: officers, 315; subalterns, 2251; sailors and stokers, 12,056; servants, 342. The average sick- and death-rates for the twelvemonth were 822 5 and 6 88 respectively per 1000 of strength Each case entailed absence from duty during 24 7 days, but only about one-fifth of the whole number were admitted to hospital, the others being treated in quarters or in detention rooms. Amongst the officers the sick-rate was only 225·7 per 1000, and about half the cases were treated in hospital. Out of 9710 vaccinations, primary and secondary, 4138, or 44 per cent, were successful. During the year the food ration underwent considerable modification, the following ingredients being diminished. biscuit, preserved meats and fish, beans, flour, dry vegetables, dry fruits, pearl barley, sugar, oil, salt, and fat; while the following were augmented: bread, fresh meat, fresh fish, rice, fresh vegetables, and barley. The result of this measure was highly satisfactory, the mean weight of the men having been nearly 15 ounces higher in 1897 than in 1896, and four pounds higher than the average of the preceding 13 years

ST. BARTHOLOMEW'S HOSPITAL AND CHRIST'S HOSPITAL.

IN our issue of July 7th, 1900, p 43, we gave some account of a special Court of Governors of St. Bartholomew's Hospital which was held to consider the situation arising out of the negotiations with the authorities of Christ's Hospital as to the purchase of the whole or part of the site owned by the latter institution. It was then agreed that a portion of the site, indicated in a plan which we have published[1] and in area about one and a half acres, should be acquired for the sum of £117,000 A Bill for this purpose was accordingly presented to Parliament and received the Royal assent during the last session The medical staff of the hospital, however, had in November, 1899, urged upon the treasurers and almoners their conviction that the whole site of Christ's Hospital should be acquired, and they have now reiterated this conviction in a circular sent out to the body of governors and dated August, 1901. It is probable that a special Court of Governors will be held to consider the circular and what measures can be taken for the acquirement of the site. Of course the whole question is one of money Naturally the almoners of Christ's Hospital want as much for their site as they can get and the value of the property is doubtless very great. St Bartholomew's Hospital is sorely in need of increased space not only for present requirements but for future expansion. The surgery is totally inadequate for the work carried on therein, the College is composed of inconvenient and insanitary little houses, the nurses' quarters are as inconvenient as possible, while the post-mortem room and the mortuary accommodation are (to put it mildly) a disgrace to an institution of such a position and world-wide fame. While it would be unwise for the hospital to cripple itself by running into debt, yet we may hope that the charity of the kingdom—for St. Bartholomew's, like other London hospitals, is by receiving patients from all parts of the kingdom a national rather than a local institution—will be able to supply funds for the purchase of the whole site. Here is an opportunity for Mr. Carnegie to help the foundation where those famous Scotchmen, Pitcairn and Matthews Duncan, worked.

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[1] THE LANCET, August 11th, 1900, p 403

"JAMESON PORTRAIT FUND."

IN response to the expressed desire of many officers it is proposed to present Surgeon-General J. Jameson, M.D., C.B., late Director-General Army Medical Service, with his portrait. Duplicate copies, it is understood, will be painted for the Royal Army Medical Corps messes at Netley and Aldershot—if funds permit. Such a presentation would express the high esteem in which Surgeon-General Jameson is held by his brother officers, and would form a suitable recognition of his great services to the Royal Army Medical Corps and to the army. It was during his tenure of office that the Royal Army Medical Corps was constituted, and on that ground alone it is most desirable that his name and personality should be handed down in portrait form to future generations of army medical officers. A committee for the furtherance of this object has been formed in London and the consent of Surgeon-General Jameson to sit for his portrait and to nominate an artist has been obtained. Messrs. Holt and Co., 3, Whitehall-place, London, S.W., have kindly consented to receive subscriptions, which should be marked for "The Jameson Portrait Fund."

THE CLOTHES OF DEAD SOLDIERS.

THE case of typhoid fever in which infection was held to be due to the wearing of apparel sent home from South Africa which had belonged to a soldier who had died from typhoid fever gives rise to a question with which the military authorities have probably not been widely confronted before. The facts of the case were roughly these. A man serving in the Fusiliers died at Krugersdorp from typhoid fever. His kit was sent home to his family, one of whom, a son, unpacked it and found the clothes "soiled, just as they had been taken from his father's body." We quote a contemporary's account. The son wore the boots at once and the socks after they had been washed, and in little more than a week fell ill. After some days he was admitted to St. Bartholomew's Hospital, where he was certified to be suffering from typhoid fever. The medical officer of health to the Southwark Borough Council prepared a report for presentation to the council, and is reported to have added that the case is sufficient to show that the practice of sending home the kits of men who have died in this way is undesirable, and a possible source of danger to the public health. With this opinion we agree. Whether in this particular case the clothes were to blame or not, as the incubation period would be unusually short, does not affect the question of principle. It is, no doubt, a laudable issue of sentiment and justice to send the dead soldier's family whatever belongings he had with him. Such kindness, however, will be a doubtful benefit if disease lurks in the returning property. The clothes in which a man arrives at the hospital where he succumbs to an infectious disease should certainly be destroyed. The alternative of efficient disinfection is scarcely practicable on active service. Compensation might well be made to the deceased's family, and would be a more unequivocal recognition of his services. Discrimination and hard-and-fast regulations are uneasy companions. If it is the military rule for the kits of men who die abroad to be returned to their families there is probably little difference made according to what was the manner of the man's death. The representations of a medical officer would not influence the department whose duty it is to send back kits. A kit to the department would be a kit whether it took typhoid fever or anything else with it. What is wanted is a change of the hard-and-fast regulation.

FIFTH INTERNATIONAL CONGRESS OF PHYSIOLOGY.

THE Fifth International Congress of Physiology was opened on Sept. 17th in the physiological laboratory of the University of Turin, under the presidency of Professor Angelo Mosso. The assembled physiologists were formally welcomed by the President in a short address. Sir Michael Foster, K.C.B., M.P., Secretary of the Royal Society, was then elected honorary perpetual president. Professor Fano, Professor Fredericq, Professor Grützner, and Professor Sherrington were appointed general secretaries. More than 200 physiologists from various countries were present and 186 communications were announced. A reception was given by the members of the Academy of Medicine of Turin on Monday evening and an exhibition of physiological apparatus was also opened on Monday in the Anatomical Institute which adjoins the physiological building. The Congress is continuing in session till Saturday, Sept. 21st.

THE general secretary asks us to inform the members of the Thirteenth International Congress of Medicine that the printing and posting of the general volume and of the 17 records of the sections are now entirely finished. Any member entitled to the volumes and not having received them is requested to notify the publishers, Messrs. Masson and Co., 120, Boulevard Saint Germain, Paris, before the end of the year.

THE annual dinner of the past and present students of the Westminster Hospital will be held on Friday, Oct. 4th, at the Hotel Cecil, at 7 for 7.30 P.M. Mr. Charles Stonham, F.R.C.S. Eng., will be in the chair.

THE annual dinner of the past and present students of St. Mary's Hospital will take place at the Whitehall Rooms, Hôtel Métropole, on Thursday, Oct. 3rd. Brigade-Surgeon-Lieutenant-Colonel A. B. R. Myers will be in the chair.

THE RECENT OUTBREAK OF PLAGUE IN CONSTANTINOPLE.

(BY THE BRITISH DELEGATE TO THE OTTOMAN BOARD OF HEALTH.)

THE following is a brief *résumé* of the recent history of plague in Constantinople. It will be recalled that the first case of the disease in this city occurred in the first week of January last. The patient was a boatman in the employ of a custom-house official and it was suggested that he might have come into contact with some infected goods passing through the custom-house and so have contracted the disease. But, as a matter of fact, no satisfactory explanation of the source of infection in his case was forthcoming. Plague was undoubtedly present in Smyrna at the time, and as the man was in communication with friends in Smyrna it seemed possible that the infection came in some way from that town. Whatever its source there can be no question that the infection of plague did reach Constantinople at that time. So far as was known only one case (a fatal one) occurred then and it was not until after the lapse of nearly four months that it was followed by other cases. The first of these patients was taken ill on April 27th. He was a Greek, aged 36 years, who was employed in a certain macaroni factory in Galata (the portion of Constantinople lying to the immediate north of the Golden Horn). There ensued another period of two months' duration without any known cases, but towards the end of June and the beginning of July a small group of fresh cases occurred of some epidemiological interest. A youth, aged 18 years, named Yanni, fell ill on June 23rd. He was employed in a grocer's shop (*épicerie*) and lived in Galata at no great distance from the macaroni factory above mentioned. An Italian, named Antonio Pola, was attacked on June 27th and was admitted to the Italian hospital on July 4th. He also came from Galata, where he lived in a street not far from the *épicerie* in which Yanni was employed. Then, on June 30th, a woman named Despina developed symptoms of plague. She lived in Cassim Pasha, a quarter of the town also on the northern shores of the Golden Horn, but at some distance from the quarter of Galata where the previous cases had occurred; on inquiry, however, it was found that the patient had been staying in Galata with her mother, who lived in a house at no great distance from the macaroni factory. Finally, on July 2nd a man named Mihali fell ill with plague; he lived in yet another quarter of the town, but was said to have been in frequent relations with a person inhabiting the infected quarter of Galata It will be seen that the four cases occurring between June 23rd and July 2nd could be, to some extent, traced to a particular quarter of the town and that that quarter was in the neighbourhood of a macaroni factory · one of the employés of which had been attacked with plague in April. It has been suggested that this factory was in some way the original source of the infection in this group of cases, and to account for the appearance of the infection there it has been thought that it might have come from abroad in the flour which forms the basis of the macaroni prepared in the factory. This flour is, it is said, always imported from France or Italy; none of it comes from Egypt or other countries where plague has recently been prevalent It has also been ascertained that the s s *Niger*, which came to Constantinople last year with some cases of plague on board, landed here some sacks of flour and several cases of macaroni Hence a theory has arisen that the infection of plague which has caused the recent outbreak here was imported by the s.s *Niger* in August of last year. It will be of interest, therefore, to recall the facts connected with the [illegible] on that vessel. The *Niger*, [illegible] arrived in Constantinople [illegible] was given *pratique*, but a few hours later an Armenian boy, a third-class passenger, was found to be ill, and the illness proved to be an attack of plague. A second case developed after the ship had left Constantinople for the quarantine station of Clazomene, and some subsequent cases occurred on her voyage from Clazomene to Marseilles. It was clear that the *Niger* was rather extensively infected with plague, even at the time of her arrival in Constantinople, and it is undeniable that 160 passengers had been allowed to leave her there, and that a considerable amount of merchandise had also been landed from her. Subsequent measures of surveillance of the landed passengers and of disinfection of the merchandise were also arranged for, but there could be no complete assurance that those measures, however thoroughly carried out (and thoroughness in the mathematical sense was in the nature of things impossible) would destroy all traces of infectious material that might have reached the shore. There was therefore no little probability that the infection of plague did reach this country a year ago. But there is very little to show that the recent small outbreak in Constantinople was the consequence of that importation and not of some fresh one. It has not yet been proved (and it probably now never will be proved) that the macaroni factory was the real source of infection in these cases or that any of the sacks of flour or cases of macaroni landed from the *Niger* ever reached that particular factory.

[illegible] cent outbreak. On July 12th a [illegible] med Mirza Ali, was attacked [illegible] 14th respectively two Jews living in the Balata quarter of Stamboul developed the disease. These appear to have been the first cases in Stamboul itself—i.e., the portion of Constantinople south of the Golden Horn Stamboul occupies the original site of ancient Byzantium and of the city of Constantine and his successors. It is roughly a triangle, bounded on the north (or north-east) by the Golden Horn, on the south (or south-east) by the sea of Marmora, and on the west by the remains of the splendid wall built (mainly) by the Emperor Theodosius to guard the city from land attack on the only side where land attack was possible. Balata is a quarter of Stamboul very near the north-west corner of the triangle where the walls meet the shores of the Golden Horn. No fact has yet been brought forward to show how the infection of plague was brought from Galata, where it first appeared on the north shore of the Golden Horn and at its eastern extremity, to Balata on its southern shore and at its western extremity. Two other cases occurred in connexion with this quarter, both patients being children and nieces of one of the Jews first attacked. They developed the disease at Haidar Pasha, on the Asiatic side of the Bosphorus, near Scutari, but they did so immediately after their removal from the house in Balata in which their uncle had developed (and died from) plague

A third *foyer* of the disease may have been a connecting link between the Galata and Balata *foyers* already described. This was at Baluk Bazar on the southern or Stamboul side of the Golden Horn, and close to the great bridge of boats which connects Galata with Stamboul. In this bazaar an Albanian poultry-seller, named Youssouf, fell ill on July 22nd This date is nine days later than that of the first known case in Balata, and it is only by supposing that earlier cases, unknown to the authorities, occurred in Baluk Bazar that the latter can be regarded as a link between the *foyers* at Galata and Balata. This case of Youssouf is of importance. After his removal to hospital 17 persons who had been in "contact" with him were by orders of the municipality, shut up in the house under military cordon for a period of 12 days. They were not permitted to leave the house for any purpose whatever, food was passed in to them through the windows. There were no latrines of any kind in the house, which is situated in one of the closest and dirtiest quarters of the city. The results of this measure recall the pictures drawn by writers in the seventeenth and eighteenth centuries, when "shutting up" infected houses was the almost universal practice. After 12 days of imprisonment under conditions of physical discomfort that it is not pleasant to think of, the 17 "contacts" were released, and it was found that two of them were [illegible]

that he died a few [illegible]

occurrence of these [illegible]

at such an advanced stage that one patient was already moribund, speak eloquently of the thoroughness of the "thorough disinfection" which was supposed to have been practised in the house, and of the strictness of the "strict medical surveillance" under which the imprisoned "contacts" were supposed to be.

The remaining cases of plague may be briefly mentioned. Some time in July a Greek groom in the employment of a dragoman of the Russian Embassy developed plague; how he contracted the disease is not known. On July 21st a patient was admitted to the Greek Hospital from Ak-Serai, a quarter of Stamboul far removed from those already mentioned, and died the same night. On July 25th one of the municipal disinfectors, Haralambo by name, fell ill; he had disinfected a plague-infected house 12 days previously and lived in a street in Pera where hitherto no plague cases had occurred Some time in July also a child living in a room below that originally occupied by Despina (the case mentioned above) developed plague Then, on July 30th, a fireman on board the s s *Benghazi*, a boat constantly plying between Constantinople and Moudania, was attacked, and there is little question that he "caught" the disease in Constantinople Finally, after an interval of some 16 days without any known case, a fresh one occurred on August 19th, the patient being a Greek employed and living in Galata.

As is usually the case when plague has appeared in a new locality there has been a controversy as to whether it is in fact the plague or some other disease But the clinical and bacteriological data in most of the cases above cited have left no room for doubt that the plague has gained a foothold in this city.

The facts hitherto elicited in regard to unusual phenomena among rats in the infected quarters of the city are very imperfect But as the result of inquiries made from trustworthy observers it appears that during the months of May, June and July there was a marked mortality among the rats in Galata One of the patients, Mirza Ali, whose name is mentioned above and who fell ill on July 12th, volunteered the information that between July 6th and that date he had himself caught in his hands and killed a number of rats, which he estimated at from seven to 10 These rats appeared to be very ill and they had escaped from the mouth of a drain situated near the shop where he worked. It is also stated that a number of dead rats were seen in the shops and sheds and on the landing-stages which fringe one side of the Galata-Stamboul bridge, and also in the Baluk Bazar already mentioned. In recent weeks there seems to have been an almost complete disappearance of rats from Galata—and it is possibly by a migration of these animals that the infection has been carried to the other quarters of the town.

In regard to the measures taken in Constantinople to deal with the plague, it is to be observed that the responsibility for these lies with the municipality and not with the International Board of Health. The latter exists to try to keep disease out of the country; when disease has once entered the country it is dealt with by the Turkish authorities. But the Board of Health has always been regarded as the first authority in the country on sanitary matters; it has usually been consulted on the occasion of epidemics and has frequently lent some of its members or delegates to sit on mixed committees formed to deal with outbreaks of disease. This has been the case on the present occasion. On April 30th an Iradé was issued by the Sultan requesting the Board to coöperate with the municipality in this matter and to draw up a series of recommendations as to the measures necessary to be taken. On May 4th a series of recommendations, prepared by a sub-committee of the Board and approved by the whole Board, was ready. It is unnecessary to refer in greater detail to these recommendations, as they have unfortunately remained a dead letter. The measures taken have been taken almost exclusively on the initiative of *the municipality, and it cannot be denied that they* have proved very inadequate. Thus, for example, of the five hospitals originally intended to have been built in different parts of the town, not one is yet in existence, and there is at the moment of writing no special hospital in or near Constantinople to which a case of plague could be removed. During the early days of the outbreak, and pending the construction of such hospitals, the Board of Health placed at the disposal of the municipality its "lazaret" at Monastir-Aghzy, on the Asiatic side of the Bosphorus, near the Black Sea end of the strait. But this lazaret was never intended for such purposes, its object being the isolation of cases of infectious disease brought by ships from other countries, and not the treatment of cases of disease originating in Constantinople itself. Several of the earlier cases of plague and of the "contacts" of those cases were removed to this lazaret, but later the Board decided that it could no longer be used for this purpose, as it might at any moment be required for its own legitimate purpose. Even this was not sufficient to rouse the municipality to the urgent need of preparing hospitals, and when the horrible condition above described of the 17 "contacts" in the Baluk Bazar case was discovered (conditions which the German delegate to the Board described as analogous to those of the Black Hole of Calcutta) there was no hospital ready to which they could be sent. On grounds of humanity alone, and without waiting to summon the Board, the vice-president felt compelled to give his consent to their immediate transfer to the lazaret at Monastir-Aghzy, and this was done. The Board has, however, since (on August 6th) re-affirmed in the most positive manner its refusal to admit any more plague cases or "contacts" to this lazaret, and there is consequently, as already stated, no plague hospital at this moment to which a case of plague could be removed. One municipal hospital is in course of construction at Omour-Yéri, on the Asiatic shores of the Bosphorus, about two-thirds of the way towards the Black Sea. When I visited it quite recently this hospital was very far from completion. It presents many serious faults of construction, and is inconveniently (and even dangerously) far from the town for the removal of persons seriously ill from plague. But it is something to be grateful for that anything in the nature of a plague hospital will be ready in the course of the next two or three weeks.

Constantinople, Sept. 10th.

PRINCE OF WALES'S HOSPITAL FUND.—The Frank James Memorial Home for Seamen at East Cowes, Isle of Wight, has been offered to the Prince of Wales's Hospital Fund for London on condition that the fund will select a London hospital in need of a convalescent home, preference being given to a hospital for sailors. In addition to this offer by the trustees of the home, Messrs. Arthur and William James have undertaken to endow it to the extent of £10,000.

FRENCH AND BRITISH POSTAL MEDICAL SERVICES: A COMPARISON.

(BY OUR SPECIAL COMMISSIONER.)

IT is satisfactory to note that the description recently published of the measures taken by the French Government to prevent the contamination of the post-offices and the spread of tuberculosis among the employés has produced some effect on this side of the Channel.[1] In any case, the Association of the British Postal Medical Officers are now advocating the adoption in England of the same precautions as those just introduced by the French Government. These are embodied in a report recently issued by that association dealing with the prevalence of tuberculosis. But the reforms initiated by M. Millerand, as Minister of Commerce and Post and Telegraphic Services, do not deal only with the conditions that favour the spread of phthisis; he has also remodeled the medical service of his department; and it may be equally useful to compare these alterations with the conditions that prevail in England. Such a comparison will at once show that in France details, special needs, and difficulties, have been carefully studied, thought out, and in most instances provided for. In England a more rough-and-ready method has been adopted and but little ingenuity displayed. Indeed, the Post Office authorities have not hit on any more original plan than that of imitating on a somewhat liberal scale the methods of medical aid clubs and friendly societies. The main difference rests in the fact that the postal medical officers receive *8s. 6d.* per annum per employé on the books, while friendly societies and clubs generally pay only *4s. 4d.* In France the postal medical officer receives extra remuneration when there is extra work to be done. Attendance at the surgery or consulting rooms may be considered as regular work, and though the number of patients who call varies from day to day the time for which the medical officer has to be on duty, and to hold himself ready to give advice, does not vary. Therefore he receives a fixed salary for this portion of his work, which in Paris amounts to £60 a year. 16 medical officers divide between them the 22 *arrondissements* of Paris. As there are some of these districts in which very few postal servants can afford to live it was possible, in these cases, to give two districts to one medical officer. But, on the other hand, the work to be done in visiting patients in their own homes is an unknown quantity. It may be light or very heavy. The conditions of the state of public health are constantly varying; therefore the medical officers are paid per visit. The fee given is 2 francs for each visit, which, as fees go in France, is about the equivalent of the traditional 2*s.* 6*d.* paid in England by the poorer class of private patients. In high class practice the 20-franc piece, or 16*s.*, replaces the guinea given in England, and though 2*s.* 6*d.* is equal to 3 francs 10 centimes there is this further difference, that the French practitioner never supplies medicines. Consequently a 2-franc fee in France for a visit without the giving of medicine is to some extent an equivalent for a half-crown fee in England for a visit and medicine. But, further, it should be noted in regard to these visits that the postal medical officer in France has only to attend to those postal servants who live in his own district, and in Paris this would not necessitate the going of any long distance.

The most serious defect of the British system is that the 8*s.* 6*d.* per annum has to meet every conceivable circumstance that may arise. If a serious surgical operation is needed this must be performed. If an elaborate chemical or bacteriological analysis is required all this must be done by the postal medical officer, who therefore requires to be not only a good all-round general practitioner, but to be able to perform any surgical operation and to be more or less a specialist in bacteriology. Needless to say that the acumen and logic of the French mind would not tolerate such an absurdity both of theory and practice. It is fully realised that a general practitioner is not likely to have made a special study of bacteriology or be capable of performing with a master hand the most varied and complex surgical operations Therefore operating surgeons are also appointed who are called in when operations have to be performed. These surgeons receive no salary. They are paid 5 francs (or 4*s*) per visit and according to a fixed tariff for each operation An official circular giving these details was issued on May 19th 1900 The fees vary from 15 francs for opening, draining of abscesses, and other minor operations to 200 francs for the more serious operations, such as lithotomies The administration of anæsthetics is paid for apart, and assistants are paid from a quarter to half the amount given to the principal operator, according to the gravity of the operation In Paris there are two operating surgeons appointed and a third is nominated to act as locum tenent for either of the other two Then there are three honorary physicians who may act as consultants, and there are also five lady doctors to attend to the women employed at the post offices Further arrangements were made with the late Dr Napias Director of l'Assistance Publique, that those hospitals in Paris which have hydropathic installations should be open to the postal servants who might be in need of such treatment Then there are two dental surgeons one of either sex, appointed by the postal administration to perform extractions gratuitously, and fillings and various treatment of the teeth at a reduced tariff, which has been communicated to all the postal servants In the same manner arrangements have been made with specialists in diseases of the eye ear, nose, larynx, urinary organs, and the diseases of women, by which postal servants may obtain advice at special low rates Thus in Paris the work of the 16 postal medical officers is considerably reduced by the help of the five lady doctors who attend to most of the women employed at the post office, while the two operating surgeons the consultants the specialists, and the surgeon dentists all tend to reduce the pressure

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[1] THE LANCET, June 22nd, 1901, p. 1794.

In England also the postal medical officer does not attend to everyone who has the right to claim his service Many postal servants are members of friendly societies, and call in the medical officer of the friendly society, who is perhaps nearer at hand or whom they may prefer personally The club medical officer's certificate is accepted at the post office and thus reduces the work but does not affect the pay The postal medical officer still receives the 8s 6d per annum though he may only have to countersign the club medical officer's certificate On the other hand, the English postal medical officer has to perform even the most serious operations without any assistance or extra pay But this again is much relieved by the hospitals where the postal servants easily gain admittance and prefer to go Nevertheless if a postal medical officer should happen to enjoy a high reputation as an operating surgeon it would go very hard with him for the postal servants would probably prefer that he should operate on them and would refuse to go to the hospital All that the postal medical officer in England can do is to charge extra for the administration of anæsthetics, for an assistant or for a consultant Also and on the plea that dressings are not medicines they can be counted as extras But these extra charges are not paid by the postal authorities, they have to be obtained from the patients themselves In France the State, and not the patient pays for operations, anæsthetics, assistants, consultant's advice &c It is only in the case of more elaborate dental operations, and certain very special diseases that the postal servant himself has to pay Even in these latter cases the Minister of Posts and Telegraphs steps in to save the postal servant from the allurements of the quack, by making a special contract on his behalf with specialists of unimpeachable reputation where he can get advice on a scale of payment that is in keeping with his means It will be seen therefore that while the French postal medical officer is expected to attend to the vast majority of the cases of sickness that arise, still ample provision has been made to meet exceptional circumstances

In England no provision whatsoever is made The medical officer gets his 8s 6d and if that does not suffice he must make whatever arrangement he can with the patient himself or with public charities, such as the hospitals, to supply the deficiency If this cannot be done then he must pay the deficiency out of his own pocket Indeed, it really does look as if it did not matter much what happens so long as the Government is not bothered by the consideration of intricate details There is such a delightful and lazy simplicity about the 8s 6d If one man will not take it the other will, and the higher authorities will then rest in peace, undisturbed by the thought that bacteriological examinations may be necessary, that hydropathic treatment may be desirable that a general practitioner cannot be expected to perform every conceivable operation and that a second opinion should be forthcoming in serious cases There is the 8s 6d if there are many postal servants in the town or district it makes a nice round sum in the course of the year, why trouble further? The medical officer will make the best of the matter and carry out the British tradition of 'muddling through somehow,' while as a nation we may congratulate ourselves that our all round standard of medical education is very high It is true that there are some postal servants who never remain a year in any district but travel from place to place repairing telegraph fitting &c The system of annual payment cannot apply to them, but then it would require a considerable effort of imagination to devise another system, and if there is one thing a governmental department dislikes it is that of having to devise something new Yet here is a totally different condition of things A certain number of postal servants only remain a few weeks sometimes only a few days in the same town Who will attend them when they fall ill? Force of habit suggests the local postal medical officer as an answer to this question But what should the postal medical officer be paid? And again force of habit suggests 8s 6d and so the matter is settled Thus if an itinerant worker contracts typhoid fever, breaks his leg or otherwise suffers seriously the postal medical officer must see him through and supply him with all the medicaments necessary for 8s 6d If the itinerant worker has a slight cold want a little liquorice the postal medical officer will supply this inexpensive and anodyne medicament and will likewise receive 8s 6d This is simple and avoids so much discussion In France if a postal servant is hurt he will receive the attendance of his usual medical officer and this officer will be paid 2 francs a visit over and above his regular salary If the hurt is very serious the operating surgeon may be sent for and the latter receives 5 francs a visit and is also paid for the operation should one be performed For an amputation £4 is paid and all assistants are also paid In England there are no such complications The medical officer gets 8s 6d and he must amputate for that sum unless he is able to escape from his responsibilities by passing the patient on to some hospital

Nevertheless and in spite of inconsistencies such as the above, the holding of an official position has many advantages and if the remuneration in some cases is absurdly inadequate there are compensations Every candidate for the postal service has to be medically examined before he is admitted and this examination was included in the 8s 6d annual allowance One of the first results of the formation of the Postal Medical Officers Association was the alteration of this very hard rule When the Duke of Norfolk was Postmaster General he allowed a fee of 5s for the medical examination of each candidate Since then this sum has been increased to 10 [illegible] for candidates desirous of joining the established staff Then when the Teachers [illegible] came into force the teachers [illegible] in England and Scotland thoug[illegible] postal medical officers were appointed to make the [illegible] examinations and were authorised to charge the candidates 10s 6d per examination In some towns this makes a good addition to the yearly income and it has an element of regularity about it for the examinations all come in April The provincial competitive examinations for various branches of the civil service inland revenue officers excise officers &c all take place in April and they also are medically examined by the postal medical officers, to whom they pay a fee of 10s 6d Then the Post Office itself pays its medical officers 5s for examining persons who insure their lives at the Post Office for small sums not exceeding £50 But if this examination of candidates brings grist to the mill it also often occasions trouble worry, and unpleasantness A candidate may go to any postal medical officer and if rejected by one he applies to another till someone does pass him This of course means a fresh fee each time when it is paid by the candidate but if he is a candidate for the postal service the process is different, for it is the Government and not the candidate who pays the fee for the examination The candidate, nevertheless has a right of appeal In that case he goes to some general practitioner who is unacquainted with the sort of work done at the Post [illegible] Under the [illegible] case, and [illegible] date may [illegible] lodge his appeal but he must at the same time deposit two guineas The postal authorities then institute an inquiry and [illegible] a medical practitioner who has been selected as referee. Perhaps this is a practitioner living in the same town as the postal medical officer who rejected the candidate. The referee knows nothing about the first opinion that was given and may by passing the candidate injure the reputation of the postal medical officer who has not done so. The latter should either be invited to attend at the second examination or at least to send some explanations. As it is, he may be condemned without a hearing, and this, too, by a rival practitioner living in the same town. In any case, in selecting a referee care should be taken that there should be no circumstance likely to throw a doubt upon his impartiality. Many representations have been made by the Postal Medical Officers' Association on this subject, but the higher authorities have not yet moved in the matter. In practice the referee generally passes the candidate, and this, of course, reflects more or less discredit on the postal medical officer who had shown himself more particular and had rejected the candidate. Therefore, when a postal medical officer has gone through this somewhat humiliating experience once or twice he concludes that it is better policy to pass the doubtful cases, and thus the interests of the service are sometimes sacrificed.

Apart from medical attendance and medicine the British postal medical officer must make constant reports as to the state of all his patients who are not well enough to be at their posts. Special reports are constantly asked for as soon as a postal servant has been away from his work for more than a fortnight. Then an annual report on all cases of illness occurring in the year has to be carefully drawn up. Each case must be classified and details given, while reference must be made to any neglect of duty, to the sanitary condition of the dwellings of the patients or of the post-office itself, and if these defects require immediate attention this must be stated. These documents should be of great interest from the statistical point of view, for they include not merely deaths but all cases of illness. Nevertheless, no use worth mentioning has been made of these valuable records. Then, again, there is the question of the proportion of men who are permanently invalided and pensioned off before they reach the age of 60 years. This also necessitates a special examination and a careful preparation of the certificate. The rule is that every man who has served 10 years and is invalided or who has reached the age of 60 years is entitled to a pension. This pension is estimated at one-sixtieth of his salary for every year of service rendered. Thus, if the salary be £60 a year the pension will be of as many pounds as there have been years of service.

In France each postal servant has a stiff cardboard *Livret Sanitaire*. This, after giving the name of the bearer, sets out a copy of the certificate of physical aptitude which was given when he applied for the post. Then there are two ruled folio pages divided into three columns. On the first is inscribed the nature of each illness, on the second its date and duration, and on the third the patient's residence. Each postal servant has this bill of health or sanitary passport, which can be readily referred to, so that when he changes his address or for some other reason comes under the care of another medical officer the latter at a glance has a notion of his new patient's past medical history. Then to facilitate the keeping of the records different coloured papers are employed. The medical officer called upon to treat a patient receives a requisition on yellow paper. If he is only to pay a visit of control then the colour of the paper is violet. For consultations at the surgery the paper used is pink. The fortnightly reports of all visits paid to patients are sent in on a form printed on white paper if these were visits of control, and on blue paper if visits for the treatment of the patients. In England the process adopted is, as might well be imagined, much more rough and ready. There is an almost total absence of any such bureaucratic control. The medical men and the patients concerned are left to contrive matters as best they can to their mutual advantage. There are, for instance, no means to prevent the patients making abusive demands except the reproaches they may receive from their medical officer. The patient is supposed to apply at the post-office for a requisition form, get it filled up and sent to the medical officer. This is very rarely done, it is much more simple to send a friend or child direct to the medical officer's house. Perhaps the medical officer would be legally justified in refusing to go in the absence of a proper summons, but it suffices that the patient is ill, and he goes at once. Sometimes these printed requisitions may be sent, not by the patient, but by the postal authorities, who may suspect a case of malingering or of alcoholism.

It is only employés whose wages are under £150 a year who are entitled to the gratuitous services of the postal medical officer. As a rule they are very considerate and never call the medical officer up at night unless it is a really urgent case. On the other hand, the medical officer is very popular, he does not cause terror like the other officials, but calls to help rather than to reprove. If an employé is ill he receives full pay for the first six months and half pay for the next six months. But within the last two years stipulations have been made that if it is a venereal disease the postal servant is not to receive any pay. Needless to remark, no such short-sighted regulation exists abroad. There it is considered more important to protect the innocent than to moralise, and therefore every facility is given to secure the immediate treatment and cure of a terrible malady that can so easily be communicated to innocent wives and children. The new British regulation may, conceivably, largely contribute to the spread of venereal disease. A postal servant cannot afford to stop work and not receive any pay. Therefore he does not consult the postal medical officer but some private practitioner or a dispensing druggist or a quack. Consequently much harm is done from want of proper care and there is a much greater danger that the disease will be spread to other and innocent persons. Again, the postal medical officer is bound to notify cases of alcoholism. But here also the postal servant escapes by obtaining, at his own expense, advice from some other medical man. This involves the delicate question as to how far the postal medical officer should be the friend and confidant of his patients, or what amounts to little short of a spy in the service of the postal authorities. Of course, it is necessary that malingering and drunkenness should be checked, yet it would greatly impair the popularity and the usefulness of the medical officer if he were to be the denunciator. It would not so much tend to prevent the evils in question, but rather it would drive the postal servant to an outside practitioner who would not report such cases and perhaps would not set the patient so rapidly on his legs again. The Post Office would benefit by the denunciations if they were made by their medical officers as stipulated in the rules, but it would lose by the increased absence of the men who resorted to other practitioners. Certainly the postal medical officer has a right of control, but if the private practitioner, whom a postal servant consults, enjoys a good reputation it will be readily understood that the postal medical officer does not like to interfere.

Comparing thus the two countries it is evident that the organisation of the postal medical service in France is more systematic and logical, but there are incidental compensations in England that are not to be despised. The payment in England is a matter of averages and of luck. In France it bears mathematical proportions to the work actually done. In France also—at least, in such towns as Paris—the postal servant has at his disposal wider medical resources and exceptional cases can be met by exceptional treatment. Again, there is this great advantage that the French medical officer prescribes and does not dispense. An official pamphlet is published explaining first that fancy pharmaceutical specialities and proprietary drugs are not to be prescribed, then there is a list of all the drugs that may be prescribed and the price at which they are to be retailed. Any dispensing druggist may sign a contract with the Government undertaking to dispense to postal servants the drugs in question at the stipulated prices. The patients have only to present the prescription to one of these. The latter sends in his account every quarter to the administration and is paid by the Government. Under the present French Government the staff of postal medical officers has been considerably increased, their districts better defined and reduced in size, and their pay augmented. Additional medical and surgical services have been created and provision has been made for postal servants who live in the suburbs outside Paris and who were for this reason not entitled to visits from the medical officers. Now the neighbouring suburbs outside the walls have been added to the nearest district inside the walls, and the medical officer of this district is to attend the patients who live near him but outside Paris. For this, however, he is to receive double pay—namely, four francs a visit instead of two francs—and the operating surgeon 10 francs instead of five francs. This new rule is dated Nov. 20th, 1900, and is a great boon to those who, from motives of health and economy, want to live outside so crowded a town as Paris. Thus it will be seen that much activity has been displayed by M Millerand in endeavouring to improve the medical services in view of benefiting both the medical men and their patients It is to be hoped that so good an example will not be lost on this country

SOME MEDICAL ASPECTS OF THE PAN-AMERICAN EXPOSITION AT BUFFALO.

(FROM OUR SPECIAL CORRESPONDENT)

IN my letter last week[1] the Munson tent, which has been adopted for use in the United States army and which is exhibited in the model brigade field hospital at the Exposition was described, and one or two other features of the display were touched upon. The tent contains all the instruments and materials necessary for the adequate performance of operations in the field These are carried in the field in surgical and sterilised chests and, as in the case of the medical chests, are packed so as to take the minimum amount of room Ligatures and sterilised dressings, inclosed in hermetically sealed packets, to be used when needed, are carried in large quantities The light for field operations is provided by a small acetylene generator which will furnish a sufficient illumination for eight hours without being recharged

As to food the model brigade field hospital is well provided, the same exactitude in packing being observed as is displayed throughout every branch of the system A mess outfit for 100 men, with cooking utensils and tent are contained in a moderate sized chest somewhat larger and of about twice the weight of that used during the Spanish American war for the mess outfit of six men Thus it will be seen that in this instance a veritable triumph of concentration has been reached, one chest taking the place of 16 of those formerly used making a reduction in weight of at least a ton in the transportation of mess materials alone The food tent which adjoins the kitchen tent, contains field rations for 200 men, and in addition two food chests are filled with light, nutritive articles of diet in concentrated form suitable for sick persons The kitchen tent which is situated next to the mess tent, is furnished with all that is needful to prepare food for 100 men at one time The portable cooking range which is a marvel of lightness and compactness contains within itself the requisite utensils for the preparation of food for this number of patients

The most essential part of the equipment of a field hospital—indeed, of the army itself—is perhaps the means of obtaining a supply of uncontaminated water The chief method in vogue in the field hospitals of the United States army to attain this object is the Waterhouse Forbes steriliser This steriliser, adopted on the recommendation of the Army Board after a number of exhaustive experiments, as the best of many water sterilisers submitted for trial, is deserving of a few remarks Its principle action, and construction are thus described by its inventors Firstly, a source of water supply, having a maintenance level below that required for causing the water to pass entirely through the apparatus [illegible] to a part of the water in th [illegible] l by gravity until ebullition [illegible] the water to rise and pass on through the remainder of the apparatus Thirdly, the transference of the heat from the hot water passing from, to the cold water passing to the point where the heat is applied An improved apparatus of this design—one of which is exhibited in the kitchen tent of the field brigade hospital at the exposition—has recently been devised by the Waterhouse Forbes Company, the weight of which, when boxed, is 80 pounds with a capacity in an ordinary way of about 30 gallons hourly Heat for this steriliser is generated by the combustion of mineral oil one quart of the latter being sufficient for five hours continuous use It is claimed for the Waterhouse Forbes steriliser that it economises fuel, that it cools water as rapidly as it boils, and that it boils without loss of the dissolved gases; and last, but not least, that it possesses conspicuous merits distinguishing it above other field sterilisers in that it is light and portable The experience of the United States army with regard to filters tallies in the main with that of the British army in South Africa and of European armies generally—namely, that an ideal, or even really serviceable, field filter has not as yet been forthcoming

Six four horse wagons are allowed for the transportation of a United States army brigade field hospital of 100 beds, with equipment of every description for the care of that number of men—a result which speaks well for the success of the efforts of the Board to solve the difficult problem set them

A New Building for the New York Laboratory of Research at Buffalo

I have taken the opportunity, while in Buffalo at the Exposition, to visit Buffalo University, and especially the New York State Laboratory, which has up to the present done its work within the walls of the Buffalo University The interesting experiments conducted under the direction of Dr Gaylord with the view to discover the cause of cancer and his publication of the results, drew the attention of scientists throughout the world to the laboratory at Buffalo, and although the outcome of these investigations has not equalled the expectations aroused by the announcement—widely and prematurely heralded by the lay journals—that the origin of cancer had at length been finally decided, yet at the same time his researches have been productive of good. It is Dr Gaylord's intention to proceed steadily along the lines which he has mapped out and when he recommences work in October he will be able to do so under more favourable conditions than heretofore have existed The rooms set apart at the Buffalo University for laboratory investigations have been long recognised as inadequate to the purpose There is however now in course of construction in the vicinity of the Buffalo University a building which will be adapted in every respect to the object of scientific research This edifice which will be ready for use in October has been erected by a family named Gratwick as a memorial of a near relative and it will when furnished cost $30 000 (£6000) It is a three storey building of ample size and having been planned and designed under the direction of the State Laboratory staff it should not fail to satisfy the requirements of its projectors.

Public Health and Poor Law.

LOCAL GOVERNMENT BOARD

REPORTS OF INSPECTORS OF THE MEDICAL DEPARTMENT OF THE LOCAL GOVERNMENT BOARD[1]

On the Sanitary Circumstances and Administration of the Holsworthy Urban District by Dr THEODORE THOMSON

On the General Sanitary Circumstances and Administration of the Leicester Rural District by Dr S MONCKTON COPEMAN

On the Sanitary Circumstances and Administration of the Urban District of St Helens, Isle of Wight, by Dr H TIMBRELL BULSTRODE

THESE three reports relate to comparatively small populations and their interest is in the main local and administrative As regards the little market town of Holsworthy, in North Devon Dr Thomson indicates that its sanitary advancement has in the past been greatly hindered by its inclusion in a large agricultural area under the control of a rural district council Such conditions occur frequently and it is open to argument whether in a case of this sort remedy should be found in the separation of such a district as Holsworthy—the population of which is only some 1300—from the rest of the rural district or by the exercise of central authority to compel the rural district council to do its duty At Holsworthy the first alternative which is certainly the easier has been adopted Last year a separate urban district was created and the new district council is now faced with a number of somewhat troublesome sanitary questions Here they should be helped by Dr Thomson's report which not only points to the directions in which improvement is needed but also distinguishes the practical improvements which are most urgently called for The matter of water supply clearly claims the first place Near after year Holsworthy suffers from "water-famine" owing to the local shallow wells running dry. At these times the inhabitants are entirely dependent on water, brought once or twice in the day in barrels from a spring a mile from the town. Prevention of overcrowding of dwellings upon a certain area of land is another matter which in Dr. Thomson's view needs special attention, although, as he remarks, it is singular that such crowding should have arisen, and particularly that it should have been occasioned by recent building, in a town such as Holsworthy.

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[1] THE LANCET, Sept 14th 1901, p 749

[1] London: Eyre and Spottiswoode, Edinburgh: Oliver and Boyd; Dublin: E Ponsonby Price 2d, 4d and 2d

Somewhat similar problems arise in the rural district of Alcester, in the south of Warwickshire. This district has a population of 11,500, of which some 7000 consist of persons living under urban or *quasi*-urban conditions in the towns of Alcester, Studley, and Bidford. These places are sewered and in Alcester water-closets are general. But as the water-supply furnished by the Alcester Waterworks Company is very inadequate, provision for flushing these closets has seldom been made and the usual objectionable results have followed. At Bidford, where privy pails are in use, there is a local contract for periodical removal of their contents by a contractor, but many inhabitants who possess allotments will not avail themselves of the contractor's services and store up excremental matter near their dwellings to use when they think desirable on their allotment patches. By the exercise of a little common sense it should be possible to avoid difficulty of this sort. If allotments are outside the town it should be easy to have available there a supply of town manure for those villagers who demand it. Dr. Copeman points to the serious overcrowding which occurs in Bidford cottages every summer through the large numbers of working-class people from Birmingham who come for a brief holiday Overcrowding is also met with in Alcester, sometimes in very insanitary dwellings. The isolation hospital is too small and has insufficient staff for the needs of Alcester, to say nothing of the adjoining district of Feckenham, from which cases are also received. It is hopeful to note that since his appointment two years ago the medical officer of health, Mr B. S. Browne, has done much good work in bringing to notice various unsatisfactory conditions in his district and in suggesting practical remedies. It is quite obvious, as Dr. Copeman points out, that the remuneration of his office is far from adequate.

The urban district of St. Helens, Isle of Wight, has a population of some 4500. St. Helens proper obtains water from a series of shallow wells which are described as both unsatisfactory and unsafe. But it is intended shortly to extend to this locality the public supply of the Ryde Corporation Waterworks which at present serves a considerable part of the St Helens district. Dr. Bulstrode points to considerable slackness in this district in securing the proper cleanliness of cowsheds. Clamour for isolation hospital accommodation has recently arisen owing to a considerable outbreak of scarlet fever which took place last year. It is said that none of the large land-owners of the locality are willing to sell land to the district council for hospital purposes. This difficulty has often been met with and surmounted elsewhere.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 33 of the largest English towns 6261 births and 4018 deaths were registered during the week ending Sept. 14th. The annual rate of mortality in these towns, which had been 21·6, 21·0, and 19·4 per 1000 in the three preceding weeks, further declined to 18·3 per 1000 last week. In London the death-rate was equal to 16·0 per 1000, while it averaged 19·7 per 1000 in the 32 large provincial towns The lowest death-rates in these towns were 11·6 in Plymouth, 13·8 in Derby, 14·5 in Cardiff, and 14·8 in Huddersfield; the highest rates were 24·5 in Sunderland, 26·4 in Salford, 27·8 in Newcastle, and 28·8 in Gateshead. The 4018 deaths in these towns last week included 971 which were referred to the principal zymotic diseases, against 1506 and 1256 in the two preceding weeks; of these, 704 resulted from diarrhœal diseases, 77 from diphtheria, 61 from "fever" (principally enteric), 45 from whooping-cough, 38 from measles, 37 from scarlet fever, and nine from small-pox. The lowest death-rates from these diseases last week were recorded in Brighton, Bristol, Swansea, and Derby; and the highest rates in Wolverhampton, Manchester, Salford, Sheffield, and Gateshead. The greatest mortality from scarlet fever occurred in Bolton; from whooping-cough in Leicester and Gateshead; from "fever" in Swansea, Nottingham, Birkenhead, Huddersfield, and Sheffield; and from diarrhœal diseases in Wolverhampton, Manchester, Salford, Preston, Sheffield, and Gateshead. The mortality from measles showed no marked excess in any of the 33 towns. The 77 deaths from diphtheria included 28 in London, nine in Sheffield, six in West Ham, four in Bristol, four in Manchester, three in Leicester, and three in Gateshead. Nine fatal cases of small-pox were registered last week in London, but not one in any other of the 33 large towns. There were 135 cases of small-pox remaining under treatment in the Metropolitan Asylums hospitals on Saturday, Sept. 14th, against 13, 41, 74, and 92 at the end of the four preceding weeks; 60 new cases were admitted during the week, against 30, 52, and 31 in the three preceding weeks. The number of scarlet-fever patients in these hospitals and in the London Fever Hospital on Saturday last was 3065, against 3040, 3008, and 2994 on the three preceding Saturdays; 457 new cases were admitted during the week, against 273, 303, and 346 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 126, 114, and 124 in the three preceding weeks, declined again last week to 116, and were 26 below the corrected average. The causes of 34, or 0·8 per cent., of the deaths in the 33 towns were not certified, either by a registered medical practitioner or by a coroner. The causes of all the deaths were duly certified in West Ham, Bradford, Leeds, Newcastle, and in 13 other smaller towns; the largest proportions of uncertified deaths were registered in Liverpool, Blackburn, Sheffield, and Sunderland.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 17·4 and 17·8 per 1000 in the two preceding weeks, declined again to 17·5 during the week ending Sept. 14th, and was 0·8 per 1000 below the mean-rate during the same period in the 33 large English towns. The rates in the eight Scotch towns ranged from 14·2 in Perth and 15·0 in Paisley to 19·1 in Greenock and 24·8 in Leith. The 556 deaths in these towns included 38 which were referred to diarrhœa, 12 to "fever," 10 to whooping-cough, eight to measles, three to scarlet fever, and three to diphtheria. In all. 74 deaths resulted from these principal zymotic diseases last week, against numbers decreasing from 174 to 111 in the six preceding weeks. These 74 deaths were equal to an annual rate of 2·3 per 1000, which was 2·1 per 1000 below the mean rate from the same diseases last week in the 33 large English towns. The fatal cases of diarrhœa, which had declined from 129 to 77 in the five preceding weeks, further decreased last week to 38, of which 15 occurred in Glasgow, eight in Dundee, six in Edinburgh, four in Leith, and three in Aberdeen. The deaths referred to different forms of "fever," which had been 11 and six in the two preceding weeks, rose again to 12 last week, and included eight in Glasgow and two in Dundee. The fatal cases of whooping-cough, which had been eight, 12, and 13 in the three preceding weeks, declined again last week to 10, of which three were registered in Edinburgh, three in Dundee, and two in Leith. The deaths from measles, which had been 12, 12, and eight in the three preceding weeks, were again eight last week, and included six in Glasgow. The fatal cases of scarlet fever showed a decline of two from the number in the preceding week, and included two in Glasgow, where the three deaths from diphtheria were also registered. The deaths referred to diseases of the respiratory organs in these towns, which had been 62 and 60 in the two preceding weeks, rose again last week to 79, and were 9 in excess of the number in the corresponding period of last year. The causes of 17, or more than 3 per cent. of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 24·5, 23·5, and 20·6 per 1000 in the three preceding weeks, rose again to 22·2 per 1000 during the week ending Sept. 14th. During the past four weeks the death-rate has averaged 22·7 per 1000, the rates during the same period being 17·7 in London and 17·3 in Edinburgh. The 160 deaths of persons belonging to Dublin registered during the week under notice showed an excess of 12 over the number in the preceding week, and included 25 which were referred to the principal zymotic diseases, against 35 in each of the two preceding weeks; of these, 22 resulted from diarrhœa, two from "fever," and one from whooping-cough. These 25 deaths were equal to an annual rate of 3 5 per 1000, the zymotic death-rates during the same period being 3·1 in London and 1 6 in Edinburgh. The fatal cases of diarrhœa, which had been 32, 28, and 29 in the three preceding weeks, declined again last week to 22 The 160 deaths in Dublin last week included 43 of children under one year of age and 29 of persons aged upward of 60 years; the deaths of infants showed a decline, while those of elderly persons slightly exceeded the number in the preceding week. Eight inquest cases and five deaths from violence were registered; and 63, or nearly two-fifths, of the deaths occurred in public institutions The causes of six, or nearly 4 per cent., of the deaths in Dublin last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are announced:—Staff Surgeons: J. J. Walsh to the *Brilliant* and J. P. J Coolican to the *Sans Pareil* Surgeons: W. E. Mathew to Plymouth Hospital and M. J Smith to the *Cambridge*.

The new hospital at Haslar, intended for the reception of naval patients suffering from infectious disease will probably be completed by the end of this year.

ROYAL ARMY MEDICAL CORPS

Colonel M. D. O'Connell, is ordered from India to take up duty at a home station as Principal Medical Officer on promotion.

Lieutenant-Colonel J L. Hall, Lieutenant-Colonel G H. Sylvester, Lieutenant-Colonel G E Twiss, and Lieutenant-Colonel F. A. B Daly are in charge of General Hospitals in South Africa. Major A. Baird and Captain N. Marden are coming home from South Africa

Major B. L. Mills has arrived home from South Africa

INDIA AND THE INDIAN MEDICAL SERVICES

Lieutenant-Colonel M. Blennerhassett, C M G., R.A M C, is granted the temporary rank of Colonel whilst officiating on the Administrative Medical Staff of the Army in India

Captain T. H. Delaney, 44th Gurkha Rifles, is appointed to hold Civil Medical Charge of the Naga Hills district, in addition to his military duties.

Lieutenant C. H Stratton, R.A.M.C., is to hold Civil Medical Charge of the Muttra district, in addition to his military duties, vice Major C R Bartlett, R.A M.C.

Lieutenant-Colonel D F. Barry, Civil Surgeon, Cawnpore, is to hold Visiting Medical Charge of the Fatehpur district in addition to his previous duties.

The services of Captain R Heard (Bengal) are placed permanently at the disposal of the Government of the Punjab

Captain R. Bryson will officiate in Medical Charge of the 26th Madras Infantry.

Captain H. R. Brown is appointed to the permanent Medical Charge of the 21st Madras Pioneers

Captain P. K. Chitale, having returned from China, takes over officiating Medical Charge of the 23rd Madras Light Infantry, Secunderabad, relieving Lieutenant W G Hamilton, who is on duty with the 3rd Madras Lancers there.

Dr. T. A. Starkey has handed over (1) charge of the office of District Medical Officer, Satara, to Lieutenant-Colonel C Fancourt Willis, Civil Surgeon, Satara, and (2) charge of the office of District Medical Officer, Poona, to Captain S. Evans, Assistant Civil Surgeon, Poona.

Major G. E Weston, R A.M C, who was granted privilege leave from Nusseerabad, has returned from England and resumed his duties.

Lieutenant-Colonel H J. W Barrow, R A.M C., officiates as Principal Medical Officer, Sirhind district.

SOUTH AFRICAN WAR NOTES.

Civil Surgeon Patrick Dunne died from pneumonia and heart failure at Norval's Pont on Sept 11th.

Civil Surgeons Henry Gould, Henry Ford, Thomas Edward Dobbs, and Green McWatt have been discharged from hospital to duty.

Civil Surgeons E. Turton, E B. Jones, A. Wade, R. C. Verley, W. H. Hunter, and B G. Brock have returned to England.

Civil Surgeons Dunn, Simpson, Lowe, Brew, and Collins are on their way to England.

SOUTH AFRICAN AFFAIRS

Lord Kitchener's weekly reports show that while the Boer leaders are determined on prolonging a hopeless and ruinous conflict their forces are nevertheless being slowly but surely worn down by a process of attrition. Where there is no Government with which to make peace the conquest of a country and the occupation of its capitals are not to be reckoned as tantamount to the subjection of the population and the end of all opposition There is a dogged determination on the part of the Boer leaders not to surrender. It is an inevitable but confessedly troublesome situation, especially as regards Cape Colony, where there probably exists a good deal of disaffection and where the numerous bands of Boers roving over the colony are consequently able to replenish their supplies. The distressing part of the matter is that such irregular desultory conflicts, however futile, are followed by lists of casualties from wounds and sickness. This brings us to a very interesting and instructive article from an actuarial correspondent, which appeared in the *Times* of Sept. 17th, on the South African casualties during the earlier and later stages of the war The article is a long one, but is well worth reading by all interested—and who is not?—in the subject. The differences between the first and second years of the war in respect of casualties are set forth in tabular form, and the contrast between them is a striking and highly satisfactory one The disease-rate, as may be readily imagined, was also very much lower in 1900–1901 than in 1899–1900. It should never be forgotten that the military hospitals were labouring, too, during part of 1899 1900 under the exceptional conditions described by the then commander-in-chief, Lord Roberts—namely, that all the supplies he could get through by rail were required "for the very existence of his force"—a point which seems to us to have been too much lost sight of in the controversy about the medical service in that country.

MENTIONED IN DISPATCHES

A despatch published in the *London Gazette* of Sept. 10th from Lieutenant-Colonel J Evatt D S O, commanding the Nandi punitive expedition sent from the Uganda Protectorate, contains the following:—

> Captain P B Haig Indian Medical Service, was in charge of the medical arrangements of the force It is due to his management and careful attention to the most minor complaint of the meanest native that confidence was established amongst the horde of savages employed as auxiliaries and porters in the desire to secure their well-being and that so small a proportion of wound cases terminated fatally The ready and cheerful assistance rendered by this officer, whether connected with his department or otherwise, deserves the warmest [illegible]
>
> he assistance rendered by Mr R. J.
> er to the Protectorate, who placed
> a time when there were a consider-
> ses, to attend which there was no
> equence of the regretted death in
> ld invite attention to the testimony
> he expedition on the care and skill
> with which these cases were conducted

Lieutenant-Colonel H E Brake, D S O, reporting on the military operations in the colony of the Gambia, commends Fleet Surgeon F J Lilly and Lieutenant H. Hardy, R A M C General Sir Alfred Gaselee, commanding the British Contingent, China Expeditionary Force, commends Colonel J McB Davis, I M S principal medical officer, Lieutenant H A Williams, I M S, and Major T. C McCulloch, R.A.M C

LIBELLING A MEDICAL MAN.—At the Dawlish police-court on Sept 10th a trained nurse, aged 40 years, was charged on remand with publishing libels concerning Dr Charles Newton Lovely of Dawlish, who had attended her professionally Mr Crompton prosecuted on behalf of the London and Counties Medical Protection Society. The solicitor for the defence admitted that the defendant had written about 50 anonymous letters, which were of a "low and gross" character, containing libels concerning Dr Lovely, but he maintained that she was suffering from hysteria and had hallucinations He added that Dr Lovely had cleared his character although no one in Dawlish thought it was necessary and in conclusion he asked the plaintiff to be satisfied with an undertaking to send the defendant away. Mr. Crompton stated that he could not withdraw from the case and the defendant was committed for trial, bail being allowed.

Correspondence.

"Audi alteram partem."

"WAS LUIGI CORNARO RIGHT?"

To the Editors of THE LANCET.

SIRS,—This discussion has wandered somewhat from Mr. E. H. Van Someren's original point—namely, the results of thorough insalivation of the food *in adults*, and Dr. Harry Campbell has made of it an opportunity for urging the use of other than "pappy" food *for infants*, with the object of ensuring "the proper development of the jaws and their appendages" by mastication. But surely Dr. Harry Campbell "propounds a truism with as much energy as if he were defending a paradox." He writes as if there were something quite new in the proposition that an infant's jaws and developing teeth should be exercised thoroughly by mastication, whereas, I venture to think, it would be difficult to find a practitioner among us who is not fully aware of the importance of this point—nay, more, who does not urge it upon his patients. Where is the weaned infant who is not given his crust to suck and chew or his rubber ring on which constantly to exercise his jaws?

The difference between Dr. Harry Campbell and the rest of us appears to lie in the methods which he would adopt for ensuring this functional exercise of the teeth. He would provide for it through the medium of the food on which the child is nourished, whereas the more old-fashioned and general plan is, while gradually increasing the solid matter in the infant's diet, to provide him at other times than when at his meals with various materials on which he may, and does, constantly exercise his masticatory apparatus; and it appears to me that the reasons in favour of this latter plan are too cogent to be put aside lightly. To begin with, the time occupied by an infant at his meals is so short a part of his day that it makes little difference, as far as "the proper development of the jaws" is concerned, whether he has to masticate his food strongly or not at meal time, *provided that he is exercising his jaws during the greater part of the time when he is not being fed.* A weaned child is fed, say, five times a day, and each meal will occupy from 10 to 15 minutes; this means little more than an hour in the day, whereas his chewing of crusts, rings, corals, or what not, can be carried on for many hours—in fact, the infant instinctively spends the greater part of his waking hours in this exercise and only needs to be provided with suitable materials, preferably crusts.

A far stronger reason in favour of what I may call the artificial exercise of the jaws is found in the fact that an infant, if given food that needs absolute mastication, will certainly swallow masses much too large for the digestion to deal with comfortably or profitably. Who has not seen an infant in dire danger of choking from the swallowing of a lump of crust, meat, potato, or the like? Indeed, the one precaution needful in giving him a crust to chew is to see that it is large enough and firm enough to obviate any risk of his either swallowing it whole or separating and swallowing a large piece of it. Particularly would this drawback exist in the case of foods such as meat, fish, potato, &c. I do not see how such articles of diet can be safe for a yearling child unless they are previously finely divided, which, of course, produces the pappy food to the use of which Dr. Harry Campbell objects.

Finally, the cooked food of modern civilised folk, adult as well as infant, is of so soft a nature in general that even if our baby were fed, as so many are, on "everything that *we* has" his diet would hardly necessitate an amount of masticatory exercise sufficient to ensure a full natural development of the jaws and teeth; this, I submit, is better provided for by the time-honoured crust and ring, of which an infant instinctively makes full use, and to my mind Dr. Harry Campbell has by no means established his case in favour of attempting to attain this end by means of harder and more solid food.

I am, Sirs, yours faithfully,

Bromsgrove, Sept. 2nd, 1901. CAMERON KIDD.

To the Editors of THE LANCET.

SIRS,—Dr. Harry Campbell's letter in THE LANCET of August 17th, p. 487, does indeed give food for thought. The number of children who are brought before one with ill-developed chests, weak chins, open mouths, and other concomitants of nasal or post-nasal obstruction is indeed startling, and when, as is so often the case, one diagnoses adenoids and advises operation one is met with the pertinent question, "Why are these cases so common now, we never used to hear of them?" We answer readily enough, "Oh, these cases used not to be understood, used not to be recognised; we know more about them now"; yet we are left with the uncomfortable feeling that after all they must be far more common than they used to be; that our ancestors—for instance, our Elizabethan ancestors—could not have suffered so frequently or so severely from such a disease or they would not have developed into the fine men they did, and we feel that there must be a cause somewhere. Dr. Campbell suggests one, and there seem many reasons for thinking that he must be right. May I suggest another? Anyone watching a child sucking the almost inevitable dummy rubber teat cannot but feel that he is watching the development of the prominent lips, the narrowed palate, pharynx, and nose which are so typical of the children in question and which may well be not only a consequence but also a cause of nasal obstruction and adenoids.

I do not know whether any reliable statistics are available, but my own experience as a general practitioner has certainly been that one meets with adenoids as frequently among the rich as among the poor, and had it not been for Mr. T. B. Sellors's statement to the contrary I should have brought this forward as an argument in favour of Dr. Campbell's theory. One finds post-nasal adenoids in the country as well as in the towns, in the healthiest homes of the rich, among the children of farmers, of well-to-do tradesmen, of farm labourers, and even of medical men, as well as among the children from the slums; nor does it seem to me that improved sanitation has lessened their frequency. One is tempted at times to think that this frequency points to a degeneracy of the Anglo-Saxon race, for they are obviously abnormalities, and, unless treated, very serious ones too. But for all I know they may be just as frequent among other civilised races, and before taking such a gloomy view it certainly seems reasonable to see whether there be not some other cause common to all classes to which we may fairly ascribe them, and it seems to me at any rate that this may well be the "pap-feeding" and comforter-sucking customs of the present day.

But to return to the question of food. When the teeth come it is natural that the child should want something to use them upon, something to bite, and surely it is right that he should have it. But it is difficult to know what to recommend as food. We have been but too accustomed to see the ill-effects of letting children eat just whatever their parents eat, including cheese, raw apples, &c., to say it matters not what they eat, especially in the case of children just weaned. One thing, however, I think we may feel quite certain about: if we bring up our children on artificially digested foods, as seems to be becoming more and more the custom in the present day, we cannot expect them to develop strong digestive organs, nor will they grow up into strong human animals, a point which has, if I mistake not, been abundantly proved by experiments with other animals. The question is an important one for us general practitioners, for it is upon our decisions that the habits of the race directly, or more often indirectly, depend, and we ought to have clear ideas upon the subject. It behoves us as medical men jealously to beware of any course of treatment, however captivating and however beneficial even it may seem temporarily to be, which will in the long run tend to undermine that northern hardihood which has been so characteristic of the Anglo-Saxon race, and which has enabled England to gain and to maintain her position in the world. Coddling treatment of all sorts may be necessary for very delicate children, but far too often, I fear, such delicacy is a result of coddling, not a reason for it. There has been of late years a most beneficial reaction against coddling treatment in many directions, notably among older boys and girls. The good results of this reaction are already evident, notably in the diminished susceptibility to phthisis and other diseases of the respiratory organs. May it not well be that, if we are to get a diminution of the troubles of later life connected with the digestive organs, we must go a step further back and resolutely set our faces against the coddling treatment of these same digestive organs by artificially digested food and by the too prolonged use of soft "pap-foods" in infancy. In thinking of these organs we must not forget the permanent teeth which are undergoing development during the early years of life and which seem at present to be so rapidly deteriorating.

It seems to me that the old-fashioned custom of giving a child which is cutting its teeth a hard dry crust to bite is an excellent one. It gives the child something to bite at instead of something to suck, and so develops teeth, jaws, and buccal cavities. It stimulates the flow of saliva, it would develop the very interesting reflex which Van Someren describes, and it provides the stomach and alimentary canal with small quantities of well-masticated food chiefly carbohydrate and so tends to develop their digestive functions. Provided proper care and cleanliness be used I can see no objection to it, nor can I either discover or understand why its use has been given up and the horrible dummy teat substituted for it.—I am, Sirs, yours faithfully,

H. WILLOUGHBY GARDNER.

Shrewsbury, August 27th, 1901.

To the Editors of THE LANCET.

SIRS,—It is evident that as Dr. Harry Campbell deems argument useless, he expects the iconoclastic theories advanced in his first letter[1] to carry conviction at once to the minds of the most sceptical readers. Whilst not classing myself among these I remain unconvinced by the arguments or ill-concealed display of irritation in his second letter. My anxiety for the baby's gums is as acute as before, and I still maintain that the parts in which teeth have not yet appeared cannot furnish sufficient crushing and grinding power for thorough mastication. I do not for one moment believe that the incisor teeth could fulfil this function, and as the molars do not appear *before 18 months in a healthy child it is evident that nature* intends that age as the earliest at which food requiring thorough mastication can be given with safety. Dr. Campbell mistakes the significance of the phenomena attending the commencement of dentition. The salivation, champing, and insertion of the digits in the mouth are due to the irritation and pain caused by the on-coming teeth and I regard the flow of saliva as an indication for the addition of starchy food to the diet, not as a desire to exercise functions which should not come into play till a later period.

It is not apparent to me that defective growth of the jaw is due to lack of mandibular exercise. I maintain that the infant's jaw has plenty of exercise, and as a small jaw with crowded teeth is frequently met with as the result of early rickets the use of food requiring much mastication is clearly contraindicated by the retarded dentition occurring in that disease. If Dr. Campbell's theory as to the causation of adenoids is correct how does he account for those that are frequently met with in the first few months of life and those which one authority believed to be congenital? But Dr. Campbell has not convinced himself for whilst in his first letter he insists on food which necessitates thorough mastication in his second he only advocates a fair proportion. He need not then be unnecessarily alarmed for most diets for children over a year of age prescribed by the chief authorities contain a proportion of such food. Whether this proportion is sufficiently great cannot be ascertained until Dr. Campbell's promised evidence appears and this I await with much interest.—I am, Sirs, yours faithfully,

J. B. SPEIRS.

Balham, Sept. 2nd, 1901.

"WORKHOUSE NURSING."

To the Editors of THE LANCET.

SIRS,—The fact that a deputation from the Workhouse Nursing Infirmary has been received by the President of the Local Government Board, and that its statements and suggestions have been listened to is a cause of congratulation to all who have the good of the pauper sick at heart. But unfortunately one is accustomed to the official civility which seems so deeply interested whilst all the time the case is prejudged and decided before the counsel comes into court. The country must not be satisfied with the policy of drift, the scandal which clings round the nursing of the sick pauper has been admitted on all sides and it is time that something effective was done. An intelligent nursing order has been issued in Ireland and we may take hope for the "adjacent isles." If only Mr. Long would make some similar decree from Whitehall many of the difficulties would be cleared away. I hope that the Workhouse Nursing Association will peg away until the wrongs of these silent suffering sick paupers have been righted.

I am, Sirs, yours faithfully,

C. J. WOOD.

Nurses' Hostel, Francis-street, W.C., Sept. 10th, 1901.

To the Editors of THE LANCET.

SIRS,—In the letter on the above subject in THE LANCET of Sept. 14th, p. 755, Mr. I. R. Humphreys made such a point of the amount of study which he had bestowed upon the question that one hoped that he would have advanced some plan which, if not feasible, had the merit of being new. An outsider may see most of the progress of a game but evidently an amateur does not necessarily possess the qualifications for grappling with a very difficult question. The plan of combining small unions or parishes into districts for the better treatment of the sick poor is anything but novel and has been adopted by the Local Government Board for various purposes and on many occasions. In bricks and mortar alone Mr. Humphreys's suggestion would mean the expenditure of millions and the ratepayers would have a good deal to say upon that matter whilst the difficulties of transport and the distance of the infirmary from the patients' friends are very formidable obstacles. The friends of country pauper patients have very few shillings to spend in railway fares. But the main point of which Mr. Humphreys is probably unaware is the absence of material suitable for the training of probationer nurses. The acutely sick are but rarely present in the country infirmaries whilst surgical cases are unknown and it would be a fraud upon nursing aspirants and upon the public if such institutions were to attempt to train nurses. The principal duties of a country workhouse nurse are to feed and to keep clean infirm or helpless persons and whilst admitting the desirability I question the necessity (

orm this work.

are fully discussed in

of Nurses delivered

ual meeting last year.

I wish, however, to repeat that workhouse masters and matrons by their training are quite unfitted to have control of the sick wards and so long as they are recruited from the ranks of porters and labour mistresses so long will they be incapable of wisely governing persons of a letter social position and of sympathetically ministering to the wants of the sick. The sick wards in every case should be under the sole control of the medical officer, with a responsible superintendent nurse acting under him and the only duty of the master and matron should be to carry out the orders and requisitions of these officers. They should have absolutely no control over the nursing staff. At the same time nurses who accept posts under the present conditions should remember that they are bound to obey the lawful orders of the master and matron. If the conditions are irksome the office should be resigned but disapproval of a system does not warrant disobedience nor does it condone insubordination. I think that the affairs of a certain nursing association would be more flourishing had it inculcated these principles into its one-year trained nurses instead of making spies and rebels of them whilst telling them that they were pioneers and missionaries in a great and good movement. The needed reform can and will be effected by constitutional methods. The salaries offered by boards of guardians are not likely to tempt trained nurses to remain long in their service but this is merely a question of demand and supply. The suggestion that there should be a separate and presumably lower examination standard for Poor-law nurses as a whole I emphatically reject. The larger infirmaries can and do train their nurses as thoroughly and as fully as any of the hospitals. My opinion is that with adequate salaries and proper government there would be no lack of good nurses even in our smaller infirmaries.

I am, Sirs, yours faithfully,

F. S. TOOGOOD, M.D. Lond.,

Medical Superintendent, Lewisham Infirmary, S.E.

Sept. 12th, 1901.

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[1] THE LANCET, August 17th, 1901, p. 457.

"MUNICIPAL AUTHORITIES AND THE FEEDING OF INFANTS."

To the Editors of THE LANCET.

SIRS,—I notice that in your annotation on this subject in THE LANCET of August 31st, p. 608, you make no mention of the action of my friend Dr. Boobbyer, medical officer of health of Nottingham, who has caused instructions upon the feeding of infants similar in substance to those you so kindly notice to be issued through the registrars, &c. (as are my own), for, I believe, years. That you should be unaware of this surprises me less than it otherwise would have done had I not to confess that I was quite ignorant of the work of Dr. F. G. Haworth at Darwen. As a matter of fact I made use of Dr. Boobbyer's leaflet and those issued by the National Health Society and Dr. Millson, medical officer of health of Newington, in compiling my own, of which I take credit more for the arrangement than for the material. The wording I endeavoured before all things to make of the kind "understanded of the people."

I am, Sirs, yours faithfully,

Norwich. H. COOPER PATTIN.

"THE TREATMENT OF MELANCHOLIA."

To the Editors of THE LANCET.

SIRS,—I have just read the exceedingly interesting and valuable contribution on the Treatment of Melancholia by Dr. L. C. Bruce and Dr. H. de M. Alexander in THE LANCET of August 24th. I now wish to endorse and in some respects supplement their rational methods, as I believe that a very large number of cases of insanity are amenable to early treatment. In this respect asylum physicians are often placed at a great disadvantage, especially in dealing with the less obtrusive forms of insanity, as the friends and frequently the medical attendants do not recognise the gravity of such cases, and proper treatment is only very rarely adopted at an early stage of the disease. The patients are told to rouse themselves up, frequent the busy haunts of men, direct their nervous energies into fresh channels, or are sent for a holiday, but it is only very seldom that absolute rest—mental and physical—is prescribed. Even when they do eventually drift to an asylum individualism in treatment is lost sight of and recovery is unduly protracted or does not take place. It is very unfortunate that these acute mental cases which always require prompt and often energetic treatment should so frequently be placed, as it were, "between the devil and the deep sea." They are incapable of looking after themselves and do not recognise the necessity for any interference; their friends object to an asylum so long as they are manageable at home. and often the means of treatment at home are very inadequate. A considerable number of cases where there are good nursing arrangements and supervision can be as well treated at home as anywhere else, but seeing every year in consultation a large number of cases on the borderland of insanity I have often felt the want of a hospital for acute mental diseases. There is a growing necessity and one which should be recognised in every large populous centre. There was at one time such an institution in connexion with the Liverpool Royal Infirmary, which only wanted reorganising and removing to a more suitable site, but which through what I consider gross mismanagement on the part of the then infirmary staff was abolished at the time University College was founded on its site.

Dr. Bruce and Dr. Alexander say: "We believe melancholia to be a disease of disordered metabolism, and that treatment should be directed towards increasing the excretion of waste products of this metabolism through the channels of the urinary and integumentary systems, and we mechanically accomplish this end by administering to our patients an abundant fluid dietary." In my opinion there is also in all these cases, primarily or secondarily, auto-intoxication from the intestinal tract, hence I invariably prescribe some intestinal antiseptic, such as salol. I also see that the bowels are regularly cleared out with small doses of calomel, followed by saline purgatives. During the prodromal and acute stages the patients are much better in bed, they are thus kept under complete control and secure both bodily and mental rest. It is essential that they should have a fair amount of sleep and insomnia is often a very troublesome complaint in such cases. Of soporifics they have generally had a large amount and varied assortment before I see them. About the commonest and most pernicious are sulphonal and trional. I have never seen any benefit from the use of these drugs, but I have certainly known much mental depression caused by their use.

The late Sir B. W. Richardson showed that melancholia with a suicidal tendency can actually be induced by the use of mercaptan. When a soporific is necessary I prefer a mixture containing chloral, bromide, and morphia. I often prefer, especially in cases where there is any febrile movement, a wet-pack for 30 minutes at bedtime. The patient is wrapped up in a sheet wrung out of cold water from the neck to the knees and surrounded with a pair of blankets. After 30 minutes these are removed, the patient is dried with a soft towel, and allowed to sleep between blankets. I have seen this plan succeed in some bad cases where hypnotics had utterly failed to induce sleep.

In a considerable number of these cases there is dilatation of the stomach with retention of imperfectly digested products. In such cases lavage should be frequently employed, and direct antiseptics, such as iodine, benzonaphthol, carbolic acid, salicylic acid, menthol, &c., administered.

I always prescribe a liquid diet of five or six pints until the tongue is clean and there is some craving for solid food. The dietary is fairly varied and consists chiefly of milk and soda-water or barley-water in equal parts, but never undiluted milk; water, whey, mutton broth or chicken soup, malted milk, Mellin's food, Benger's food, any light milk pudding, grapes, roasted apple with cream, or a ripe pear, &c. No alcohol or any tea or coffee.

In my experience melancholia if taken early in a large number of cases is very amenable to treatment.

I am, Sirs, yours faithfully,

Liverpool, Sept. 4th, 1901. JAMES BARR.

N.B.—I think in their records of the blood-pressure Dr. Bruce and Dr. Alexander must have used Oliver's instrument which is set about 20 millimetres of mercury too high—at least, the one which I have got is, and I therefore prefer Leonard Hill and Barnard's sphygmometer for accuracy.—J. B.

"ON THE PROPHYLAXIS OF CARCINOMA."

To the Editors of THE LANCET.

SIRS,—With reference to the above article in THE LANCET of August 31st I desire to comply with Mr. Keetley's request for evidence *re* "guilt or innocence of milk, butter, or cheese in the etiology of carcinoma."

For several years it has been my lot to practise in mission hospitals in North China and there to have operated frequently on cases of carcinoma as well as to have seen many too advanced for operation. Carcinoma of the breast is common amongst the women (cases of disease of the uterus or vagina never come except for medicinal treatment in dispensary) and cases of epithelioma of the lip and penis are frequently seen amongst the men. The Northern Chinese, at least in the port of Newchwang and in cities in the interior north of that port, *never* use either milk, butter, or cheese as articles of diet, nor do these exist amongst them. There is a *very limited* importation of condensed milk only, but my own experience as well as that of my colleagues has been that even in treating cases in hospital which seemed to require milk diet it was almost impossible to get a patient to use milk even temporarily as an article of diet, so strong is the aversion of the people to its taste and use. I am, Sirs, yours faithfully,

Glasgow, Sept. 2nd, 1901. D. CRAIGIE GRAY.

"THE CELEBRATION OF ST. LUKE'S DAY."

To the Editors of THE LANCET.

SIRS,—The presence of the leading article in THE LANCET of June 29th (p. 1840) on "The Guild of St. Luke and St. Luke's Day," and the letter of Mr. H. E. Haynes in THE LANCET of August 31st (p. 615) under the above heading, indicate a desire to strengthen the links between our religion and profession by an annual Church service on or near to the anniversary of our patronal saint. The view will, I think, be welcomed by many of those of our profession belonging to the National Church and especially by that guild which has led the van in this religious observance. But it may not be amiss to point out that to carry out the suggestion in the letter referred to of holding "a service similar" to that of St. Luke's Guild annually "in every town of the kingdom" will require a considerable and efficient organisation—a central directing and coördinating body and a local body for executive work, and will necessitate the coöperation of the incumbent of each local church selected, a special preacher or sermon, and the concurrence of the churchwardens in an offertory on the occasion and in the modes of its disposal. The latter section of the work would probably be the easier, and in respect to the former it may be suggested that as St. Luke's Guild is already organised, and as one of its present purposes is the formation of local centres for the development of its objects it might be advisable to associate the proposed local celebrations of St Luke's Day with the guild as a part of its work and so save the trouble of forming an additional organisation for this one purpose.

As a member of the guild one is tempted to refer to another portion of the letter—that of the disposal of the offertories—and to suggest that the promotion of the guild's objects—for instance, furtherance of medical missions—is not unworthy to be placed side by side with those mentioned, but for the present let that pass. Suffice it to add that the views expressed are personal ones only.

I am, Sirs, yours faithfully,
FRANCIS H. WELCH, F.R.C.S. Eng.,
Brandram road, Lee. Surgeon Colonel (retired) A.M.S.

"HAY FEVER: ITS REMEDY"

To the Editors of THE LANCET

SIRS,—I think your readers interested in the question may like to know that my suggestion[1] for the employment of adrenalin in tablets has been anticipated for I learn in a communication from the manufacturers that "during the last few months a considerable number of experimental lots have been distributed," and that before long they will be on the market. I am, Sirs, yours faithfully,

Mansfield street, W., Sept 9th, 1901. LENNOX BROWNE.

FEEDING BY THE DISTAL SEGMENT DURING OPERATIONS ON THE STOMACH AND INTESTINES

To the Editors of THE LANCET

SIRS,—Within the past few weeks, while watching the performance of a gastro-jejunostomy for pyloric stenosis it occurred to me that the nutrient injection, instead of being placed in the rectum could with advantage be run into the upper jejunum through the operation opening prior to the completion of the anastomosis. This was done with excellent results. The above instance has strengthened my conviction that the distal portion of bowel in this and similar operations might be frequently employed as a route by which the patient, often half starved or collapsed could be supplied during the operation with nourishment which would stand a fair chance of being absorbed within a comparatively short time. Food introduced in this way having to traverse part of the small and all the large intestine might reasonably be expected to be digested and absorbed with greater rapidity and ease than when inserted into the rectum. This method of utilising the distal portion of intestine as a route for food might be applied to the following cases.

Perforated gastric ulcer and perforating wound of the stomach.—After the insertion and prior to the tying of the stomach sutures a tube, more or less rigid might be passed through the perforation into the stomach and from the stomach through the pylorus, the food being poured into the duodenum.

Pyloroplasty.—A tube being passed through the pyloric incision into the duodenum, after insertion of the sutures the food could be run into the bowel immediately prior to tying the last two or three sutures.

Enterectomy.—The food might be run into the lower segment of bowel prior to completing the anastomosis.

Enterostomy for gangrenous hernia.—The food might be introduced into the lower opening which might be plugged with a swab to prevent regurgitation.

In enterectomy the clamp on the upper extremity of the lower segment would prevent regurgitation of the food during the completion of the anastomosis.

In perforated gastric ulcer or perforating wound of the stomach to obviate any possibility of regurgitation, which would not improbably be prevented by the pylorus itself, the pylorus might be closed by digital pressure or a clamp during the short time necessary for tying the previously inserted stomach sutures. In the year 1901 it is hardly possible to claim any originality for this procedure, but it might be of interest if those surgeons who have employed this method of feeding would give the results of their experience. I am, Sirs, yours faithfully,

Plymouth, Sept 14th, 1901. C. HAMILTON WHITEFORD.

THE AFTER COMING HEAD, PREVENTION OF ASPHYXIA

To the Editors of THE LANCET

SIRS.—A short time ago in attending a case of breech presentation the child was in danger of asphyxia from delay in delivery of the head. It occurred to me that in such cases it would be useful to slip the end of a flexible tube into the mouth of the child. The thoracic respiratory efforts would then result in inflation of the lungs and at the same time the entry of fluid and mucus into the air passages would be minimised. A soft catheter might answer the purpose, but for convenience of sterilisation and in order to prevent the obliteration of the lumen of the tube by pressure I would suggest the addition to the obstetric bag of a soft metal tube equal in size to a No. 8 or No. 9 catheter and if desired, provided at one end for an inch or so with a rubber covering to avoid any risk of damage to the child. I see no reference in the books to the adoption of such a method, but I take the precaution to apologise in advance to the gentleman who will doubtless write next week pointing out that he described the device many years ago.

I am, Sirs, yours faithfully,
Upper Tooting, Sept. 10th, 1901. EDWIN SMITH, M.D. Lond.

*** By a coincidence Mr. G. W. Ord describes on p. 790 of this issue of THE LANCET his successful use of a catheter in these circumstances.—ED. L.

"LEGISLATION AGAINST NATIONAL INTEMPERANCE"

To the Editors of THE LANCET

SIRS.—According to Dr. Kidd it appears that his opponents not only advocate their opinions "too strenuously," but are fighting "in a somewhat languid manner." A surprising feat. His side assert that acquired characters are transmissible. The opponents reply that the statement is incredible. They add that there are trillions of acquired characters in the world and challenge proof of the transmission of even one of them. Dr. Kidd triumphantly exclaims that they have "fallen back on the time-worn biological line of defence the non-proven doctrine of Weismann." He means that his opponents are unable to prove a negative. Will he be good enough to explain what sort of proof he would think satisfactory? Does he expect his opponents to go through these trillions of acquired characters one by one and in each separate instance prove that there is no transmission? If this is not the meaning of his demand I am sure I do not know what meaning it has. I am extremely anxious not to appear "too strenuous," but I am forced to suggest that unless disputants adhere to the common rules of logic we are not likely to derive much profit from this controversy.

Under the ordinary conditions of civilised life repressive legislation invariably results in increased drunkenness. In consequence I stated that alcoholic selection *could* not be checked. Dr. Kidd informed the readers of *Nature* that it was stated that it *ought* not to be interfered with. He now asks "Will he not allow that if it cannot be interfered with it ought not to be interfered with?" Certainly I shall not allow it. A statement of fact is not an expression of opinion. Will Dr. Kidd allow that when he says that a patient's life cannot be saved that it is equivalent to saying it ought not to be saved?

My statement that the monkey wore down the hair more than the man contained no misstatement. The monkey uses its foot as a hand and wears down the hair on it. Man does not use his foot as a hand. Did hair exist on the ungual phalanges of his foot it would not be worn down any more than it is on the terminal phalanges of most other mammals—e.g., the dog and the cat. Yet man has lost the hair and the monkey retains it. Clearly then the loss of hair is not due to wearing down. It is merely part of the general phenomena to which I drew attention. Dr. Kidd asks, "Has he not the courage of his convictions?" If a resolution to repudiate opinions which I do not hold and which are quite contrary to those I have published[1] indicates lack of courage then undoubtedly I am extremely lacking in it. However, these personal matters can be of little interest to the readers of THE LANCET. It would be better if Dr. Kidd turned his attention to the statements which originated this discussion. On the one hand, it was asserted that "temperance reform" does not reform, but the reverse; on the other hand, it was asserted that there is no evidence that parental drinking in any way affects offspring subsequently born. Both assertions remain as yet uncontroverted.

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[1] THE LANCET, August 24th, p. 565.

I am, Sirs, yours faithfully,
G. ARCHDALL REID.
Southsea, Sept. 15th, 1901.

SENDING PHTHISICAL PATIENTS TO NEW ZEALAND.

To the Editors of THE LANCET.

SIRS,—I have several times during the last 30 years made use of your columns to warn medical men against sending phthisical patients here unless they can afford to maintain themselves entirely and pay for such medicines and medical attendance as they may require. Yet they still come. Are medical men at home so absolutely destitute of all common sense that they cannot see the cruelty of sending an unhappy man with tuberculous lungs to compete in the battle of life with able-bodied men? Do they suppose that employment is any easier to obtain in New Zealand than in England? It is far more difficult. The climate—oh, the climate. As the Yankee said: "You hain't got a climate; you've weather and all sorts of samples of it, but no climate." The weather in Auckland is so capricious and changes so rapidly, often four or five times in a day, as to be most unsuitable for phthisical patients, while the houses are built without the slightest regard to hygienic rules. And within the last week I have had two new chums consulting me. My advice is, Go back as soon as you can.

I am, Sirs, yours faithfully,
R. H. BAKEWELL, M.D. St. And.
Auckland, New Zealand, August 15th, 1901.

"THE CONTAGION OF TUBERCULOSIS."

To the Editors of THE LANCET.

SIRS,—Since Professor Koch's recent pronouncement at the British Congress on Tuberculosis my mind has been much occupied with a phase of the question in dispute that seems not to have occurred to bacteriologists. It is this. If milk containing tubercle bacilli be spilled on the streets, at railway stations, in private houses, and other places that milk is often spilled in, and if this milk is allowed to dry, will not the dried tubercle bacilli from it taken into the lungs by means of the air we breathe develop tuberculosis? Bacilli that may be harmless when taken into the system by means of the stomach may be harmful when taken through the lungs. A series of investigations based on the foregoing suggestion might yield valuable results.

I am, Sirs, yours faithfully,
J. NUGENT HARRIS,
Chemist and Dairy Expert to the Agricultural Organisation Society.
Victoria-street, London, S.W., Sept. 7th, 1901.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

Plague Mortality in India again rising.—Appalling Mortality in Madras.—Increase of Officers in the Indian Medical Service.—The Government of Bengal and its Plague Policy.

DURING the past fortnight there has been a considerable rise in the plague mortality. This has almost entirely occurred in the Bombay Presidency, and especially in the Dharwar district. In the week ending August 24th 3404 deaths were returned, as against 3152 for the week previous and 2618 a fortnight ago. Nearly 3000 of the total occurred in the Bombay districts and 211 in Bombay city. In Calcutta there were 22 deaths and in Bengal district 11. In the Mysore State plague is increasing, the deaths having risen from 180 to 234. In the corresponding week last year there were only 629 deaths from plague in all India. Apart from the recrudescence in certain districts the disease has almost died out. A few cases, however, continue in Sind (Karachi), in the Punjab, in certain Madras districts, and in Bengal. This lingering character at so many infected centres is not hopeful for the future, as experience shows that after a more or less definite interval the disease bursts out again.

The death-rate in Madras has been rapidly mounting up week after week. A short time ago there was a very heavy rainfall and the death-rate seems to have increased since then. For the week ending August 23rd it was no less than 119·8 per 1000 and in one division of the city actually 181·8 per 1000. The published returns do not satisfactorily explain the great mortality, because cholera is credited with only 125 deaths out of the total of 1043, fevers with 288, dysentery with 198, and diarrhœa with 44. This leaves a considerable balance for other diseases. In Bombay city also the mortality is very high, the total deaths for the week ending August 27th being 887, giving a rate of over 50 per 1000 per annum. Of the total 203 deaths are returned as due to plague. Calcutta, on the other hand, is exceptionally healthy, but it is curious to note that the mortality of the suburban areas continues as usual—i.e., about half as high again as the district of the city proper. These suburban areas are only partially drained and are not completely supplied with filtered drinking-water; otherwise the conditions of life are the same.

It is rumoured that the India Office is likely to accept the proposal of the Government of India to increase the cadre of the Indian Medical Service by 52 officers. If this be true the prospects of officers in the Indian Medical Service are likely to be considerably improved and it would render the service in many directions more attractive.

A resolution of the Bengal Government with regard to plague has just been published. It declares that there is increased evidence as to the immediate benefit from disinfection and considers that precautionary measures may be taken over a less period, but that the disinfection should, if possible, be of a more thorough character than heretofore. It admits the doubt, held by many, as to the value of the wholesale disinfection which was carried out during the autumn of 1900, but states that the quiet and patient application of disinfection accustomed the people to its use and that they consequently accepted with goodwill the rapid expansion of operations when the epidemic did arrive. It may be concluded from this resolution that disinfection of the premises where cases of plague occur is practically the only measure which will be carried out for the future. There is absolutely no reference to anything else, so that the vigorous plague policy of the early days has been resolved by various stages into the same precautions as are adopted for cholera and small-pox.

August 31st.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

The Liverpool Corporation Hospitals: Annual Inspection.

THE annual inspection of the corporation hospitals by the members of the Hospitals and Port Sanitary Committee took place on Sept. 10th. The party assembled at the municipal offices and under the direction of Alderman Dr. Thomas Clarke, the chairman of the committee, proceeded first to the new hospital at Fazakerley. The visitors were received by the matron and were shown over the fine and expansive estate. A feature of particular interest was the filter-beds which have been laid down for the drainage of the buildings, the process of purification being explained by Professor Boyce, bacteriologist to the Corporation, and Dr. E. W. Hope, the medical officer of health. The City Hospital North was next inspected, after which the party drove to the City Hospital East. Here very extensive building operations are going on, which when completed will afford accommodation for 130 patients. The new pavilions were objects of general approval. The Parkhill Hospital at the south end of the city was then visited After luncheon the chairman gave a brief outline of the work done by the committee He said that three years ago they acquired 120 acres of land at Fazakerley which would provide, he thought accommodation for all future extensions in connexion with the city hospital service in that district and also would enable them to cope with any epidemic of infectious disease which might arise There were at present 82 patients located in the wards—wards which for cleanliness light, and general effectiveness could not be surpassed. In Netherfield road they had a model hospital, and all must have been struck by the beauty of the estate, although the immediate surroundings were anything but ideal. At Mill-lane very extensive building operations were in progress consisting of two large pavilions, which would be equal to any in England In spite of these extensions there was still a great lack of accommodation. On that day there were 40 patients clamouring for admission, but the committee had not a single bed available. That meant leaving in their homes 40 centres of infection It was the duty of the committee to impress upon the Corporation the necessity of providing accommodation for the ordinary incidence of infectious disease By means of these hospitals they had b [illegible] was a [illegible] that [illegible] numbered 100, whilst last year the number was only 11 Small pox also had been successfully dealt with there being only 156 cases and 23 deaths last year Scarlet fever too, had been reduced to a minimum within recent years Something ought to be done to provide isolation accommodation for measles and whooping cough Last year no less than 560 deaths were due to the latter complaint whereas with regard to measles, last year 20,000 children were prevented from attending school, a state of things which might have been averted if they had proper hospital accommodation for that disease The number of beds at present available for patients is as follows City Hospital North 140, City Hospital South 88, City Hospital East, 42, Parkhill 166, Priory road 37, and Fazakerley, 82. When the present extensions now being made at Mill lane are completed that hospital will provide 130 beds, thereby bringing up the total number of beds for the whole city to 643

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[1] The Present Evolution, pp. 339-49; THE LANCET, Oct. 14th, 1899, p. 1006.

Mid Cheshire Infirmary Extension

The Salt Union Limited have intimated their intention to subscribe £100 towards the extension of the Northwich Infirmary, which is the Mid Cheshire Queen Victoria Memorial Messrs Brunner, Mond, and Company, chemical manufacturers, who have given £1000 towards the extension have agreed to increase their annual contribution to the infirmary maintenance fund to 100 guineas

Sept 17th

WALES AND WESTERN COUNTIES

(FROM OUR OWN CORRESPONDENTS)

Housing of the Working Classes

THE first and the last meetings of the Trades Union Congress recently held at Swansea were connected with the question of the housing of the working classes The delegates were urged to organise agitation in order to influence sanitary authorities to put in force the powers which they now possess and a definite resolution was passed calling upon the Government to make provision for dealing with the owners of unhealthy houses to extend the time for the repayment of loans by sanitary authorities to 100 years, and to establish fair rent courts It is suggested that these courts should be composed of three members of a county council, three trades unionists, and one member of a chamber of commerce The members of the congress appeared also to be fully alive to the part which cheap and rapid transit may play in solving the housing problem, and they resolved to ask the Board of Trade to induce the railway companies to issue cheap tickets to working men and also to issue season tickets at a correspondingly cheap rate to that charged for first- and second class tickets In this connexion it is of interest to record the action which is being taken by the Glamorganshire County Council in the provision of tramways within the county Outside the county boroughs of Cardiff and Swansea even the densely populated portions of the county are very ill provided with tramways, the only systems in use at present being at Neath, Merthyr, and a short line connecting Pontypridd with the Rhondda valleys The county council propose to apply for an order under the Light Railways Act, 1896, authorising the construction of five distinct lines of a total length of about 50 miles The construction of these tramways would do a great deal towards relieving the overcrowded condition of some of those colliery districts where it is the rule rather than the exception for a five roomed house to be occupied by two families

Frome Victoria Hospital and Nurses Home

The first cottage [illegible] was established in the year 1874 [illegible] to erect as a Jubilee memorial [illegible] mmodation also for a nurses home On Sept 12th this institution was formally opened by the Hon. Mrs Duckworth The expenditure on the building has been about £5000, the whole of which sum has been already subscribed. The hospital will accommodate 14 patients in five wards, two of which contain four beds each and the remainder one two, and three beds respectively

Bristol Fever Hospital

The Bristol Corporation has finally decided to increase the accommodation at the Ham Green Fever Hospital to the extent of 62 beds at an estimated cost of £24,700

Cardiff Infirmary

Notwithstanding the special appeal made by the Mayor of Cardiff last November, by which the sum of £12,000 was raised to clear off the gradually accumulated debt of the Cardiff Infirmary, it is anticipated that the expenditure of the current year will exceed the income by more than £2000 As the total yearly expenditure is only about £9000 this deficit is a large one, and it is not very creditable to the inhabitants of a town of the size and importance of Cardiff that such a condition should be allowed to continue in the finances of this useful institution The working men of the town have never supported the infirmary to the extent that might have been expected of them In former years this has been explained on the ground that they were not sufficiently represented upon the executive committee but since the beginning of the present year the demands that were made for representation have been fully met and the strength of their representation is now proportionate to the amount of their contributions The colliers and workmen in the counties of Glamorgan and Monmouth subscribe considerable sums to the infirmary although they have local hospitals to support as well, but the Cardiff workmen during the first six months of this year only contributed to the funds of the institution £258 a quite insignificant amount when compared with the £7000 raised annually in the Birmingham workshops or with the £6000 which is annually subscribed to the support of the local infirmary by the workmen of Sunderland, a town which has a population of 20 000 persons less than that of Cardiff.

Water supplies

The continued dry weather has affected the water supplies in many parts of Wales and Monmouthshire. Even in Cardiff and Merthyr, where the storage reservoirs are rarely overtaxed steps have been taken to husband the supply. In several districts one result of the drought has been a large amount of discolouration of the water owing to the peaty character of the gathering grounds Especially has this been the case at Neath, at Pontypridd and in the Rhondda The two last-named districts obtain the greater portion of their water from the same source and for several years complaints have been made as to discolouration due it is said to insufficient filtration. Many of the inhabitants decline to drink the peaty water and obtain supplies from neighbouring mountain streams a practice which in one instance led to an outbreak of typhoid fever among the occupiers of 100 houses. In 46 houses 68 persons were attacked and only 58 recovered Notwithstanding this untoward result and the continuing danger neither the Rhondda nor the Pontypridd sanitary authorities appear at all anxious to take steps to remedy the unsatisfactory condition although attention has been drawn to it by the Local Government Board.

Brentry Inebriates Home

At the meeting of the Worcestershire County Council held on Sept. 9th it was stated that a communication had been received from the Victoria Home for Inebriates at Brentry to the effect that owing to the few male patients sent there that portion of the home was incurring a very serious financial loss, and unless the various county councils who had secured beds would consent to pay 6*d.* per bed daily, whether occupied or not, it would be necessary to close the male portion of the home. The council decided to pay the sum mentioned.

St. John Ambulance Brigade.

Mr. John S. Griffiths, L.R.C.P. Lond., M.R.C.S. Eng., the district chief superintendent of the southern and western district of the St. John Ambulance Brigade, has been appointed acting assistant commissioner by His Majesty the King, acting as Grand Prior of the Order of St. John of Jerusalem.

Sept. 16th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Glasgow University.

THE quadrangles and class-rooms of the University have during the past week been busy with the sectional meetings of the British Association. On Sept. 12th advantage was taken of the interest excited by the presence of so many distinguished scientific men to inaugurate the new anatomical department which has been erected mainly through the munificence of the late Mr. James Brown Thomson. The introductory ceremony was presided over by Lord Lister who spoke of the important position occupied by anatomy in the training of the medical student, and expressed the pleasure with which he found so well-equipped a laboratory and museum in the University where he had formerly been a professor. Principal Story, in intimating the grateful acceptance of the gift on behalf of the University, announced that Professor Cleland had presented to the new museum the whole of his extensive anatomical collection. This announcement was received with hearty applause, in acknowledging which Professor Cleland expressed the gratification which he experienced in continuing his work under the favourable conditions now established. Addresses were also delivered by the Lord Provost of Glasgow and by Sir William Turner. The new premises were afterwards inspected by the company.

Gartloch Asylum, Glasgow.

In the fourth annual report of this asylum the medical superintendent, Dr. Landel R. Oswald, states the number of admissions as 268, as against 211 in the previous year. He draws attention to the generally unfavourable type of the new cases and attributes this state of matters, at least in part, to the postponement of asylum treatment. The statistical tables show that 40 per cent. of the cases had been ill for over a year before coming to the asylum and that only 18 per cent. of these recovered. The report announces that it has been determined to erect a number of detached houses, principally for chronic cases. These are to include a sanatorium for those in whom tubercle is diagnosed or suspected, a small farm colony, homes for "doited" old men and women, and a villa for those whom it is desired to test before discharging or boarding out. The new blocks will bring the total accommodation up to 830 patients.

The British Association at Glasgow.

The papers read at the various sections which have been in session during the past week have, of course, covered a very large field. Several of them have been of special interest to the medical profession. In the section of Anthropology the President, Professor D. J. Cunningham of Dublin, gave an address on the Evolution of the Brain, dwelling more particularly upon the cerebral changes associated with the faculty of speech. Professor McKendrick, who presided over the Physiological Section, discussed the various theories of the Nature of Life. He argued that each germ contained numberless organic molecules sufficient to account for the evolution of a new being, and sufficient also to satisfy all the demands of a theory of heredity. He suggested that vital activities might be determined by motion in the molecules of living matter. This motion might be different in kind from some of the motions known to physicists, and it was conceivable that life might be the transmission to dead matter of a peculiar and special kind of motion. In the same section Sir John Burdon Sanderson read a paper on the Use of the Telephone for Investigating the Rhythmic Phenomena in Muscle. Professor Sherrington described a series of Experiments on the Brain of the Anthropoid Ape. In one of the experiments the motor area for the hand was excised, producing immediate paralysis of the hand, which was followed, however, in a few weeks' time by complete restoration of function. The brain injury led to degeneration in the course of the direct pyramidal tract which had hitherto been considered a purely human feature. A demonstration of direct clinical interest was given by Dr. Robert Kennedy of Glasgow who showed a number of lantern slides of a patient who had long suffered from Facial Spasm and in whom he had divided the facial nerve and grafted its distal end on to the spinal accessory, with the result that voluntary movements of the facial muscles had been in great part restored and the spasmodic condition had ceased. This operation was the outcome of a series of experiments in nerve-crossing. In these Dr. Kennedy observed that when the nerves supplying the flexor muscles of a limb were divided and cross-united to the nerve supplying the extensor muscles the result was that the animal gradually regained control over the flexors. Another demonstration was by Dr. James F. Gemmill who showed by the projection lantern a series of specimens illustrating the Development of the Stapes in the Human Subject. Professor Cleland also read a paper on the Evolution of the Ear in the Animal Series. In the Economical Section an elaborate paper with numerous statistical tables on the Growth and Geographical Distribution of Lunacy in Scotland was submitted by Dr. J. F. Sutherland, Deputy Commissioner in Lunacy. The sections generally have been well attended and the whole meeting has been a great success in every sense of the term.

The New Asylum near Aberdeen.

On Sept. 14th the foundation-stone of the hospital block at the new asylum at present being erected by the Aberdeen City District Lunacy Board at Kingseat, Newmachar, about 12 miles from the town, was laid by the wife of the chairman of the board.

Sept. 17th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Commission on University Education in Ireland.

THE sittings of the Royal Commission on University Education in Ireland will open on Sept. 19th at the Royal University Buildings, Dublin The proceedings will commence at 11 o'clock each day, and so far as can be ascertained the first session will last for about 10 days. Among the earlier witnesses will be the secretaries and some members of the Senate of the Royal University of Ireland.

The Main Drainage of Dublin.

In the opinion of many the most urgently required measure in connexion with the public health of Dublin is the purification of the river Liffey. It is accordingly satisfactory to note that the main drainage works which are being carried on with that object are now in active progress. The drains on each side of the river are completed, and for some time past workmen have been engaged in making excavations opposite Hawkin's-street and at Burgh Quay on the south side. At the latter point the excavation is already more than 25 feet below the level of the bed of the river, and a tunnel is now being constructed for the reception of a huge syphon which will take from the Marlborough-street side the sewage of the northern district which will be conveyed thence to the depôt at the Pigeon House. The tunnelling has been successfully executed for about 20 feet under the bed of the river from the Burgh Quay side, but it will be a long time before the stream can be crossed and a connexion made with the northern sewage works. It cannot be effected in less than another year and may require much longer. It will cost probably more than £300,000. Everything, however, goes to prove that the result will be satisfactory and that Dublin will ultimately be provided with a main drainage system as perfect as that of any city in the United Kingdom.

Proposed Sewage Scheme for Belfast.

At a joint meeting of the Public Health Improvement and Works Committees of the Council of the Borough of Belfast, eld on Sept. 10th, two very important reports—one by Dr. E. A. Letts on the scheme of sewage purification proposed for Belfast and its probable effects on the Lough, and the other by Dr. J. Lorrain Smith on a bacteriological investigation of the experimental beds for the treatment of sewage—were received and considered. It was decided after discussion to recommend the Council to put down four more experimental beds and to construct such other works as Dr. Letts, Dr. Lorrain Smith, and the borough surveyor might consider necessary. It is said that the committee were not satisfied on the information placed before them that the bacterial process would effectively purify the sewage. Both reports indicated a great deal of original work. Dr. Letts's report concluded as follows. "1. The treatment of the sewage by double contact with bacteria beds and the discharge of the resulting effluent into the Lough is, under all the circumstances, the most suitable method for the disposal of the sewage of Belfast. 2. The nuisance in Belfast Lough, or the 'foreshore nuisance,' is caused by decomposition of the green sea-weed, *Ulva latissima*, the growth of which in such enormous quantities is due mainly to the discharge of the crude sewage of the city into the Lough. 3. It is probable that with efficient purification of the sewage escaping into the Lough the sea-weed will eventually be so reduced in quantity as to cease to give rise to a nuisance" He recommends that investigations should be made as to the best material for filling the bacteria beds. Beds of "clinker" have been largely used elsewhere with satisfactory results In Belfast the coke beds are inferior to the brick beds in their purifying action. He thinks finer-grained material might be used in the lower beds with advantage and suggests that "septic tank" treatment of the sewage previously to that of the bacteria beds might be tried in view of the results attained at Manchester. As to the "foreshore nuisance" he thinks that the towns and villages situated along the Lough shores should adopt a system of purification for their sewage before it is discharged into the Lough; the discharge of distillery refuse into the Annswater river should also be discontinued. Reclamation of the moblands where the *ulva* collects and grows should be encouraged. The foreshore should also be kept clear by the proper sanitary authorities by carting the weed away. He believes that the sea-weed might be used as a further purifying agent by allowing the effluent to flow into ponds containing sea-water and the growing *ulva*, and after a suitable period of contact discharging the mixture of sea-water and effluent into the Lough in such a manner as to retain the sea-weed within the ponds. These ponds might be made tidal and [illegible] during the rising [illegible] would be free from [illegible] serve to encourage the growth of the sea-weed in the Lough itself. As the sea-weed when fresh is easily disposed of either by drying and burning or by digging into the ground (it is an excellent manure) its amount in the ponds could be kept under control without difficulty. Dr. Lorrain Smith is convinced that the committee are justified in proceeding in an experimental manner towards the establishment of a scheme of sewage purification similar in type to that exemplified in the present brick beds.

The Royal Victoria Hospital, Belfast

The Board of Management of the Royal Victoria Hospital, Belfast, at their meeting on Sept. 14th, decided to appoint a resident medical superintendent in the place of their late officer, Colonel Glancy.

The British Association.

In Glasgow, on Sept. 13th, it was decided that the meeting of the British Association next year would be held in Belfast, on Wednesday Sept. 10th and following days A very good guarantee fund has already been begun in Belfast The next president will be Professor J. Dewar, F R.S., Fullerian Professor of Chemistry of the Royal Institution, London.

Larne District Nursing Society.

At the annual meeting of this society, held on Sept 14th, it was announced that Mrs. Stewart Clarke, whose husband has already contributed £1000 to the society, would add £500 in her own name. A legacy of £250 has been left to the society by the late Mr. I. S. Howden.

Death of Lieutenant-Colonel Samuel Flood, R.A M C

The death took place on Sept. 14th, at his residence, Omagh, of Lieutenant-Colonel S Flood, L.R.C P. Edin., of the Royal Army Medical Corps. He was on leave when he became indisposed and was attended by Dr. Edward Thompson and Mr. J. J. Todd. The late Lieutenant-Colonel Flood entered the Army Medical Department in 1864, the year after he qualified, and retired on August 24th, 1887, with the honorary rank of Brigade-Surgeon. He was appointed surgeon to the Military Depôt, Omagh, on August 10th, 1889. The deceased officer had seen considerable service. He was in the Afghan War of 1878-80, for which he received the medal, the Soudan expedition, 1884-85 (Nile), and was with the river column in the action of Hirbekan (medal with two clasps and bronze star) He leaves a widow and two children. He was buried with military honours.

Hospital Saturday in Belfast.

Saturday last (Sept. 14th) was the day on which the annual collection was made for the Royal Victoria Hospital, and it is gratifying to announce that about £700 will be realised as a result, the amount for this year being the largest on record.

The Typhoid Fever Outbreak in Belfast.

I regret that there is no appreciable fall in the number of cases of typhoid fever in Belfast, the numbers notified for the last recorded three weeks being 95, 87, and 93 per week.

The Death of President McKinley.

In no portion of the United Kingdom has there been more real and more widespread sorrow at the death of the President of the United States than in Ulster. The late head of the United States was directly descended from an old north of Ireland family who settled originally at Dervock, in North Antrim The old house, built in 1765 (apparently, from the initials and date "W. McK., 1765," cut on a stone) by a William McKinley, is still in existence, and is a place to which Americans, when staying at Coleraine or Portrush, often make pilgrimages; but there is evidence that further back than this the McKinleys lived on the same spot—it may have been in a ruder dwelling torn down to make room for the present house Considerable surprise is felt here in medical circles that such an optimistic view was taken by his attendants of Mr. McKinley's condition. Several days before the unfortunate issue a letter appeared in one of the Belfast papers, signed "M D. since 1864," in which the writer warned the public to "rejoice tremblingly." The importance in gunshot or revolver wounds of the abdomen of not "holloing until you are out of the wood" is very obvious. No one suggests that our American *confrères* did not do their very best in the case, but it might have been advisable to be more reticent. The multiplication of medical attendants—leading as it does to newspaper interviews—often gives rise to apparently contradictory statements.

Sept 17th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

A Child Killed by Lice.

THIS misfortune has actually come to pass at Toulouse. A little girl, aged three years, was brought to the hospital where her mother lay dying owing to acute phthiriasis The poor child was covered with wounds, her hair was full of nits, there was acute conjunctivitis, and the eyelids were glued together with secretion The chest and arms were covered with crusts of impetigo and long cicatricial tracks, while a great part of the back and the thighs were covered with large patches of superficial erosion. Diarrhœa was profuse, the temperature was 37·8° C., and there was acute thirst No urine could be collected, for the child passed everything under her, and despite every care the poor child died during the night The post-mortem examination showed old broncho-pneumonia and pyæmic abscesses in the liver. Dr Laurent, under whose care the child was, remarked that the cause of death was similar to that following extensive burns, being due to the skin lesions which, primarily set up by lice, led to acute infection from the skin.

An Action for Damages owing to Injury caused by Cocaine

The daily press has been greatly concerned at the case of a woman who died in the Beaujon Hospital after an operation on her foot, anæsthesia being brought about by intraspinal injection of cocaine Legal proceedings are to be taken. The facts are as follows. On August 2nd Madame

B—— was brought to the hospital suffering from a wound in the ankle caused by a fall from a wooden horse. She was apparently well and the wound was not serious. But two days later the temperature rose and on August 6th the surgeon in charge, not being satisfied with the progress of the case, gave the patient an injection of cocaine, opened up the wound, carefully disinfected it and applied a dressing. On August 7th, the effects of the cocaine having entirely gone off, Madame B—— died. Her death is attributed to a profound infection from the wound, and apparently the cocaine had nothing to do with the unfortunate result.

Illegal Practice of Medicine by a Foreign Medical Man.

A case is now before the courts in which the director of a medical institute at Paris is being prosecuted for illegal practice. The director, Monsieur S——, in answer to the examining magistrate, said that he was a doctor of a German faculty and that he never practised medicine in France without the assistance of a French doctor—namely, Dr. C——. Despite this explanation the case was referred to the next court. By the law of Nov. 30th, 1892, no one has a right to practise in France with a foreign diploma unless it is endorsed by a French faculty, and this endorsement did not exist in the case of Monsieur S——. The examining magistrate has summoned some of the defendant's patients in order to find out whether they were really treated by Dr. C——, as Monsieur S—— alleges, or by the latter alone.

A New Crematorium.

The Prefecture of Police has just received an application concerning the erection of a crematorium for incinerating corpses and bodies of animals which have been used as subjects at the School of Medicine. M. Charles Richet, the elaborator of the idea, relies upon two chief arguments. First comes that of expense. The cost of removal of fragments from the dissecting-rooms and of the bodies of animals which have been used for experimental purposes in the laboratories amounts to some hundreds of francs a quarter. Secondly come hygienic reasons. The carriage of these fragments, which, to say the least, are not in the best condition, is not without danger to those persons who meet the vehicle on the way to the burying-ground. It would be far safer to burn the remains and the expense of a permanent crematorium would not be great. Experiments already made in the laboratories with a portable stove have given excellent results. The Faculty of Medicine is strongly supporting M. Richet's proposal, but the inhabitants in the neighbourhood of the School of Medicine are afraid that the smell of the burning débris will cause a nuisance. However, it is most probable that the proposition of M. Richet will be adopted after the scheme has been gone into.

The Return of the Red Cross Ambulance from China.

The French Society for Aid to the Wounded sent out to China at its own expense an ambulance intended to serve as an auxiliary to the official hospital establishment. Its staff consisted of three naval medical officers lent by the Admiralty and one civil medical man, two resident medical officers from the Paris Hospital, an apothecary, ten naval orderlies, two civil nurses, and five sisters of charity, together with three members of the society. The administrative head was a man of great devotion and energy, a Monsieur De Valence, who underwent the sad affliction of losing his wife and daughter in the terrible fire at the Charity Bazaar. Many times he might be seen, despite his 65 years and the intense cold, assuring himself by a personal inspection that the soldiers should want for nothing. Both the material and the staff of the ambulance disembarked at Nagasaki, where they settled themselves in the buildings of a school kept by some English sisters, who sent their pupils away to make room and acted themselves as nurses. The ambulance was well provided with everything necessary, the great commercial French houses having freely given such things as provisions, mattresses, blankets, flannel jackets, and bottles of champagne. The ambulance was the only one which was set up on land among all those organised by the various European nations. Its chief function was to act as an evacuation hospital by collecting the sick who filled up the ambulances in the fighting line or who fell ill on board the ships which were taking them home. During the seven and a half months in which it was in action it treated 415 patients. These were mainly cases of dysentery occurring among the troops from Indo-China which were sent to the relief of the Legations, but there were also many cases of pulmonary disease and of typhoid fever. No actual wounded were received except upon two occasions—viz., after the attack upon Tientsin, where there were a great many wounded, and after the unfortunate affair at Chan-Hai-Kouan, where, in the darkness, the Russian and French troops fired upon one another. At this time the hospital took in eight wounded, of whom three died and one underwent amputation. The general sanitary condition of the hospital was excellent throughout, and the mortality was lower than that which is normal to the French army in times of peace, despite the intense cold which often reached 20° or 23° below zero centigrade. All the water drunk was distilled.

Sept. 17th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Tuberculosis and Perlsucht.

IN the *Berliner Klinische Wochenschrift* Professor Baumgarten of Tübingen discusses the communicability of tuberculosis from animals to man. Professor Koch in his address delivered before the London Congress had rightly observed that this question could only be solved by experiments which were, of course, impracticable. Professor Baumgarten in his communication states that inoculation of the human subject with bovine tuberculosis was performed 20 years ago, not for experimental but for curative purposes. Professor Rokitansky had at that time announced that cancer and tuberculosis were never present together in the same individual and that the two diseases were antagonistic to each other. Though this view has now been proved to be erroneous, for cancer and tuberculosis are not so seldom found to be present in the same subject, a surgeon whose name is not mentioned has tried whether by injections of tubercle bacilli malignant growths might be made to disappear. Cultures made from erysipelas have also been injected into the human subject with a like object. The injections of tubercle bacilli had no effect whatever on the disease and did no harm to the patients. Professor Baumgarten then mentions that when the surgeon happened to have no cultures of the bacilli of human tubercle at his disposal he used cultures of perlsucht bacilli obtained from the ox, but although injections of these bacilli were given to more than six patients tuberculosis did not develop in any of them: Sometimes a slight suppuration appeared at the site of the injections, but after the patients eventually died from cancer no symptom of tuberculosis could be discovered at the necropsy; no tubercle bacilli were present either in the lymphatic glands of the part or in the internal organs, or in the malignant growths. Inoculations of the human subject with highly virulent cultures of perlsucht thus proved to be as negative in their results as are injections of human tuberculosis into cattle. It is interesting to learn that the former fact was ascertained 20 years earlier than the latter, which was only made known by the recent researches of Professor Koch and Professor Baumgarten. Both of these gentlemen are in accordance as to the impossibility of communicating bovine tuberculosis to the human subject or human tuberculosis to cattle, but they hold divergent views as to the identity of the bacilli. According to Professor Koch's opinion the bacillus of tuberculosis is quite different from that of perlsucht; Professor Baumgarten believes that they are identical but that their pathogenic action becomes transformed when they are conveyed from man to the lower animals and *vice versâ*. He mentions some examples of this "transformation." For instance, the bacillus of perlsucht when cultivated in rabbits becomes in course of time more virulent for rabbits, whilst the same bacillus cultivated in fowls loses its virulence for rabbits. Tubercle bacilli developed in birds by natural infection are at first no more than slightly virulent for rabbits, but by successive cultures they accommodate themselves to the medium presented by the new host and eventually become highly virulent for rabbits. From these facts Professor Baumgarten concludes that the bacillus of tuberculosis when cultivated for innumerable generations in either cattle on the one hand or human beings on the other becomes so modified that it is no longer able to grow when transplanted from cattle to the human subject and *vice versâ*.

Dr. Garnault in Berlin.

Dr. Garnault, the French medical man who is reported by your Paris correspondent[1] to have offered himself to Professor Koch for experiments on the identity of human tuberculosis and perlsucht, has arrived at Berlin He had a long interview with Professor Koch, the language used being English, as Professor Koch does not speak French, neither does Dr Garnault speak German Professor Koch declined to give injections to Dr Garnault, and advised him, if he really wished to do something towards the elucidation of the question, to drink unsterilised milk from a tuberculous cow for about a year and to abstain as much as possible from other foods Dr Garnault agreed to do so, but, in addition, *will have an injection of highly virulent perlsucht bacilli* performed every month

A Successor to the late General Staff Surgeon Dr von Coler

General Staff Surgeon Dr von Coler, the head of the Army Medical Corps, died in Berlin on August 26th as you announced at the time His death was not generally expected, for only a few persons were aware that his health had failed very much during the last few months, and he continued at his post until some weeks ago, when he was attacked with severe pain in the stomach and liver The fatal issue was due to a malignant growth Dr von Coler's work has been described in THE LANCET of March 30th, 1901, p 975 on the occasion of the celebration of his seventieth birthday It was due to him that the army medical corps attained its *present high standard*, as he wished *the army medical* officers to be not only officers but thoroughly trained medical men, and he made arrangements by which his subordinates always had ample opportunities of keeping abreast with the progress of medical science He will not be an easy man to follow by any means The name of his successor is not yet known but some daily papers report that Surgeon General Leuthold, the principal physician in ordinary to the Emperor, will become general staff surgeon and head of the Army Medical Corps

Sept 16th

AUSTRALIA

(FROM OUR OWN CORRESPONDENT)

Hospital News

THE annual meeting of the subscribers to the Melbourne Hospital was held recently The financial statement presented showed that for maintenance the treasurer had received during the year the following amounts Government grant (fourth instalment for 1899 1900), £3000 , Government grant for 1900-1901, £12 000 , grants from municipalities £375 7*s* , private contributions, £3462 3*s* , Help the Hospital Fund (per the *Argus*), second instalment, £7511 12*s* Hospital Sunday Fund £1339 14*s* 9*d* , proceeds of entertainments, £413 16*s* 9*d* , proceeds of the Melbourne Hospital Bazaar, £8769 6*s* 3*d* , in patients' contributions, £1699 , out-patients' contributions, £1216 4*s* 4*d* , visitors fees £291 4*s* 6*d* , medical students' fees, £465 , nurses premiums, £200 , interest £1509 5*s* 9*d* , sale of refuse &c £159 10*s* , sundries, £263 5*s* 3*d*, making a total of £42,675 9*s* 7*d* *The expenditure for maintenance had* been £25 488 2*s* 3½*d* , and the deduction from the receipts of this amount and of the sums due for accounts unpaid on June 30th left a credit balance of £527 3*s* 6½*d* The endowment fund had benefited by bequests to the amount of £1373 16*s* 10*d* , and the sum now bearing interest was £29 523 6*s* 8*d* The number of patients who had received treatment during the year was 21,772, and of these 5082 were admitted into the wards and 16,690 were treated in the out patients' department The number of in patients discharged either cured or relieved was 3928 and 123 had for various reasons been discharged. Owing to the insufficiency of accommodation *surgical patients had frequently to wait a considerable* time before being admitted, and, moreover, the inadequacy in the number of surgical wards rendered it difficult to provide a reasonable amount of surgical training for nursing probationers The committee hoped to remedy this condition of things at an early date by utilising as a surgical ward a portion of the hospital which had until recently been used for other purposes A further improvement that was most urgently needed was the erection of a suitable building for the reception of patients suffering from infectious diseases The Melbourne Hospital was the only institution in the metropolitan area that treated infectious diseases and, in addition to the large number of adult cases of this nature that demanded admission, all the children of the poor from Melbourne and the surrounding suburbs who suffered, from measles scarlet fever, and diphtheria, must, since they were received nowhere else, be admitted there The committee hoped to be in a *position during the coming year to* replace the present inadequate and unsuitable infectious diseases tents by sanitary and commodious wards —The *report presented to the thirty fourth annual meeting of* the subscribers to the Victorian Eye and Ear Hospital stated that during the year 827 in patients and 5418 out patients had been treated, being an increase of 181 in patients and 111 out patients over the numbers in the previous year The number of attendances of out-patients was 28 791, and of operations performed 1478 "These ever increasing numbers,' the report continued, "have made the present accommodation in the out patient department wholly inadequate, and its enlargement has become a very urgent necessity, but the want of ground room and funds prevents this being carried out ' The receipts amounted to £3521 17*s* 9*d* , the expenditure to £3471 4*s* and there was a bank credit balance of £3674 10*s* 6*d* The building fund was in credit £375 This sum would serve as part of a reserve fund to meet the expenses which would be incurred through sewerage connexions which were estimated to cost some £500 or £600 A special general meeting was then held, when a by law was amended to allow of the addition to the present medical staff of two honorary assistant surgeons, one honorary medical skiagraphist, one honorary pathologist one honorary anæsthetist, and one honorary dermatologist —At the monthly meeting of the Board of Directors of the Sydney Hospital plans and specifications for the rebuilding of the operating theatre were considered and separate tenders were accepted for the building and for the ventilating, heating and sterilising plants —A new ward for women has been opened at Mooroopna Hospital (Victoria) by Lady Madden A memorial stone was placed in position by Mr J V Heily the oldest honorary surgeon connected with the hospital The new ward, which cost £2375 is considered to be exceptionally fine and up to-date in its construction and appointments —The method of electing the honorary staff at the Women's Hospital, Melbourne has been severely criticised from time to time and recently the committee framed new by laws abolishing voting by proxy and by minors and only allowing votes to adult life governors and to subscribers for three consecutive years These by laws were submitted to a meeting of subscribers who appointed a sub-committee to report on them The sub committee took legal opinion as to the legality of the new by laws and reported to another general meeting of the subscribers that the greater number of them were *ultra vires* The meeting referred the new by laws back to the committee of management for revision The sub committee also submitted five different proposals for the election of the staff for an expression of opinion by the meeting, and eventually it was decided that the elections should be as they always had been—that is to say, that it will be possible as heretofore for a candidate who has sufficient money *to buy a position on the staff by* creating "faggot" votes —The annual meeting of the Hospital Saturday Fund of New South Wales was held on July 30th the Mayor of Sydney (Sir J Graham M D Edin.) presiding The chairman stated that since its inauguration the fund had made steady progress Since its establishment in 1894 £29 341 had been collected , last year £4200 were collected, as against £1800 in 1894

Lunacy in New South Wales

The report of the Inspector General of Insane in New South Wales for 1900 shows that the number of insane persons under official cognisance was 4396 as compared with 4217 at the end of 1899 *These figures show an increase* of 179 The average annual increase for the past 20 years was 115 The proportion of insane to the general population was one to 309 persons in the State The number of admissions during the year was 859 Of these 730 were admitted for the first time and 129 had been in the same hospital on some previous occasion The number of admissions continues to grow as the population grows, but the last two years have shown a somewhat quicker rise than the increase in the population would have led one to expect

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[1] THE LANCET, August 31st 1901, p 622

Of the admissions, natives of New South Wales formed 46½ per cent. ; natives of England 21 per cent., of Ireland 11½ per cent., of other Australian States 11 per cent., of other countries 6½ per cent., and of Scotland 4 per cent. The number of patients discharged recovered was 334, equal to a rate of 38·88 per cent. on the admissions and re-admissions. The percentage is under the average, but this, it is pointed out, is probably due to the retention on leave of a number of patients who in the ordinary course of events would have been discharged recovered. The number of patients discharged on probation or granted leave of absence to the care of friends during the year was 260, making those remaining from the previous year 376. The deaths numbered 276, 197 being those of men and 79 of women. Calculated on the average number resident, this gives a percentage of 6·61, which is about the average for the past 10 years. 50 patients escaped ; all but five were recaptured, and of the five none were of the dangerous class. The necessity for providing accommodation for the gradual increase in the number of insane patients under care is again brought into prominence. It is not, the report says, that there is any abnormal or unusual predominance of insanity or that insanity itself is markedly on the increase in the State, but that an increasing population necessarily involves a proportionate increase in the cases of mental diseases, as it does in those of bodily illness. With the progress of the State, therefore, an annual addition must be made to the existing hospitals to allow of these additional cases of insanity being properly cared for. The receipts of the department amounted to £17,839 5*s.* 6*d.*, and the total expenditure to £121,452 1*s.* 2*d.*

Trained Nurses' Associations.

The annual meeting of the Australasian Trained Nurses' Association was held on July 5th, Dr. F. Norton Manning being in the chair. The report stated that correspondence had been carried on with Victoria, Queensland, South Australia, and Tasmania with regard to the formation of branches in these States, but that no definite arrangement had been arrived at. Rules for a midwifery branch were agreed to at the last annual meeting, and 59 nurses had been registered under them. A benevolent fund had been initiated and had a credit balance of £70. The general finances were satisfactory, showing a credit balance of £352. The register contained the names of 414 nurses and 63 medical men.—A trained nurses' association has just been inaugurated in Victoria at a meeting of representative nurses held at the Melbourne Hospital. Its objects are to establish registration of nurses and a uniform system of training and examination, and in time to establish a benevolent fund. Dr. J. W. Springthorpe was elected president and Dr. W. A. Wood and Miss Glover were appointed honorary secretaries.

Charge against a Medical Man.

An inquest has been held in Sydney on the exhumed body of a woman named Ritchie whose husband made a charge against Dr. F. W. Marshall of Sydney of performing on her an illegal operation which caused her death. The medical evidence showed that death was due to hæmorrhage after delivery, but there was nothing to show how delivery was brought about. The woman's daughter swore that Dr. Marshall had used instruments on her mother to bring on abortion, and she also swore that she had been treated by Dr. Marshall similarly. Dr Marshall denied the statement and said that the husband had simply tried to blackmail him. The jury disagreed. As intimated in a previous communication, another charge of a similar character is pending against Dr. Marshall.

August 12th.

NEW ZEALAND.

(FROM OUR OWN CORRESPONDENT.)

Life Assurance in New Zealand.

AMONGST the questions recently discussed at the Medical Conference held in Wanganui only a few related to other than strictly medical topics. The discussion on Life Assurance was one of the exceptions, and the pertinent observations made by many of the speakers were of public as well as professional interest. The relative position of medical referees and canvassers would appear to be a very incongruous one, inasmuch as the canvasser, wherever there are several referees, has virtually the power of selecting which of them shall examine a proponent. The insurance agent or canvasser is remunerated in the majority of cases by commission, and that commission is only paid in those cases in which the proposal is accepted by the insurance company. It is to the direct advantage of the canvasser that every proposal made through his agency shall be accepted as a first-class life, and hence he naturally puts all the work he can into the hands of the medical referee who is most likely to pass a bad or indifferent life. The careful, conscientious examiner is virtually boycotted ; after he has refused to pass one or two proponents he speedily realises that his office as a medical referee is a sinecure. Can it be to the interest of any company to pursue a system which actually penalises the most conscientious and reliable referees and allows the canvasser at his own discretion to select the examiner who is in his opinion the most easily satisfied? The medical referee acts on behalf of the insurance company ; it is clearly his duty to protect his employers from fraud and to safeguard their interests. If he does his duty the canvasser has it in his power to deprive him of any opportunity of performing it. The interest of the canvasser is that all proposals should be accepted ; the interest of the company is that all bad or doubtful lives should be refused. The actual result of this conflict of interest is that the ablest medical examiners obtain the least amount of work. The remedy would seem to be the appointment of a single referee for a clearly defined district and that each referee should examine every proponent in his own district and none outside it. No canvasser ought to be given power to pick and choose who shall make the medical examination. Another point touched upon was the advisability of all reports being sent direct to the medical adviser of the board of directors. These reports are supposed to be confidential and privileged ; the would-be insurer has to make a personal statement, which covers not only his own life-history and habits, but also gives details of any diseases from which any of his relatives may have suffered, and there ought to be no possibility of such a report lying upon an office table perchance to be perused by the office boy. The confidential medical report should be submitted only to the medical adviser of the board on whom devolves the ultimate responsibility of acceptance or rejection of the proposal. It was the opinion of a large majority of the medical men attending the conference that many excellent lives were rejected on insufficient grounds, and that too little confidence was reposed in the recommendation of the local referee. Unless the local referee is incompetent his opinion should not be lightly disregarded, for he alone has had the opportunity of thoroughly overhauling the proponent and of weighing the *pros* and *cons* which render him eligible or ineligible. Adverse comments were made on the unnecessarily elaborate and voluminous forms adopted by the majority of insurance companies. Many of the questions which must be answered, both by the proponent and the medical referee, are trivial and vexatious, and appear to have been framed on the assumption that the examiner would overlook many important points unless reminded of them in black and white.

The clerical labour involved is considerable. There are persons who come to be examined who are obviously ineligible ; a mere glance will reveal the fact to the experienced examiner, or he may have personal knowledge that the proponent is suffering from a serious disease ; nevertheless, the whole tedious performance must be gone through although it is a foregone conclusion that he will be rejected. If a man or woman has a diseased heart it is quite needless to examine carefully every other organ of the body, but it has to be done. The main points on which the verdict of the conference was practically unanimous were : (1) that the canvasser or insurance agent should have no voice whatever in the selection of the medical referee ; (2) that all medical reports should be sent direct to the head office ; (3) that greater confidence should be reposed in the opinion of the local referee, who should be the sole examiner for a limited district ; and (4) that the forms to be filled up should be simplified, and that questions which seem to imply that the referee is either dishonest or incompetent should be eliminated.

Wanganui, July 25th.

Obituary.

ALFRED EDWARD AUST LAWRENCE, M.D., C.M. ABERD.,

CONSULTING PHYSICIAN ACCOUCHEUR TO THE BRISTOL GENERAL HOSPITAL.

DR. A. E. AUST LAWRENCE, as was announced in THE LANCET of Sept. 7th, died suddenly from syncope on August 29th at Bishopsteignton, Devon, where he was on a visit. The deceased received his medical education at the Bristol Medical School, where he gained several prizes and scholarships, and also at Aberdeen University. He graduated M.B. and C.M. of Aberdeen in 1872 and two years later was admitted to the M.D. He then commenced practice in Clifton and was shortly afterwards appointed physician accoucheur to the Bristol General Hospital. Upon resigning this post, which he held for many years, he was made consulting physician accoucheur to the institution. Dr. Lawrence had been for several years professor of midwifery and diseases of women at University College, Bristol, and he held the appointment at the time of his death. The deceased was well known throughout the West of England as an authority on diseases of women and had a [illegible] He was a former president of the [illegible] Society and also a vice-president of [illegible] London, being a member of the council of the latter society for several years. He was the president-elect of the Bath and Bristol Branch of the British Medical Association. Dr. Lawrence was only 53 years of age at the time of his death and has left a widow and two daughters for whom much sympathy is felt. The deceased will be greatly missed in Bristol and Clifton, not only by his patients and friends, but by his many professional *confrères* who so often availed themselves of his valued opinion. The funeral, which took place at *Redland Green, Bristol*, on Sept. 3rd, was numerously attended.

HENRY WILLIAM LIVETT, M.R.C.S. ENG., L.S.A., L.R.C.P. EDIN.

MR. HENRY WILLIAM LIVETT died at his residence in Wells, Somerset, on August 28th, being the anniversary of his eighty-seventh birthday. He received his medical education at St. Bartholomew's Hospital and at Paris; he became qualified as M.R.C.S. Eng. and L.S.A. in 1837, taking the qualification of L.R.C.P. Edin. in 1859. Mr. Livett had been in practice for many years in Wells, being formerly medical officer of health of the borough and surgeon to the dispensary. He was a prominent member of the town council and filled the office of mayor on two occasions; while holding that position he presented the corporation with a silver-gilt mayor's chain and a silver loving cup which he himself had ornamented. Mr. Livett was one of the founders of the volunteer movement in Wells and was ultimately appointed surgeon to the company. He had been a Freemason for 60 years and was also president of various organisations, educational and musical, having been up to the time of his death a remarkably busy and active citizen. At the meeting of the Wells Town Council held on Sept. 2nd the mayor proposed a vote of condolence with the family of the deceased which was unanimously passed. The funeral took place on Sept. 3rd.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The death of the following eminent foreign medical man is announced:—Dr. Alfred Vaucher, formerly Professor of Midwifery in Geneva.

FOREIGN UNIVERSITY INTELLIGENCE.—*Brooklyn (Long Island College)*: Dr. W. F. Campbell has been appointed Professor of Anatomy.—*Brussels*: Dr. Rommelaere is resigning his Professorship of Clinical Medicine, Professor Stiénon taking his place.—*Leyden*: Dr. J. Korteweg has been appointed Professor of Clinical Surgery.—*Naples*: Dr E. Crisafulli and Dr. G. Libertini have been recognised as *privat-docenten* of Psychiatry.—*Pavia*: Dr. Mauro Jatta has been recognised as *privat-docent* of General Pathology and Dr. Mario Truffi as *privat-docent* of Dermatology.—*Rostock*: Dr. Greeff has declined the Chair of Ophthalmology

Medical News.

THE SANITARY INSTITUTE.—A donation of £100 has been promised by the Leeds Fireclay Company to the fund for the new building and endowment fund of the Parkes Museum.

WATER-SUPPLY OF TEIGNMOUTH.—The Teignmouth (Devon) District Council have unanimously adopted the recommendation of the water committee to obtain water from the Hyner Valley, near Dartmoor, at an estimated cost of about £75,000.

DEATH OF A CENTENARIAN.—Mrs. Strachan, *formerly of South Haddo, Fyvie, who died at Scatterty*, King Edward, Aberdeenshire, on Sept. 7th, had attained her 105th year, having been born at Sauchentree, Methlick, in August, 1796. Her maiden name was Martha Calder. Her husband, Mr. Alexander Strachan, farmer, South Haddo, died more than 60 years ago. For the last few years she has resided with her grandchildren.

DEATH FROM UMBILICAL HÆMORRHAGE.—The coroner for West Cornwall held an adjourned inquest on Sept. 9th relative to the death of an infant who died nine hours after birth while in bed with the mother. A previous inquiry had been held two days before, when the father and the midwife who had attended the mother of the child had stated that they could not suggest any cause of death. The coroner consequently ordered a post-mortem examination to be made and this showed death to be due to umbilical hæmorrhage owing to neglect at birth. Evidence also showed that the midwife, when fetched after the child's death, urged the friends to keep the matter quiet. The father eventually admitted that the dead child's clothes were saturated with blood when he first saw it. The jury returned a verdict of "Death from accidental hæmorrhage" and severely censured the father and the midwife for suppressing at the first inquiry all the evidence in reference to the condition of the child's clothes which pointed to the cause of death.

THE STYAL COTTAGE HOMES.—The guardians of the Chorlton Union must be pleased at the report made by the Poor-law inspectors on the homes at Styal. At the meeting of the board held recently it was stated that Mr Moorsom, inspector of Poor-law schools, had complimented the guardians on the condition of the children at the homes. He had specially asked Mr. Fuller, medical inspector of the Local Government Board, to come down to see the children, who corroborated him in stating that from a health point of view they were the best he had come across in any Poor-law institution in England. He considered that their vigour, vitality, and strength were altogether above the average. Dr. Rhodes said that no one *could visit the homes without* feeling satisfied that it was wise to remove the children to them. They were meant for those who had none to care for them, "and they should have an inspector like Miss Zannetti to thoroughly inquire, in the interests of the ratepayers, as to the children who were sent there." This lady has now accepted that duty.

THE BLACKBURN PAUPER CHILDREN.—At a recent meeting of the Blackburn Board of Guardians Mr. Jenner-Fust "ventured respectfully to differ from the board as to the management of pauper children." They had scattered cottage homes and it seemed to him that the object was to do away with the connexion between children and adult paupers, which advantage was lost if the former were first received at the workhouse. But the children were retained at the workhouse till they were five years old. This he considered to be a very great drawback to their probable success afterwards. "They got very little, if any, education at the workhouse," and when they went to the public elementary schools *they were put into competition* with those who had been at school for a year or more and were handicapped to that extent. He might have added that impressions received at that age are apt to be permanent, and that the taint of pauperism, the stigma of low caste, will in many cases be firmly fixed and be a disadvantage to them in their course through life.

Literary Intelligence.—During the present month Messrs. Baillière, Tindall, and Cox have published the following new works: "Diseases of the Stomach and their Surgical Treatment," by Professor A. W. Mayo Robson, F.R.C.S., and B. G. A. Moynihan, F.R.C.S.; "Syphilis and other Venereal Diseases," by H. de Méric, M.R.C.S.; "Lessons on Massage," by Mrs. Margaret Palmer (manager of the massage department of the London Hospital); "A Handbook of Public Health Laboratory Work, and Food Inspection," by O. W. Andrews, M.B., B.S.; and "A Text-book of Military Hygiene" (with eight plates and 400 woodcuts), by Surgeon-Captain E. L. Munson, M.A., M.D. These two latter volumes are reviewed in our columns this week. Of new editions the same firm are publishing a seventh edition of Allingham on "Diseases of the Rectum"; a fourth edition of Rose and Carless's "Manual of Surgery"; a fourth edition of Sewill's "Dental Surgery"; a fourth edition of Dr. Ball's "Handbook of Diseases of the Nose and Pharynx"; a second edition of Dr. Macnaughton Jones's "Practical Points in Gynæcology"; a second edition of Dr. Oscar Jennings's (of Paris) monograph on "The Morphia Habit"; and a fifth edition of Gadd's "Synopsis of the British Pharmacopœia."

BOOKS, ETC., RECEIVED.

Arrowsmith, J. W., Quay-street, Bristol (Whittaker and Co., 2, White Hart-street, London).

University College, Bristol. Calendar for the Session 1901–1902. Price not stated.

Baillière, Tindall, and Cox, 8, Henrietta-street, Strand, W.C.

Syphilis and other Venereal Diseases. By H. De Méric, M.R.C.S. Eng. Price 5*s*.

Churchill, J. & A., 7, Great Marlborough-street, W.

A Manual of the Practice of Medicine. By Frederick Taylor, M.D. Lond., F.R.C.P. Lond., &c. Sixth edition. Price 16*s*.

Downey and Co., Limited, 12, York-street, Covent-garden, W.C.

The Criminal Mind. From the French of Dr. Maurice De Fleury, author of "Medicine and the Mind," &c. Price 3*s*. 6*d*.

Masson et Cie, Paris.

XIIIe. Congr[illegible] Paris, 1900. Section d'Anatomie [illegible] ished by M. Maurice Letulle, Sec[illegible] de Bactériologie et Parasitologi[illegible] the Section. Price 5 francs.

Murray, John, Albemarle-street, W.

Handbook of Physiology. By W. D. Halliburton, M.D. Lond., F.R.S., &c. Fourth edition (being the seventeenth edition of Kirkes' Physiology). Price 14*s*.

Sanitary Publishing Co., Limited, Fetter-lane, E.C.

Sewage and the Bacterial Purification of Sewage. By Samuel Rideal, D.Sc. Lond., F.I.C. Second edition. Price 14*s*.

Smith, Elder and Co., 15, Waterloo-place, S.W.

Dictionary of National Biography. Edited by Sidney Lee. Supplement: vol. i., Abbott–Childers; vol. ii., Chippendale–Hoste. Price 15*s*. per volume.

Medical Diagnosis, with special reference to Practical Medicine. Ninth edition, revised. By J. M. Da Costa, M.D., LL.D., Physician to the Pennsylvania Hospital, &c. Price 24*s*.

Strangeways and Sons, Tower-street, Cambridge-circus, W.C.

Clinical Pathology and Practical Morbid Histology. By T. Strangeways Pigg, M.A. Second edition. Price 5*s*.

Unwin, T. Fisher, Paternoster-square, E.C.

Unprofessional Tales. By Normyx. Price 6*s*.

Wright, John and Co., Bristol (Simpkin, Marshall, Hamilton, Kent and Co., Limited, London).

Kitchen Physic: at Hand for the Doctor and helpful for Homely Cures. By W. T. Fernie, M.D. Durh., &c. Price 6*s*.

Pulmonary Tuberculosis: its Prevention and Cure. By Professor Carlo Ruata, M.D. Price 3*s*.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to The Lancet *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.*

Brew, Richard H., L.R.C.P., L.R.C.S. Edin., has been appointed Medical Officer of Health of the Clutton Rural District.

Forbes, William J., M.B., B.Ch. R.U.I., has been re-appointed Medical Officer of Health of Knaresborough Rural District.

Gilmer, H. A. H., M.B., Ch.B. Edin., has been appointed House Surgeon to the David Lewis Northern Hospital, Liverpool.

Livingstone, Thomas H., M.B., Ch.B. Edin., has been appointed District and Workhouse Medical Officer of the Weardale Union.

Mackenzie, F. D. S., M.B., Ch.B. Edin., has been appointed Assistant House Surgeon to the David Lewis Northern Hospital, Liverpool.

Raby, Leonard, M.D. Durh., M.R.C.S. Eng., has been appointed Medical Officer of the Second District of the Devizes Union.

Snow, C. B., M.B., Ch.B. Edin., has been appointed House Physician to the David [illegible] ool.

Stephens, G. A[illegible] has been appointed [illegible] Institution for the [illegible] J. H. Hall.

[illegible] n appointed Medical [illegible] t Chingford, vice T. Sheppard Taylor, resigned.

Watts, Alexander, M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Medical Officer of Health of the Holbeach Urban District.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

Bradford Royal Infirmary.—House Physician, unmarried. Salary £100 per annum, with board and residence.

Brighton, Hove, and Sussex Throat and Ear Hospital, Church-street, Queen's-road, Brighton.—Non-resident House Surgeon for six months, renewable. Salary at rate of £75 per annum.

Bristol General Hospital.—Assistant House Physician. Salary £70 per annum, with board, residence, &c. Also Physician and Assistant Physician.

Cardiff Infirmary.—Assistant House Surgeon for six months, renewable. Salary at rate of £75 per annum, with board, washing, and apartments.

Chelsea Hospital for Women, Fulham-road, S.W.—Physician to out-patients.

Chichester Infirmary.—House Surgeon. Salary £100 per annum, with board, lodging, and washing.

County Asylum, Burntwood, near Lichfield.—Junior Assistant Medical Officer, unmarried. Salary £150 per annum, increasing to £200, with board, lodging, and washing.

Denbighshire Infirmary, Denbigh.—House Surgeon. Salary £100, with board, residence, and washing.

East Riding of Yorkshire.—County Medical Officer of Health. Salary £400 per annum, rising to £500, with allowances.

Essex County Asylum, Brentwood.—Junior Assistant Medical Officer. Salary £140 per annum.

Hertfordshire County Asylum, Hill End, St. Albans.—Junior Assistant Medical Officer, unmarried. Salary £160 a year, with board, furnished apartments, and washing.

Hospital for Consumption and Diseases of the Chest, Brompton.—Resident House Physicians for six months. Honorarium of £25 for that period.

Hospital for Women, Soho-square, W.—Assistant Physician.

Lancashire County Asylum, Winwick, Newton-le-Willows.—Senior Assistant Medical Officer. Salary £225 per annum. Also Second Assistant Medical Officer. Salary £175 per annum. Also Assistant Medical Officer. Salary £150 per annum. All with board, lodging, and washing.

Liverpool Infirmary for Children, Myrtle-street.—House Surgeon. Salary £85 per annum, with board and lodging.

Manchester Children's Hospital, Pendlebury.—Medical Officer. Salary £180 per annum.

Manchester Clinical Hospital for Women and Children, Cheetham-hill-road.—House Surgeon. Salary £80 per annum, with apartments and board.

Manchester Southern and Maternity Hospital.—Resident House Surgeon.—Honorarium at rate of £50 per annum and board.

Monsall Fever Hospital, Manchester.—Medical Superintendent, unmarried. Salary £350 per annum, with residence, maintenance, and attendance.

Monkwearmouth and Southwick Hospital, Sunderland.—House Surgeon. Salary £50 per annum, with board, lodging, and washing.

North Staffordshire Infirmary and Eye Hospital, Hartshill, Stoke-upon-Trent.—House Physician. Salary £100 per annum, increasing £10 per annum, with furnished apartments, board, and washing.

North Wales Counties Lunatic Asylum, Denbigh.—Second Assistant Medical Officer. Salary £120 per annum, rising to £160, with board, residence, and washing.

Nottingham General Hospital.—Assistant House Physician. Salary £100, with board, lodging, and washing.

Owens College, Manchester.—Junior Demonstrator in Physiology. Stipend £100, rising to £150 per annum.

Royal Cornwall Infirmary.—House Surgeon, unmarried. Salary £100, increasing by £10 a year, with board and apartments.

Royal London Ophthalmic Hospital, City-road.—Curator and Librarian. Salary £120.

St. Mark's Hospital for Fistula and other Diseases of the Rectum, City-road, London, E.C.—House Surgeon. Salary £80 per annum, with board, lodging, and washing.

St. Mary's Hospital Medical School, Paddington, W.—Curator of Museum and Assistant Pathologist. Salary £100 per annum.

St. Pancras and Northern Dispensary, 126, Euston-road.—Physician Accoucheur.

Seamen's Hospital Society ("Dreadnought"), Greenwich, S.E.—House Surgeon. Salary £50 per annum, with board, residence, and washing.

Somerset and Bath Lunatic Asylum, Cotford, Taunton.—Assistant Medical Officer. Salary £120 per annum, rising to £150, with furnished apartments, board, and washing.

TAUNTON AND SOMERSET HOSPITAL, Taunton.—Resident Assistant House Surgeon for six months. Salary at the rate of £60 per annum, with board, lodging, and washing.

TOXTETH PARK WORKHOUSE AND INFIRMARY, Liverpool.—Assistant Resident Medical Officer. Salary £100 per annum, with board, washing, and apartments.

VICTORIA HOSPITAL, FOLKESTONE.—House Surgeon. Salary £100 per annum, with board, residence, and laundry.

VICTORIA HOSPITAL FOR CHILDREN, Queen's-road, Chelsea, S.W., and the VICTORIA CONVALESCENT HOME, Broadstairs.—House Surgeon for six months. Honorarium of £25, with board and lodging. Also House Physician for six months. Honorarium of £25, with board and lodging.

WANDSWORTH AND CLAPHAM UNION INFIRMARY, St. John's hill, S.W.—Junior Assistant Medical Officer for twelve months. Salary £100 per annum, with board, lodging, and washing.

WESTERN GENERAL DISPENSARY, Marylebone road.—Second House Surgeon. Salary £80 a year, with board, residence, and laundry.

WORCESTER COUNTY ASYLUM, Powick, near Worcester.—Third Assistant Medical Officer. Salary £120 per annum, increasing to £140, with board, residence, &c.

YEOVIL UNION.—Medical Officer. Salary at rate of £60 per annum.

Births, Marriages, and Deaths.

BIRTHS.

BATTERHAM.—On Sept. 13th, at Grand Parade, St. Leonards-on-Sea, the wife of J. W. Batterham, M.B., F.R.C.S., of a daughter.

FERGUSON.—On Sept. 11th, at Woodland-road, New Southgate, N., the wife of R. Bruce Ferguson, M.A., M.D., B.C. Cantab., of a daughter.

HANCOCK.—On Sept. 11th, at Court House, Wiveliscombe, Somerset, the wife of W. Ilbert Hancock, F.R.C.S., of a son.

LAUCHLAN.—On Sept. 12th, at Clapham-road, S.W., the wife of Charles A. Lauchlan, L.R.C.P., L.R.C.S. Edin., of a son.

NEWTON.—At Brook-hill, Sheffield, on 17th inst., the wife of Duncan Gray Newton, M.B., C.M. Edin., of a son.

PANCKRIDGE.—On Sept. 11th, at Petersfield, Hants, the wife of W. P. Panckridge, M.B. Lond., M.R.C.S., L.R.C.P., of a son.

S[illegible] Haslemere, the wife [illegible]

S[illegible] India, the wife of Major D. Simpson, I.M.S., of a son.

SYMONS.—On Sept. [illegible] wife of Captain F. A. S[illegible]

WHICHER.—[illegible] the wife of A. Hastings Whicher, M.R.C.S., of a daughter.

MARRIAGES.

AVENT—NOCK.—On Sept. 17th, at the parish church, Alvechurch, by the Rev. John Avent, M.A. (father of the bridegroom), Arthur Avent, L.R.C.P., to Kate Hurd, daughter of the late J. B. Nock.

CORBEN—OCKENDEN.—On Sept. 17th, at St. George's, Hanover-square, by the Rev. Everard J. Haynes, M.A., Charles Corben, M.R.C.S., to Annie Bulmer, widow of the late E. J. Ockenden, and daughter of the late Major John Godson, Madras Staff Corps.

CRACE-CALVERT—ADAMS.—On Sept. 11th, at Clapham Congregational Church, by the Rev. J. C. Thompson, George Alfred Crace Calvert, M.B., M.R.C.S., to Ellen Marguerite Adams, daughter of Francis Adams.

PICKTHORN—RIDINGS.—On Sept. 12th, at Warblington Church, Hants, by the Rev. W. B. Norris, Staff Surgeon A. J. Pickthorn, R.N., to Florence, daughter of Deputy-Inspector-General W. G. Ridings, R.N. (retired).

PRESTON—READ.—On Sept. 12th, at the parish church, Little Clacton, by the Rev. Frank Bedell, M.A., Joseph Charles Preston, L.D.S., to Janet Mabel, daughter of Thomas Read.

STEVENSON—LAMB.—On Sept. 17th, at St. Mary's Church, Ealing, by the Rev. Dr. Oliver, Walter Brodie Stevenson, M.R.C.S. Eng., L.R.C.P. Lond., to Annie, daughter of William Douglas Lamb.

THORMAN—ADAIR.—On Sept. 11th, at St. Swithin's Church, Bathford, Somerset, by the Rev. H. Byng Tillbrook, William Henry Thorman, M.R.C.S., L.R.C.P., to Jeanie, daughter of the late Major Wallace Adair.

WORTH—SHEPHARD.—On Sept. 17th, at St. John's Church, Eton, by the Very Reverend the Dean of Windsor, Francis James Worth, M.D., B.S., L.R.C.P., M.R.C.S., to Margaret Louisa, daughter of the Rev. J. Shephard, vicar of Eton.

DEATHS.

BALFOUR.—At 15, Marmaduke street, Liverpool, on the 11th inst., Alice, wife of [illegible]

HA[illegible]

ROBERT[illegible]

TRACY.—On Sept. 10th, at Crescent-road, Alverstoke, Hants, Samuel John Tracy, M.R.C.S., L.R.C.P., aged 85 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

A WEAK ARGUMENT.

A CORRESPONDENT signing himself "Exoteric" writes to us stating that in a letter which he sent to the *Times* concerning tuberculosis he observed "that the public were entitled to proofs of the transmission of the disease from man to man through the sputum," and exemplified his own case as a proof against the bacteriological origin of pulmonary tuberculosis in that "in his youth predisposed to consumption," and "at that period intimately exposed for months to the perils of the tuberculous sputum" yet he fortunately did not contract the disease. The writer of a leading article in the *Times* did not agree with "Exoteric" in his deductions, and we agree with the writer in the *Times*. "Exoteric's" argument borders on the ridiculous. That "Exoteric" did not become affected with tubercle is no reason why others should not become so. Fortunately for the human race, everybody, even if "predisposed," who is brought into contact with the infective material of tubercle does not contract the disease, any more than everyone who is brought into contact with a case of scarlet fever "catches" that disease. Nevertheless "Exoteric" will scarcely go as far as to say that therefore scarlet fever is not infectious. The sputa of patients suffering from pulmonary tuberculosis have countless times been shown to contain the pathogenic bacilli and to produce tuberculosis in animals. We are far from wishing to create such alarm as will cause all consumptives to be shunned by their neighbours, but we can assure "Exoteric" that the infective nature of tuberculous sputum has been overwhelmingly proved and that the fact cannot be upset simply because he has escaped infection. Every care should be taken in the disposal of the sputa of consumptives, as thereby the danger of the spread of the disease is very greatly lessened.

INSUFFICIENT LAVATORY ACCOMMODATION IN GIRLS' SCHOOLS.

To the Editors of THE LANCET.

SIRS,—The importance of the above question cannot be too forcibly impressed upon parents and guardians now that vacation is ending and school-time recommencing. The evil, for the most part, exists in high-class private schools at fashionable seaside resorts, where probably some 20 to 40 children and growing girls are residing *in statu pupillari*, without counting the teaching staff and the servants. Otherwise liberally and beneficently conducted, the absolute and paramount necessity of providing an adequate number of water-closets is not recognised or met, and habits of irregularity are started and fostered which, in their evil consequence, last a lifetime, and from which arise anæmic and dyspeptic troubles apart from others more vital and serious. As both a parent and a member of the medical profession [illegible] gularity at home, [illegible] habits of irregularity merely from insufficient accommodation. The "constipation" (save the mark!) resulting is then treated medicinally—insult added to injury. Truly, "From the mouths of babes and sucklings learn we wisdom." Let any father or mother question their children and in all probability the veracity of the following statement will be amply corroborated. "We often have to stand in a line after breakfast, waiting our turn. There is a regular rush. Then when my turn comes I don't want to go, and, besides, we must be quick so as to be ready for our morning walk. I often miss a day or two and then I am told to go and ask the governess for pills." Beneficent Nature's impulse thwarted and scoffed at and the vile habit of pill aided peristalsis commenced, never, perhaps, to end as long as life lasts. More searching inquiries will elicit the fact that for about 27 girls, of ages varying from 11 to 19 years and four governesses, but two water-closets are provided. Of these two conveniences one is upstairs and the other is downstairs. The upstair accommodation is, except under special conditions, practically prohibitive; indeed, "the girls lose a mark if found there." Therefore, to the after-breakfast morning call of nature—that most general and important function moment which should never be checked—and within the limited space of time allowed between that meal and the morning walk, for some 27 pupils is provided only one convenience, and, doubtless, even to that access is governed by the school rule of *seniores priores*.

Now, how should this practical and simple illustration of the difficulties which beset our little ones at boarding school be met? That such should not exist is my emphatic opinion, both as medical man and parent. Schools otherwise conducted on irreproachable lines are grievously at fault in this particular, and as a simple but efficacious remedy I suggest that each local governing board should empower and instruct the medical officer of health of the district to visit and inspect all scholastic establishments, and to issue or to forbid certificates to the same until adequate lavatory accommodation is provided per head, on a basis, say, of at least one water-closet to six pupils.

Parents, again, when seeking a school for their girls (boys are generally better provided for) should mentally compare the number of pupils with the lavatory accommodation provided and be guided in their choice of school thereby. How such a type as quoted above derives its being is easily understood. At some favourite resort a private house is taken and some half a dozen or so pupils are installed. At this stage the lavatory accommodation is sufficiently ample, but prosperity and more pupils come, whilst the lavatory accommodation required does not increase *pari passu* with the pupils' advent, and the evils I have endeavoured to point out result.

I am, Sirs, yours faithfully,
HUGHES R. DAVIES, L.R.C.P. Lond., M.R.C.S. Eng.
Bow, E., Sept. 17th, 1901.

"VACCINATION CONCERTS."

A LETTER in the *Times* recently stated that a case of small-pox has occurred in a hop-field in Kent and that, with the view of encouraging vaccination among the hop-pickers who flock to certain parts of that county at this time of the year, the Rev. Richard Wilson, curate of St. Augustine's, Stepney, is holding a series of "vaccination concerts." The concerts take place in the evening in a large marquee on the village green, at Five Oak Green, near Tonbridge, whilst all of the audience who can be induced to undergo the operation are vaccinated in an adjoining tent, the vaccinator being assisted by nurses from the "Little Hoppers' Hospital." Mr. Wilson himself set an example by being vaccinated on the evening of Sept. 7th. This practical method of recommending vaccination has proved very popular with the hop-pickers, large numbers of whom, both adults and children, have submitted to the operation.

OPEN-AIR TREATMENT OF PHTHISIS.

To the Editors of THE LANCET.

SIRS,—I shall be much obliged if you or any of your readers can tell me if there is any place in England where the open-air treatment of phthisis is carried out and where the poorer class of patients are admitted gratis or by means of a letter.

I am, Sirs, yours faithfully,
Sept. 18th, 1901. H. H. W. B., L.R.C.P., &c.

⁂ We know of no such institution at present. There are plenty of institutions where patients are received in return for certain payments. In Scotland information might be sought from the Quarrier Homes, Bridge of Weir. Several local authorities in England are building, or are about to build, sanatoria for poor tuberculous patients, but at present the provision for these unfortunate people is very scanty.—ED. L.

INSTRUCTION IN SMALL-POX.

To the Editors of THE LANCET.

SIRS,—As the father of a student at a medical school in London I am surprised that the opportunity afforded by the present outbreak of small-pox in London is not being taken advantage of to enable the students at our hospitals (the medical advisers of the next generation) to acquire a knowledge of the preliminary symptoms and the treatment of this disease, now, fortunately, so rare in its recurrence. This impresses me the more as my son has recently had to go through a fever course at the hospitals of the Metropolitan Asylums Board, which body would no doubt afford similar facilities as regards small-pox. I am, Sirs, yours faithfully,
Sept. 17th, 1901. WM. F. DEWEY.

"THE METHODS OF A PUBLIC VACCINATOR."

To the Editors of THE LANCET.

SIRS,—I have read with interest the circular published in THE LANCET of Sept. 14th, p. 768, which a certain public vaccinator incloses to parents when announcing his intended visits, and also your comments thereon, which, I am pleased to know, condemn the practice. I have recently had brought to my notice the method of another public vaccinator by a patient of mine who called upon me to ask me to postpone the vaccination of her child in consequence of ill-health. I did so and advised her to have the operation performed before the expiry of the two months and so avoid teething time. She then informed me that she was to have it done by the public vaccinator, for he had explained to her when he called the previous week that no medical man in ——— could get the same lymph that he had access to, that he had vaccinated over 3000 cases and "had never had a bad arm," &c. Naturally, I informed her that I, in common with all medical men, could obtain the purest lymph procurable. But whether I have convinced her time alone will enlighten me.

I am, Sirs, yours faithfully,
Sept. 16th, 1901. DISGUSTED.

WINTERING IN THE SOUTH.

To the Editors of THE LANCET.

SIRS,—Can any of your readers inform me if they know of any family (English or French) in the south of France who would receive into their circle an English lady as a paying guest for the winter? Thanking you in anticipation,

I am, Sirs, yours faithfully,
W. B. BANNERMAN, M.R.C.S.
2, Hemingford-road, Barnsbury, Sept. 17th, 1901.

MEMBRANOUS COLITIS?

To the Editors of THE LANCET.

SIRS,—I shall be grateful if any reader will give me information as to the treatment of a case that I take to be one of membranous colitis. The facts are briefly these. The patient has for two years or so passed small shreds of mucus from the bowel, but as there were no pains except at long intervals (and they were set down to colic) treatment was not sought. About two months ago, however, after a night of abdominal pain, a large shapeless mass of mucus of ivory whiteness was passed, followed in four days by (for the first time) blood. Since then there has been alternating looseness and constipation with almost daily passage of flakes of mucus and on two occasions a little blood, pain being a varying symptom, never very severe and sometimes absent for days together and having no relation to the state of the bowels or the voiding of mucus. The patient has been in India and Africa, but has never had either malaria or dysentery. I shall be obliged also for any references to literature on the subject.

I am, Sirs, yours faithfully,
Sept. 17th, 1901. WORRIED.

PRESERVING THE ELASTICITY OF INDIARUBBER.

DR. D. T. RICHARDS of Risca (Mon.) asks whether we can inform him of the best means of preserving rubber goods from cracking or getting stiff. Another correspondent whose initials and name we are not able to decipher, but who also writes from Risca, asks practically the same question in regard to rubber tubing. The troublesome hardening of rubber, by which it loses its best and essential quality, has been held to be due to the gradual evaporation of the solvent liquids contained in the rubber and introduced during the vulcanising process. Accordingly it has been found that the elasticity of rubber goods may be preserved by keeping them in vessels containing a dish filled with common petroleum. Another expedient is to steep them in a bath of melted paraffin for a few minutes and then to allow them to dry in air heated to 100° C. Smearing with glycerine diluted with water will preserve to some extent the elasticity of rubber tubing.

UNCLE AND NEPHEW.

To the Editors of THE LANCET.

SIRS,—In the little country village where I am practising there is also an unqualified man who carries on a practice as if he were duly qualified. If a case of his assumes a serious aspect an uncle of his who resides some miles away is called, and if death ensues the uncle grants a certificate. On Monday, Sept. 9th, at 1.30 A.M., I was called to see a child whom the father, so he informed me, thought to be dying. I got up and went, and in the course of my inquiries found that the child had been attended for about a fortnight by this unqualified practitioner. I said nothing to the parents then about the child having been attended by an unqualified man, but on seeing the child again at 8.30 A.M. and finding the case almost hopeless I informed the mother that if the child should die I could not give them a certificate. I ought to mention here that before coming to me the father had been to the unqualified man and had told him that the child was considerably worse and that he was afraid it was going to die, and the unqualified man had sent him on to me so that I could give a certificate. The child died early the following morning and the father came down to me and asked me to grant a certificate, which I refused to do, and told him to notify the case to the police. I had occasion to be away on Wednesday afternoon and on returning in the evening I found the following note awaiting me:—

> To Dr. —— 11/9/01.
>
> Mr. ——, the Coroner, states that you ought to have given a Death Certificate To ——— for that Child you have been attending he also says if you dont give one he shall let the athorites know about it. Yours —— ——
>
> P.C. ——

The policeman had called and I not being at home he had left the note for me. The father called on me again that evening, thinking that after receiving the above note I should at once proceed to make ou the certificate. I told him I did not intend to grant one, and the coroner, on being notified to that effect, ordered an inquest for the following day. I was not called to give evidence, but I learned from a juryman that on being asked by the coroner what he was the unqualified man replied that he was an unqualified assistant to Dr. —— of ——, naming his uncle. The coroner in his summing-up to the jury gave them to understand that I ought to have given a certificate and told them it appeared to be a quarrel between the two of us, with which they had nothing to do, being but simply concerned in trying to find out the cause of death. As there seemed nothing to attribute the death to but natural causes he asked them to bring in a verdict accordingly. Considering the attitude taken up by the General Medical Council regarding covering, should I have been doing wrong in granting a certificate in the first place? I should also like to ask your advice what to do in future should I be asked to see a case which has been attended by the unqualified man and is likely to end fatally. Should I be justified in refusing to go at all? I am, Sirs, yours faithfully,
Sept. 17th, 1901. PERPLEXED.

⁂ Our correspondent, in the light of the story whose incidents he relates above, was perfectly right in refusing to give a certificate, and we do not think that the coroner showed due appreciation of the dignity of his ancient office. He should not allow, as he apparently does allow, the village Dogberry to deliver ultimatums like the note quoted It is difficult to lay down any rule for our correspondent's future guidance He is under no legal obligation to attend any private patient, but still his refusal to attend the victims of the unqualified man might cost a life If the facts can be proved to have occurred as stated the attention of the General Medical Council should certainly be drawn to the conduct of the qualified uncle—ED L

W H R—1 The Students Number of THE LANCET, published on Sept 7th, gives full information in an article entitled 'The Student's Library" 2. The books to be read are those recommended in that article for the double qualification of the English Royal Colleges One of the surgical treatises recommended for the higher qualifications should also be read 3 The treatises of Howell and Macbride are the most exhaustive ones in English

R. A B—We see no objection to the circular provided that it be sent out under cover

During the week marked copies of the following newspapers have been received—*Yorkshire Post Bristol Mercury Liverpool Daily Post, Fife Herald and Journal Daily Mail Evening News (Portsmouth) Finsbury Weekly News Leeds Mercury Isle of Man Examiner Ulverston Advertiser, Reading Mercury Windsor and Eton Express, Hertfordshire Mercury Sheerness Guardian Essex County Standard Weekly Free Press (Aberdeen) &c*

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a m by Steward's Instruments)

THE LANCET Office Sept 19th 1901

Date	Barometer reduced to Sea Level and 32° F	Direction of Wind	Rainfall	Solar Radia in Vacuo	Maximum Temp Shade	Min Temp	Wet Bulb	Dry Bulb	Remarks at 8.30 A M
Sept 13	30·01	NNW		91	64	57	55	58	Dull
,, 14	29 76	N E	.	101	66	54	55	59	Fine
,, 15	29·83	N E		98	63	53	55	56	Cloudy
,, 16	29 79	S		96	65	49	48	49	Hazy
,, 17	29 42	S	0·65	76	65	49	59	60	Raining
,, 18	30 00	WNW	0 19	109	67	52	50	56	Cloudy
,, 19	29·91	S		77	63	51	53	58	Cloudy

Medical Diary for the ensuing Week.

OPERATIONS

METROPOLITAN HOSPITALS

MONDAY (23rd)—London (2 P M) S
Thomas's (3.30 P M), St George's
Middlesex (1.30 P M) Westmin
Samaritan (Gynæcological by P
(2 P M), Royal Orthopædic (2 P
Gt Northern Central (2.30 P M) West London (2.30 P M), London Throat (2 P M)

TUESDAY (24th) M), St
) West
College
Mark's
Throat
M and

College
ng-cross
College
2 P M)
maritan
orthern
0 P M)
square

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At the Royal Eye Hospital (2 P M) the Royal London Ophthalmic (10 A M) the Royal Westminster Ophthalmic (1.30 P M) and the Central London Ophthalmic Hospitals operations are performed daily

LECTURES ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (23rd)—MEDICAL GRADUATES COLLEGE AND POLYCLINIC (22, Chenies street, W C)—4 P M Dr A Whitfield's Clinique (Skin)

TUESDAY (24th)—MEDICAL GRADUATES COLLEGE AND POLYCLINIC (22, Chenies-street W C)—4 P.M. Dr Harry Campbell's Clinique (Medical.)

WEDNESDAY (25th)—MEDICAL GRADUATES COLLEGE AND POLYCLINIC (22, Chenies street, W C)—4 P.M Mr P W De Santi's Clinique (Surgical.)

THURSDAY (26th)—MEDICAL GRADUATES COLLEGE AND POLYCLINIC (22, Chenies-street, W C)—4 P M Mr Hutchinson's Clinique (Surgical)

FRIDAY (27th).—MEDICAL GRADUATES COLLEGE AND POLYCLINIC (22, Chenies street W C)—4 P M Mr Work Dodd's Clinique (Eye.)

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff It is urgently necessary that attention be given to this notice

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office

Lectures, original articles, and reports should be written on one side of the paper only AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication

We cannot prescribe or recommend practitioners

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor

Letters relating to the publication sale, and advertising departments of THE LANCET *should be addressed "To the Manager"*

We cannot undertake to return MSS not used

MANAGER'S NOTICES.

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Communications, Letters, &c., have been received from—

A.—Mr. W. Armstrong, Buxton; Dr. S. M. Alcantara, Venezuela; Messrs. Arnold and Sons, Lond.; Messrs. Armour and Co., Lond.; Mr. C. E. M. Althorp, Bradford; A. H. P.; Mr. E. Aylward, Tenby.

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D.—Mr. A. Doran, Lond.; Dr. J. D. Day, Lond.; Mr. E. Darke, Lond.; Mr. A. J. Drew, Oxford; Messrs. H. Dawson and Co., Lond.; *Die Medicinische Woche*, Berlin; Messrs. Dean and Son, Lond.

E.—E. W.

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I.—Dr. A. C. Ingle, Cambridge.

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N.—North Staffs Infirmary, Hartshill, Secretary of; Mr. H. Needes, Lond.; Mr. J. C. Needes, Lond.

O.—Dr. A. J. Rice Oxley, Caen, France; Owner, Lond.

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An Address

ON

THE DIAGNOSIS OF CANCER OF THE STOMACH.

By JOHN C. HEMMETER, M.D., PHIL. D.,

PROFESSOR IN THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF MARYLAND; DIRECTOR OF THE CLINICAL LABORATORY, BALTIMORE, MARYLAND.

IN all efforts at treatment of cancer of the stomach we are confronted by two relentless facts which limit our knowledge and ability. One is of a negative and the other is of a positive nature. The first barrier consists in the fact that we do not know what carcinoma is. We do not understand the nature of malignant neoplasms. The second is that no matter what our methods of treatment, regardless of at how early a date or with what skill it is executed, the cases treated will eventually and inevitably suffer from a recurrence of the disease. This is *an actual fact in 99 per cent. of all gastric cancers that have* undergone operation. With such a state of our knowledge we are condemned to one of three courses. "Either we merely go on to do things just as our fathers did, and for no better reasons than because they did them so; or, trusting to some personal authority, we adopt at random the recommendation of some specific in a speculative hope that it may answer; or, lastly—and this seems the most favourable case—we ourselves attempt to improve upon certain processes and methods hitherto employed." This improvement may follow as a result of accumulated experience, arranged, corrected, and amplified by master minds, or it may be the result of experimental investigation.

In our present knowledge of malignant neoplasms the analytical mind remains in the presence of phenomena the causes of which are hidden from it, but these causes are capable of being discovered and understood, just as the cause of tuberculosis and that of diphtheria were at one time unknown to us and have been shown to be capable of discovery. The only diagnosis that can be of interest to a surgeon is an *early* diagnosis. I have prefaced my remarks in the manner stated in order to emphasise the difficulty of an early diagnosis of any disease the cause of which is unknown and which does not give prompt and unmistakeable clinical manifestations. Many of us can recall the difficulty in the diagnosis of tuberculosis, diphtheria, and malaria prior to the discovery of the specific organisms which were proven to be the causes of these diseases.

Definition of the term "early diagnosis."—The nature and concept of an early diagnosis of carcinoma of the stomach is intimately associated with a knowledge of the duration of the disease, which can be approximately, though not definitely, ascertained by three methods: (1) by observing the rate of growth of carcinomas in organs that are open to direct inspection (the uterus, the rectum, the mammary glands, &c.); (2) by noting the size and rate of growth after the first beginning of the subjective and objective complaints in tumours capable of palpation; and (3) by noting the rate of growth in visible or palpable metastases. Cancer of the stomach may occur and run its entire course in a latent form Osler and McCrae[1] report seven such cases, in all of which I fail to find any statement referring to chemical and microscopical analysis of the gastric contents. It is true the gastric symptoms were not prominent. These cases show that where we have obscure or doubtful diagnosis chemical and microscopical analyses of the gastric contents should be as indispensable as the analysis of the urine in similar cases. But latent cancer has been discovered at the necropsy in my own experience in cases in which frequent chemical analysis of the gastric contents had been made. This occurred in two cases of cancer that arose from gastric ulcers and in which the secretion of hydrochloric acid continued to the end of life and none of [illegible]ptoms of gastric carcinoma were [illegible] history. Such cases, however, [illegible], in my opinion, cases of latent cancer of the stomach will be *reported less and less the more gastric test-meal analysis is* undertaken in obscure cases and the more such analysis is raised to the importance which urinary analysis occupies.

To revert to the duration of this disease, this naturally must vary with the histological nature of the neoplasm. Some neoplasms, such as the scirrhus or the colloid carcinoma, grow rather slowly and also form metastases slowly. From statistics relating to the results of operation it is evident that these two neoplasms are also the most favourable to operation.[2] On the other hand, the medullary or the adeno- or epithelial carcinoma grows more rapidly. In my experience carcinoma of the stomach has, as a rule, a latent period of from three to four months in which it does not give the classical symptoms of gastric cancer but clandestinely progresses under the guise of a chronic gastritis or nervous dyspepsia. This is an important period for the clinician. An early diagnosis means the recognition of gastric cancer during these three or four months, when he is confronted with nothing but the symptoms of chronic gastritis or nervous dyspepsia. Such a diagnosis is unfortunately only rarely possible. The first and main obstacle in the way is that arising from the indolence and procrastination of the patient, and sometimes unfortunately also of the practitioner in charge. The second obstacle is found in the fact that the methods necessary to effect such a diagnosis which are thus far available are *time-robbing*, requiring great patience and persistence and a knowledge of chemistry and microscopical technique only exceptionally met with or capable of application in general practice. A number of guiding principles can be formulated, as much has crystallised out of the study and investigation concerning the clinical history of cancer, which might serve the practitioner as a criterion as to the time when such cases of chronic gastritis or nervous dyspepsia should be transferred to the surgeon But I should like to premise what I shall have to say concerning the chemical and histological technique of the early diagnosis by stating that the simple continuance of a chronic gastritis or nervous dyspepsia, in spite of logical and scientific treatment accompanied with progressive loss of body weight during from three to four weeks, are two factors which alone justify the suspicion of a latent gastric carcinoma.

The ingenuity, the immense amount of investigation, and the indefatigable perseverance which have been bestowed upon the chemical and histological methods of diagnosis of gastric carcinoma cannot but excite universal admiration. But in my experience they are of no greater help to the clinician for the recognition of this disease than are the simpler continuance or even aggravation of a chronic gastritis and progressive loss of body weight (though every other symptom and sign may be lacking) in spite of proper treatment.

I will consider *seriatim* the various clinical methods employed for the detection and recognition of carcinoma of the stomach. I will employ the right of the conservative clinician—viz., the critical faculty of determining the actual value of these aids and the deduction of practical conclusions from their association.

Age.—According to the tables of Brinton (600 cases), Welch (2075 cases), and Haberlin (11,424 cases), three-fourths of all cases of gastric cancer occur between the ages of 40 and 70 years The factor of age should, however, be used only with the greatest caution. Of 66 cases of Lindner and Kuttner, more than one-half of the patients had not reached the fiftieth year. The same can be said of Hammerschlag's cases. I have repeatedly had the experience that general practitioners have failed to recognise cancer of the stomach on account of the youthful age of the patient. Now, Wilkinson has reported a case of congenital gastric cancer, Cullingworth one in a child five weeks old, Widerhofen a congenital cancer, and Kaulich a colloid carcinoma in a boy one and a half years old. According to Schäffer, the percentage of gastric cancers in the first three decades is 2, according to Reichert 3, and according to Bräutigam 2·5.[3] One fact which I should like to emphasise in connexion with the question of age is that the limit of age for carcinoma is gradually receding.

Diagnostic value of the subjective and objective symptoms.—Among all the *dyspeptic* complaints, the disturbances of the appetite, the thirst, the pressure, the distension and fulness,

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[1] Philadelphia Medical Journal, Feb. 3rd, 1900.

[2] Hemmeter's Diseases of the Stomach, Section on Surgery, second edition, p. 355.

[3] Inaugural Dissertation von Reinhold Schulz, Breslau, 1886.

No. 4074.

the eructation, the nausea and vomiting, and the irregularities of the stool, there is nothing characteristic. Thirst is a particularly prominent and a very annoying symptom in dilatations caused by pyloric carcinoma. There is nothing characteristic about the pasty, insipid taste, or about the coated tongue. The pains are not characteristic. The vomiting and nausea, when very frequent and copious, are suggestive of cancer at the pylorus of the cardia. When the two openings of the stomach are free and only the walls of the stomach are affected there is in my experience no vomiting at all. The amount that is vomited depends on the degree of dilatation. The food is unchanged.

Significance of blood and hæmatemesis.—In my experience blood is contained in the vomit of one-half of all cases of gastric cancer. Large quantities of blood are rarely vomited, but the characteristic coffee-ground vomit in consequence of stagnation and decomposition of the blood is diagnostically important. The more copious the effusion of blood is into the stomach the quicker does it cause vomiting; for that reason the abundant hæmorrhages in ulcer are often vomited uncoagulated and very little altered, whereas the smaller amounts of blood in carcinoma and gastritis remain in the stomach a longer time and then show the characteristic coffee-ground appearance. But large hæmorrhages may occur in cancer and small hæmorrhages may occur in ulcer; and I have seen cases of coffee-ground vomiting in ulcer repeatedly.

Constipation or diarrhœa.—In the literature of this subject in which any reference to these points was made I found that in 75 per cent. of cancers of the stomach there is constipation. In about 20 per cent. there is diarrhœa and in 5 per cent. only does the stool remain regular. These figures agree with those from my clinic sufficiently to make any alteration needless. F. Müller states that diarrhœa occurs in 35·5 per cent. The greater frequency of constipation is due to the mechanical stenosis by the tumour, and motor insufficiency is due to carcinomatous invasion of the muscularis.

Emaciation and cachexia.—That these symptoms are not characteristic is evident, but they are important because the degree of emaciation will greatly influence the decision on an operation. A frequent question will be, Will the strength of this patient suffice to overcome a severe abdominal operation? The general condition gives no clue to the size of the tumour. A very minute cancer, even when it is at a place where it in no way influences the functions of the body, may depress the nutrition of the entire organism and irresistibly lead to death. On the other hand, very large tumours on the walls of the stomach may run a long course without disturbance of the general strength and nutrition. So in all dyspeptic systems there is nothing pathognostic for gastric cancer. They occur not only in other diseases of the stomach but to a large extent in diseases of other organs. The swelling of the cervical lymph-glands is a very rare sign, and in my experience occurs only towards the end of the disease, by which time the diagnosis is generally clear.

Condition of the gastric functions.—Alterations in secretion, absorption, and peristalsis. (1) The secretion. During the development of cancer secretion of hydrochloric acid is generally lost, so that free hydrochloric acid can no longer be detected in the test meals. Towards the end stage both free and combined hydrochloric acid are entirely absent. It is urgently necessary to be very careful in these determinations for hydrochloric acid. A single analysis showing sub- or an-acidity proves nothing at all. If a first test fails to detect free hydrochloric acid it should be repeated after allowing a longer interval to elapse subsequently to the time at which the test meal was taken. It must be borne in mind that the gastric mucosa does not secrete hydrochloric acid all over—i.e., in all of the parts. Only the middle portion secretes it; the pyloric region does not secrete it. Although the degree of reduction of hydrochloric acid secretion depends upon the extent and gravity of the gastritis which is caused by the carcinoma, nevertheless this may be limited to the pyloric region, where it will not interfere with the glandular apparatus which forms the hydrochloric acid. F. Mall[4] concludes with Heidenhain that the oxyntic or border cells in the peptic ducts are concerned in the production of hydrochloric acid and the central cells in the production of pepsin. Now as the pyloric region contains no border cells a carcinoma may reach as far as the antrum pylori, a distance of from three to five inches, before it will invade the region which contains the acid or border cells. I have seen six cases in which the presence of free hydrochloric acid continued to the end of life. In two of these cases the carcinoma was seen during the operation and in the remaining four at the necropsies. These six cases had not originated on the basis of an old gastric ulcer, but were circumscribed knots of cancer, leaving the mucosa largely intact. In all carcinomas that have arisen from ulcers free hydrochloric acid in normal or even in increased amounts may continue until death. This is sufficient evidence for the conclusion that the presence of free hydrochloric acid does not argue against cancer of the stomach. On the other hand, absence of free hydrochloric acid is no specific sign of this disease. It occurs in other gastric diseases leading to atrophy; it may occur in diseases of other organs—for instance, diseases of the kidneys, pulmonary tuberculosis, and valvular cardiac diseases, and, as I have shown,[5] free hydrochloric acid is frequently absent, though not necessarily so, in catarrhal jaundice. When free hydrochloric acid is absent combined hydrochloric acid may still be present; and Schüle argued that the amount of hydrochloric acid deficit was an important diagnostic sign between cancerous and benign diseases of the stomach.

In determining the amount of hydrochloric acid deficit decinormal hydrochloric acid solution is added to the filtrate of gastric contents until we get a distinct reaction with the Boas resorcin test or any of the other established tests for free hydrochloric acid. The degree of the deficit is, in my experience, no indication of the extent of the atrophy of the secreting apparatus. Very large hydrochloric acid deficits have been discovered by myself in benign diseases of the stomach. The determinations for hydrochloric acid, however, when taken in conjunction with other symptoms and signs, have a certain limited diagnostic significance.

Secretion of pepsin and chymosin or rennin.—As a rule, the reduction of the secretion of these ferments goes parallel with a reduction of the hydrochloric acid secretion. For clinical purposes the determination of the presence and strength of the pepsin secretion may be made according to the method of Hammerschlag,[6] though this method from a chemical standpoint is by no means exact. Hammerschlag used the Esbach albuminometer to determine the amount of albumin which has not been digested by the pepsin of the gastric contents. As this method is not exact when used for urinary analysis it is less so for this purpose. Still, as a rough clinical test it generally suffices. A 1 per cent. solution of albumin containing free hydrochloric acid to the amount of 4 per 1000 is filled into the Esbach albuminometer to the 10 cubic centimetres mark. To this tube we add five cubic centimetres of the gastric filtrate to be tested for pepsin. A second Esbach albuminometer is filled to the 10 cubic centimetres mark with the standard egg albumin and hydrochloric acid solution, and as a control test five cubic centimetres of distilled water are added. Both tubes are now put in the incubator at a temperature of 37° C. for one hour. Then the amount of albumin in each is determined by the Esbach reagent. After both tubes have been allowed to stand quietly for 24 hours the amount of digested albumin can easily be calculated in numbers expressing the percentage. This test is not sufficiently delicate to demonstrate small amounts of pepsinogen. The reduction of the chymosin or rennin occurs in all gastric carcinomas except those arising from gastric ulcers, but very marked reduction of the amounts of both ferments is in itself not a characteristic sign for gastric cancer, because it can occur in atrophy of the mucosa from gastritis and also from long-standing diseases of other organs.

Lactic acid.—In 112 cases of carcinoma of the stomach I found only three in which lactic acid was present to any considerable degree before the diagnosis could be made by other symptoms. The frequent occurrence of lactic acid in gastric cancer has been asserted by Boas to be an important diagnostic sign. The question is, Does it occur at a time to enable us to make an early diagnosis? This I must deny on the basis of a large experience with this test. Boas has admitted that excessive lactic acid in the stomach contents is not a pathognostic sign of cancer of the stomach because it is absent in a number of cases of that disease and may be present in gastric diseases of a benign type and even during diseases of other organs. Three conditions are necessary, possibly four, to bring about excessive formation of lactic acid in the stomach. These are: (1) impaired gastric motility; (2) absence of hydrochloric acid secretion; (3) reduction of albumin digestion; and (I should add) (4) an impaired absorption. Lactic acid is formed in the stomach by the action of lactic-acid bacilli on the carbohydrates. Sticker has shown that the simple passage of carbohydrates through the mouth causes the formation of more or less lactic acid without exception. It is therefore necessary to give a test meal which shall be as far as practicable free from lactic acid and which shall form little of this substance during the passage through the mouth. Such a test meal has been introduced by Boas in the form of his oat-flour soup (one ounce of Knorr's oat flour boiled in a quart of water, evaporated down to one pint and seasoned with salt only). Lactic acid will not form in the stomach in amounts demonstrable by Uffelman's test, even though the contents stagnate due to arrest of the peristalsis, provided the proteid digestion is still fairly good and does not fall below 75 per cent. Whenever there is much lactic acid in the stomach the proteid digestion will be found to be below 75 per cent. I have made a number of chemical tests relative to the relation of lactic acid to proteolysis and have confirmed the view that lactic acid may replace the normal hydrochloric acid in this transformation. In the contents of some carcinomatous stomachs the lactic acid was found to be in combination with the proteid of the food. When the mucosa is still capable of secreting hydrochloric acid this will combine with the albumin sooner than the weaker acid, hence a fairly good albumin digestion signifies still a trace of hydrochloric acid and ferments. But a fairly good albumin digestion can be effected by lactic acid and pepsin in the absence of hydrochloric acid. This chemical fact merits closer investigation. Normally lactic acid, like all other soluble products of digestion, is absorbable. If, therefore, the absorption is made difficult, which occurs especially when the contents stagnate and the hydrochloric secretion is depressed, the conditions favourable to lactic acid accumulation will be present. Whenever the movements of the stomach are normal, so that the contents can be expressed into the duodenum within six or seven hours, lactic acid will not develop to a degree that can be recognised by the ordinary tests, although the hydrochloric acid secretion has been lost entirely. Hammerschlag took such a gastric chyme containing no hydrochloric acid, but from stomachs with normal motility, and added the third necessary factor—viz., stagnation—by letting it stand at room temperature. Under such stagnation lactic acid rapidly developed in the chyme. In gastric carcinoma we have the conditions favourable to lactic acid formation in the majority of cases—vide suppression of hydrochloric acid, stagnation of contents, impaired proteid digestion, and impaired absorption—so that lactic acid is found most frequent in cancer of the stomach. Rosenheim found it in 78 per cent., Lindner and Kuttner found it in 60 per cent., Strauss found it in 91 per cent., and I have found it in 82 per cent. of all my cases of gastric cancer. But the conditions necessary to its formation in the stomach can be brought about by diseases other than cancer; for instance, in benign pyloric stenosis, in atrophic gastritis with motor insufficiency, and even in diseases of other organs I have discovered lactic acid in the stomach in marked excess when the stomach itself was not affected, but the impaired peristalsis was caused in one case by a pancreatic cyst, in another by a carcinoma of the gall-bladder, and in a third case by a large gall-stone. These conditions had caused compression of the duodenum effecting obstruction to the outlet of gastric chyme with a subsequent gastritis, the latter most probably causing the loss of hydrochloric acid secretions. In still another case in which there was a compression of the duodenum by floating kidney the presence of lactic acid was only transient. Whenever the kidney could be retained in place by a proper bandage the stomach resumed its secretions partially and the peristalsis was to a degree resumed, and the lactic acid, except in minute traces, disappeared from the contents. Lactic acid, then, although it is not an early sign, is a clinical [illegible] ns absence of hydrochloric acid, [illegible] the digestive ferments and loss [illegible] hich are most [illegible] lactic [illegible] when it [illegible] uggest the probability of cancer. The test necessary for this which is most practical is the one originally suggested by Uffelman. The reagent consists of 10 cubic centimetres of a 4 per cent. solution of carbolic acid, 20 cubic centimetres of distilled water, and one drop of the liquor of the sesquichloride of iron. This gives an amethyst-blue solution. The presence of lactic acid changes this to a yellowish green. The reagent is sensitive to 0.5 per 1000 of lactic acid, which amount is always pathological and of diagnostic significance. Tests more sensitive than this would not be useful clinically. Boas[7] has given an exact method for quantitative determination. Strauss[8] has devised a practical little funnel for separating the lactic acid by agitation with ether.[9]

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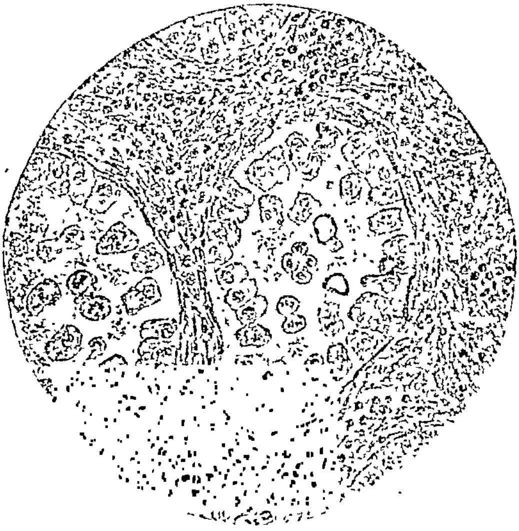
[4] Johns Hopkins Hospital Reports, vol. i.

[5] Hemmeter, op. cit., p. 374.

[6] Archiv fur Verdauungskrankheiten, vol. ii., p. 4.

FIG. 1.



Fragment of gastric mucosa obtained by curettage from case O. A. B. [illegible] andular connective [illegible] ll-celled filtration. [illegible] s detached; many [illegible] merge the identity [illegible] rim of protoplasm [illegible] of a huge vacuole. There are in both [illegible] disrupted chromo- [illegible] st cell presenting [illegible] their name from [illegible] ical mitosis is one [illegible] number of chromosomes.

Microscopical examination of the stomach contents.—There are only two structural elements in the stomach contents that have a possible diagnostic significance. These are (1) tissue fragments, minute portions of the neoplasm; and (2) the so-called Oppler-Boas bacilli. The tissue fragments are of undoubted diagnostic value if they contain structure of the neoplasm. The question is, Do they occur early enough in the disease to make a timely diagnosis possible?

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[7] [illegible] Wochenschrift, 1893, No. 23.

[8] [illegible] No. 37.

[9] For [illegible] Stomach, recent edition, p. [illegible]

It is probable that the fragments are only detached from ulcerating tumour masses in the stomach such as have already developed metastases, but I shall describe a method—that of curetting the walls of the stomach with a soft tube and thereby loosening the superficial epithelium at a time when the neoplasm is not yet ulcerating. These fragments can be washed out of the stomach by lavage and sedimented in the electric centrifuge. I have used this method in 48 cases of gastric carcinoma, and I regard it as eminently important and adapted to early clinical diagnosis. I wish to emphasise that not only fragments of the neoplasm itself are to be sought after, but any cellular tissue that is found should be carefully stained and studied The most remarkable feature of the sediment from such a stomach after this so-called curetting is a large number of cells presenting karyokinetic figures. Rieder[10] reported a case in which he made a diagnosis of malignant disease of the peritoneum and pleura from finding numerous cells in the exudates, showing indirect and atypic nuclear division. Mitoses occur very frequently. The forms of cell and nuclear division known as the equatorial plate and the monaster are frequent. Another form known as the anaphase, which in normal karyokinesis precedes the formation of the daughter stars and leads up to the formation of resting daughter nuclei, I have observed three times in the curettage from stomachs at a stage when there was no tumour palpable and in which the diagnosis was confirmed by operation, necropsy, or by the later development of a tumour. The presence of a large number of cells in the stomach after curetting with the stomach-tube, which cells show mitosis, and some of them pathological or asymmetrical mitosis, is very significant and should stimulate further and very careful examination. Sooner or later a fragment will be obtained which will give the typical structure of carcinoma. For this kind of curetting a soft stomach-tube suffices provided it has a lower and a lateral aperture the edges of which scrape away the tiny elevations of gastric mucosa when the tube is moved in and out of the mouth. The procedure should be carried out in the morning before breakfast when the stomach is empty. This method of obtaining specimens from the gastric mucosa during life is free from danger and not once in my experience has any pain, distress, or hæmorrhage been produced thereby. In many cases of chronic gastritis, achylia gastrica, and carcinoma tissue fragments are found in the lavage water without especially making an effort to loosen them, by moving the tube along the gastric walls. The forcible detachment of larger pieces of gastric mucosa is an accident occurring during lavage by suction or aspiration of the tube, particularly when the instrument is in inexperienced hands. It is followed by copious hæmorrhage, yet pain is rarely complained of. I reported a case of one of my students[11] who aspirated a piece of his own gastric mucosa 10 by four millimetres; it was followed by a profuse hæmorrhage but no other serious consequences, as uninterrupted recovery occurred under rest and liquid diet.

The Oppler-Boas bacilli are very long, rod-shaped organisms, non-motile, and usually thicker at one end than at the other, presenting the shape of a base-ball bat. Kauffmann and Schlesinger[12] have isolated these organisms and have asserted them to be of great significance in cancer of the stomach. Riegel[13] confirms the occurrence of these bacilli in enormous numbers in carcinoma and adds that although there are numerous fungi that have the property of forming lactic acid in stomach contents this cannot alter the significance of the Kaufmann and Schlesinger observation. He does not consider these organisms as pathognomonic of gastric cancer but as very important for the diagnosis. Dr. Harry Adler and myself have examined 56 cases for the Oppler-Boas bacilli and have failed to observe them in only three cases. The presence of this organism is therefore an important factor, aiding in the diagnosis; and whilst not pathognomonic they are of the same diagnostic value as the presence of lactic acid, and therefore do not constitute an early sign of cancer.

Microscopical evidences gained from the contents or the walls of the stomach.—In the preceding part of my address I have briefly outlined my opinion concerning the diagnostic value of subjective and objective signs and symptoms; of the various ways and degrees in which the three functions of the stomach, peristalsis, secretion, and absorption, can be altered; and of the value of the chemical and microscopical examinations of the urine, the blood, and the gastric contents. There is therefore not one clinical sign or symptom, chemical or microscopical evidence, which is characteristic or pathognomonic for the fully-developed gastric carcinoma, not to speak of the value of these conditions and symptoms for the early diagnosis. We are therefore compelled to seek further evidences from which we may hope to obtain information. One of the first and indispensable steps towards the attainment of new truth is to admit the helplessness of our present knowledge and the inadequacy of our present means of diagnosis. I have attempted to enlarge the diagnostic technique in this respect by efforts at obtaining histological fragments of gastric mucosa by curetting the walls of the stomach with a stomach-tube.[14] After this curetting the stomach is washed out with a measured quantity of water. If the particles detached from the gastric mucosa are not visible to the naked eye this lavage water is sedimented in the centrifuge and the sediment is examined microscopically. It is not sufficient to look simply for particles of the actual structure of the malignant tumour in the wash-water. One may occasionally have the good fortune to arrive at a positive diagnosis by finding actual structural fragments of an existing carcinoma. but in my experience such an occurrence always speaks for a neoplasm that has already progressed very far and which can be diagnosed by other methods without gastric curetting. Structural fragments are only detached from ulcerating tumour masses in the stomach, and in all the cases in which I succeeded in getting such fragments metastases had already formed and the diagnosis could not be called an early one. The finding of actual tumour masses, then, is comparatively rare, and while it firmly establishes the diagnosis of carcinoma of the stomach is of no value to the surgeon in his efforts to secure an early operation. In curetting a very large number of stomachs for the purpose of studying the histological condition of the mucous membrane I have been led to hope for some aid to an early diagnosis by a study of the pathological and atypical mitoses that occur in the gastric structure. The finding of pathological mitoses, and even of carcinomatous particles, is considered to be an accident by a number of competent observers, but it is probable that this occurrence is said to be so rare, not because these fragments do not occur in the vomit or wash-water, but because they are not methodically and systematically looked for, and especially because few directed efforts have been made by competent men to detach such fragments intentionally from the gastric mucosa. There is every reason why we should intentionally attempt to secure such particles from the stomach, just as they are secured by curetting the uterus. Hitherto in such examinations the histologist reserved his opinions, as a rule, until he found the typical structure of a carcinoma in the tissue fragments gained. But it is possible to go a step farther and to diagnose this disease from fragments showing the following conditions: (*a*) the ducts of the peptic glands are elongated and dilated, the cells frequently detached from the periphery of the gland and lying loose in the gland lumen and presenting numerous karyokinetic figures (Fig. 1); (*b*) when these nuclear figures, or mitoses, present asymmetrical or hypochromatic and hyperchromatic forms they are especially suggestive of a malignant process. (Fig. 2 and Fig. 3.) These mitoses must be examined in tissue that is as fresh as can be obtained; where the least decomposition has taken place they are no longer demonstrable by tinctorial methods. For this purpose curettage of the stomach is indispensable, as the tissue fragments gained by other methods, vomiting or simple lavage, are, as a rule, in a state of necrobiosis. The result of the procedure of curettage is made more reliable if the patient is fed by the rectum for a time and all food is excluded from the stomach. Wherever possible the stomach should be thoroughly washed out for several days in succession in order to avoid confounding particles of meat, &c., retained in the ingesta with particles of neoplasm. The diagnosis of malignant disease of the peritoneum and pleura from numerous cells found in the aspirated exudate, which cells were in the state of indirect nuclear division, was probably first definitely made by Rieder.[15] The necropsy in

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[10] Deutsches Archiv für Klinische Medicin, Band liv., Heft 6, p. 544.

[11] Hemmeter, *op. cit.*, p. 146.

[12] Wiener Klinische Rundschau, 1895, No. 15.

[13] Erkrankungen des Magens.

[14] Histological Studies relating to the Early Diagnosis of Carcinoma of the Stomach, Philadelphia Medical Journal, Feb. 3rd, 1900, p. 279.

[15] Deutsches Archiv fur Klinische Medicin, Band liv., S. 544.

Rieder's case proved the existence of a sarcoma of the peritoneum secondary to malignant disease of the ovaries. In the fluids obtained during life cells were found which were remarkable, in the first place, on account of the difference in size and shape of the individual cells. Often there were indentations and constrictions, sometimes buddings. In many cells there were one or many vacuoles, often so large that the nucleus was pushed to one side and sometimes almost completely submerged beneath the enormous vacuole. Examination of the stained cells showed a large number of cells in a state of indirect division and especially cells with atypical mitoses. George Dock[6] made similar studies and established the diagnosis of carcinoma of the pleura and peritoneum from analogous cellular forms found in the aspirated transudate. Asymmetrical mitosis is not easy to recognise in fragments gained from the gastric mucosa on account of the frequent imperfect preservation of the chromosomes in many cases. Many fragments are found which are useless for the purpose of studying pathological mitoses for this reason. The methods and technique are fully described in my text book.[17]

In a number of German publications I have noticed the definition of *early* diagnosis to the effect that the disease is recognised before a tumour can be felt. As fully two-fifths, according to some authors one-half, of the tumours of the stomach are not palpable it is evident that this is not a reliable sign to go by. Tumours may be very large and may be not at all palpable. The palpability of gastric tumours depends too much upon the situation of these neoplasms in the stomach, although 60·8 per cent. of the tumours observed at necropsies by William H. Welch[18] were situated in the pyloric region; all of these tumours were not palpable. It is only when [illegible] displaced downward by [illegible] that it becomes [illegible] quite a number of tumours of the pylorus at necropsies which were by no means palpable during life owing to the fact that the tumour was adherent to the under surface of the liver.

In an investigation on the pathological anatomy of the human stomach with a special reference to the practical value of diagnosis by means of fragments of the mucous membrane Leuk[19] holds that it is not possible to distinguish between carcinoma and atrophic gastritis by examining such fragments unless portions of actual carcinomatous growth are found. He does not go into the consideration of the relative frequency of the findings of cells showing atypical and asymmetrical mitoses in the contents of the stomach or gained after gastric curettage. But few investigators have as yet worked over this subject, as may be seen from the literature in my articles[20] and in the second edition of my text book on "Diseases of the Stomach." The whole subject is not sufficiently mature to permit of the enunciation of dogmatic conclusion either way. I wish simply to emphasise that the diagnosis of carcinoma of the stomach *has* been made in this way at a time when we had every good reason to believe that it was an early diagnosis and that this opinion was confirmed either at operation or at the eventual necropsy. Leuk's work in my opinion is not based upon a sufficiently large number of clinical observations as might be desirable for the importance of this question. It is confessedly a rare thing that the diagnosis of carcinoma of the stomach at an early stage can be made in this manner; this I explain on two grounds: (1) it is rare that patients present themselves at an early stage for examination; and (2) the method of gastric curettage is rarely practised. I am of the opinion that as the method comes more and more into use we may hear of a larger number of early diagnoses of this disease being made.

Wherever appreciable quantities of lactic acid are regularly found in the *stomach together with the signs*

FIG. 2.

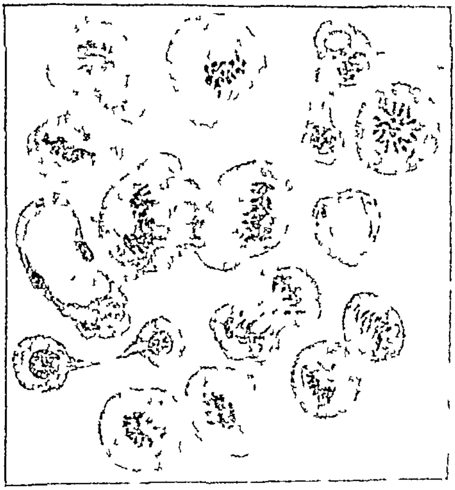
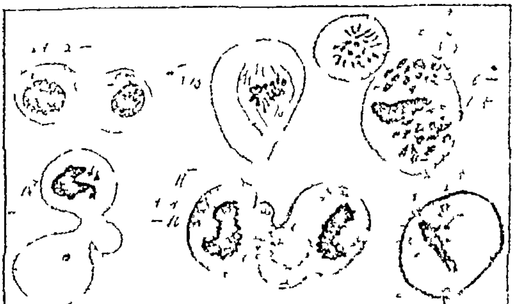


FIG. 3.



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[18] Cancer of the Stomach in Early Life, American Journal of Medical Sciences, 1897, p. 65.

[17] [illegible]

[19] [illegible]

[20] Phil[illegible] Medical J[illegible]

motor power of the stomach may remain normal throughout the course of the disease. There are even rare cases of pyloric cancers in which motor power may remain intact for a long time.

Absorption.—The tests for the absorptive power of the stomach usually give evidence of great reduction in this function. There are, however, many exceptions to this rule, no doubt due to the fact that the gastric mucosa is in a fairly normal condition, notwithstanding the presence of a very circumscribed carcinoma.

Urine.—Investigation made hitherto on metabolism and the constituents of the urine have, in my opinion, not as yet yielded any results of practical value for the diagnosis. Albumin is present in from 35 to 50 per cent. of the cases according to F. Müller. Excess of indican is present in from 85 to 90 per cent. of the cases.

Blood examinations.—These have shown a reduction in the percentage of hæmoglobin and absence of the digestive leucocytosis. Frederick P. Henry has emphasised the fact that in gastric carcinoma the red corpuscles number from 2,000,000 to 3,000,000 per cubic millimetre, whereas in pernicious anæmia, which most resembles cancer of the stomach, the count is much lower, sometimes less than 500,000.[21] This phenomenon will serve to distinguish these two diseases. The number of erythrocytes is not proportionate to the degree of cachexia. In this opinion Henry has been confirmed by Dr. Anton Krokiewicz.[22] My personal experience is that the numerical relations of the cellular elements of the blood are too variable to constitute a reliable diagnostic factor in gastric carcinoma.

Tumour.—Demonstration of a tumour in the stomach is the most reliable evidence upon which to base a diagnosis, but it is not an early diagnostic sign. According to various prominent German surgeons the presence of a tumour is a contra-indication to the execution of a radical operation, having in view the total extirpation of the neoplasm. Czerny and Rindfleisch[23] and Kraske[24] argue that gastric cancer should not be radically operated upon after it can once be diagnosed in the form of tumour. It will not be necessary for me to consider the methods of palpation and the mobility of gastric tumour, but I should like to recommend urgently the palpation of the patient, either in a warm bath or under anæsthesia, when a tumour cannot be made out by palpation under ordinary conditions.

Hypertrophic stenosis of the pylorus; stenosing gastritis.—The differential diagnosis between this condition and carcinoma is difficult. W. S. Thayer and Rosenheim have reported cases of benign stenosis that could not be distinguished from carcinoma. A history of very long-standing dyspeptic disease, with alternating improvements and aggravations, speaks for hypertrophic stenosis if the symptoms and anamnesis of chronic gastritis accompanied the development of the stenosis. The presence or absence of tumour is of no diagnostic value in differentiating these two conditions. A tumour when present may as well be a benign hypertrophy as a cancer. Repeated and consecutive weighing of the patient is urgently indicated in benign hypertrophic stenosis; there will be more frequent and more lasting improvements, extending sometimes through years. Motor function and stagnation grow progressively worse in carcinoma; in benign stenosis they are amenable to treatment by lavage and diet.

In stenosis due to cicatrix from gastric ulcer there will have been a history of blood in the vomit or stool and the presence of excess of hydrochloric acid in the gastric chyme; if the stenosis is due to hypertrophic gastritis these signs will not be observed, though a normal amount of hydrochloric acid may exceptionally be met with in the early stages of the latter.

Among all the early signs and symptoms of gastric carcinoma, the dyspeptic symptoms and the evidences of disturbed functions, and the general condition, there is not one fact that is pathognostic for an early diagnosis. I do not assert, however, like Haberkant, Lindner, and Kuttner, that in the present state of our knowledge the early diagnosis of gastric carcinoma is entirely impossible.

Diseases of the stomach associated with the absence of hydrochloric acid.—A brief consideration of these will be indispensable in our efforts to reduce the possible sources of error in making a diagnosis. The atrophies that may be associated with the absence of hydrochloric acid are the following: (1) apparently idiopathic (Nothnagel and Fenwick); (2) end stages of long-standing chronic gastritis; (3) gastric atrophies occurring with mammary, uterine, and intestinal carcinoma; (4) with benign pyloric stenosis; and (5) with gastric cancer.

Achylia gastrica, which has been first described by Einhorn in 1888, means the complete absence of the secretion of gastric juice, not simply hydrochloric acid only, but also of the ferments. So-called anacidity, or achlorhydria, means the absence or loss of hydrochloric acid, but pepsinogen and rennin zymogen are still secreted. Achylia gastrica may be congenital. The existence of so many conditions connected with the absence of hydrochloric acid is an evidence of the difficulty of utilising this sign for diagnosis. In Groups 1 and 2, however, the motility is normal; there is, as a rule, no lactic acid formation, and the course of the disease is generally a long one. The atrophies described by Fenwick under Group 3 have not been as yet carefully studied with regard to their motility and the presence or absence of lactic acid. Group 4, the benign forms of pyloric stenosis, are very rare, but they can be distinguished by their long, slow course. If, therefore, the history extends over several years no importance can be attached to the presence of lactic acid. Achylia gastrica is also a disease of long duration; the motility is always excellent, the appearance of the patient is good, and the condition of the chemistry of the stomach is always the same, showing no lactic acid, no ferments, and no hydrochloric acid.

Neuroses of the stomach associated with permanent or temporary loss of hydrochloric acid secretions.—These conditions are very often perplexing and might be confused with the diagnosis of cancer, but the presence of hysteria or neurasthenia and the long duration of the disease, together with the result of curetting of the stomach for fragments of mucosa, should make the differentiation possible. Patient observation will eventually detect a period in the course of neuroses when hydrochloric acid is again secreted normally. A neurosis during the course of which a perfectly normal secretion may alternate with anacidity (even achylia), and, on the other hand, with hyper-acidity or super-secretion, was first thoroughly investigated at my clinic. I have proposed the name "heterochylia" for this condition.

Gastroscopic examination.—Whether the gastroscope will enable us to make an early diagnosis of gastric carcinoma is a very remote problem. Gastroscopy has no doubt made distinct advances during the last 10 years, but it is connected with so many difficulties and dangers that the general application of this method cannot be hoped for at present. Mikulicz, Kelling, Rosenheim, Revidzoff, and Kuttner have published their studies on gastroscopic examination of the stomach. After a critical study of their reports one cannot fail to be conscious of discouragement at the absence of practical results. There is still very little promise in this method.

Electrodiaphany or transillumination of the stomach, according to the method first suggested by Einhorn, may give a suggestion of the existence of a tumour of the anterior gastric wall, but a chance of such a demonstration will be very small. Out of 1300 cases of cancer of the stomach collected by W. H. Welch[25] only 30 occurred on the anterior wall—i.e., 2·3 per cent. In order to cut off the rays of the intragastric lamp a tumour must have a thickness of from 1·5 to two centimetres.[26] These observations have been confirmed by me. With a tumour of such dimensions as a requisite and the extreme rarity of the location of tumours on the anterior gastric wall I am disposed to consider this method unavailable for the early diagnosis.

The use of the x rays for diagnosis.—I was among the first to publish studies of the position and size of the stomach for diagnostic purposes.[27] Boas and Levy-Dorn[28] have proposed a method of recognising strictures of the gastro-intestinal canal by skiagraphy. Capsules coated with an insoluble material and filled with bismuth subnitrate cut off the x rays and their position can be recognised in the intestines, but I doubt very much whether this method will exactly locate a carcinomatous constriction because the intestine is not a simple tube but a labyrinth of convolutions superimposed upon each other, so that even if the bismuth capsule could be recognised it is absolutely impossible to state whether it is in the stomach or in the intestine or in what convolution of the intestine it is located

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[21] Archiv für Verdauungskrankheiten, Band iv., S. 1.

[22] Ibid., Band vi., p. 25.

[23] Festschrift gewidmet Theod. Billroth, 1892.

[24] Berliner Klinische Wochenschrift, 1894, Nos. 20 and 21.

[25] Pepper's System of Medicine, vol. ii., p. 561.

[26] Kuttner and Jacobson: Experiments on Cadavers, Berliner Klinische Wochenschrift, 1893, No. 89.

[27] Boston Medical and Surgical Journal, April, 1896.

[28] Deutsche Medicinische Wochenschrift, 1898, No. 2.

Exploratory laparotomy —This diagnostic incision I would warmly recommend in all cases of gastric disease associated with (1) rapid emaciation, (2) absence of hydrochloric acid, (3) reduction of proteid digestion under 30 per cent, and (4) the presence of lactic acid by Uffelman's test, or (5) of numerous long baseball bat shaped Oppler Boas bacilli If all of the above signs and symptoms were present in any case even of short standing and recent beginning of the disease, and no improvement followed three weeks of appropriate treatment, I should feel justified in making the diagnosis of carcinoma of the stomach even in the absence of tumour and should urge an exploratory laparotomy

Albert Albu[39] reports a very interesting case in which the exploratory laparotomy revealed an infiltration of the pylorus which, in his own words, was no thicker than a small chestnut and proved after a resection of the pylorus, to be cirrhus This patient had an acute attack of tetany Recovery after pylorectomy was satisfactory and the motor function of the stomach was restored In this case the diagnosis was not certain before exploratory laparotomy had been undertaken The early diagnoses and early operations are extremely rare in the literature of the subject due to the reasons which I have already stated—viz., that the patients do not present themselves in time and that the methods which are most promising for an early diagnosis are either neglected or permission for their execution is refused by the patient The most important information from all the physical signs and symptoms and from the chemical and microscopical investigations may be arranged in order of their diagnostic value as follows, but I do not desire to be dogmatic in this statement 1 Chronic gastritis or nervous *dyspepsia with progressive aggravation in spite of four* weeks' proper treatment 2 Progressive weakening of the peristaltic power This can only be confused with the benign stenosis of the pylorus but in the latter case (the benign stenosis) there is, as a rule, a normal or an excessive amount of hydrochloric acid. In malignant stenosis there is absence of hydrochloric acid and formation of lactic acid The diagnosis between benign and malignant stenosis may be difficult at the beginning of the clinical observation of any case, but after from two to four weeks of observation it should present no difficulties 3 Progressive diminution in the amount of free hydrochloric acid with steady loss of peristaltic power 4 The presence of large numbers of atypical and asymmetrical mitoses after gastric curettage together with characteristic histological changes in the glands previously described (especially in cases of motor insufficiency) With such clinical indications exploratory laparotomy should be undertaken, and where this step proved the diagnosis to be wrong, in my experience it was discovered that conditions were present which necessitated operative interference anyway, such as, for instance, motor insufficiency from cicatrices, indurated ulcers or adhesions

In this schema the diagnostic value of the Oppler Boas bacilli, tumour, and lactic acid are not referred to because they are late signs I do not wish to be understood to say however, that a surgical operation should not be undertaken when these late signs are present Many times even the presence of a tumour is not a contra indication to an operation, because a malignant tumour in the stomach may be present, as I have noted on three occasions, and no signs of metastases of infection of the lymph glands be discoverable by a careful search at the necropsy

The diagnosis of carcinoma of the stomach is still in its elementary rudiments We do not know what the causes and nature of malignant neoplasms are The diagnosis of any disease under such conditions must be difficult We must bear in mind that the diagnosis on neoplasms on the surface of the body in their early stages presents considerable difficulty, and in the case of the stomach we are required to diagnose these new growths in an organ entirely hidden from view and almost entirely from touch With a knowledge of the nature and cause of the disease will come a knowledge of its early recognition and its successful treatment Think of the condition of the diagnosis of diphtheria and tuberculosis before the cause of these diseases was understood But from many sides and in many countries dutiful labourers are working towards the common goal of the cause of this human scourge Then will come the time when the malignant neoplasm will melt away under the influence of a new treatment similarly as the pseudo membrane disappears in diphtheria after the injection of antitoxin There is some reason to believe that not all malignant neoplasms have the same etiology and therefore will probably not have the same treatment Recent personal studies have led me to incline to the view that in some carcinomas, at least, we are dealing with a deep-seated disturbance of the *innermost metabolism of the individual* cells, and that whatever bacteriological findings can be made in such growths are of secondary importance or accidental accompaniments The further development of the subject depends, in my opinion not so much on bacteriological investigation as upon the pathological and physiological chemistry of the cell, though the problem as yet presents great difficulties, still, they do not seem insurmountable even with the means at present at the disposal of the physiological chemist

The inevitable recurrence of carcinoma after operation of gastric malignant neoplasm should impress us with the fact that surgical operation cannot be the treatment of the future for such diseases The impression is spreading that gastric surgery can, after all only bring symptomatic relief, and according to the classical testimony of Mikulicz[40] gastric surgery, after a career boldly and brilliantly begun, has arrived at the height of its capability for technical development after 20 years and now stands arrested before the natural boundaries of internal medicine the fundamental pillars of pathology It does not appeal to reason *to* assume that this form of treatment by operation merely, although it is at present the most satisfactory and promising that we possess, represents the limit of human knowledge and ingenuity The Loffler Behring Pasteur, Koch, and Virchow of the future will solve this riddle for us and the obscurity about malignant neoplasms must vanish before human intellect and then will come an effective treatment based upon the etiology of the disease "Life is short, but Art is long Hippocrates *Ο μὲν βίοι βραχυς η δὲ τέχνη μακρὰ*

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[39] Archiv für Verdauungskrankheiten Band ix p 48

[40] Chirurgischer Congress 1901

A Clinical Lecture

ON

SYPHILITIC AFFECTIONS OF THE STOMACH.

Delivered at the London Temperance Hospital

BY W SOLTAU FENWICK MD, M R C P LOND,

SENIOR PHYSICIAN TO THE HOSPITAL PHYSICIAN TO THE EVELINA HOSPITAL FOR SICK CHILDREN

GENTLEMEN During the last few months you have had the opportunity of observing several cases in which instead of adopting the orthodox methods of treatment for ulcer of the stomach or gastritis we employed large doses of iodide of potassium and other anti syphilitic remedies with immediate and complete success The curious toleration displayed by these patients to drugs which under ordinary circumstances aggravate rather than relieve the symptoms of gastric irritability helped at the time to confirm our suspicions concerning the specific origin of the diseases in question, and will now serve me as an excuse to draw your attention to a subject of great practical importance, but one which is hardly mentioned even in the most recent English text books

It is commonly taught that while both the mouth and the rectum frequently suffer from tertiary manifestations of syphilis, the intermediate portions of the alimentary canal habitually escape and even the cases of gummatous lesions of the stomach described many years ago by Cornil, Klebs and Birch Hirschfeld have apparently failed to shake this belief The conservatism thus displayed is not due entirely to that strange pertinacity which causes each successive author to reproduce the time worn arguments and statistics of his predecessors but also in great measure *to the* injudicious zeal of certain writers who, having been imbued with the notion that in a syphilitic subject all diseases are syphilitic, too often neglect demonstrable facts in favour of unwarrantable assumptions. I therefore propose to confine my observations to such morbid conditions of the stomach as have been proved to result from syphilis, and only to draw such conclusions from them as clinical observation can substantiate.

Syphilis may affect the stomach in three ways: (1) by the formation of gummata; (2) by the production of endarteritis; and (3) by exciting chronic inflammation of its mucous membrane.

1. *Gummata.*—A gumma of sufficient size to attract attention is rarely encountered. Chiari only observed three instances in 243 necropsies upon persons suffering from syphilis and in all about 16 genuine examples are recorded in the literature of the subject. The tumour, which is often multiple, is usually situated in the submucous tissue of the pyloric region near the lesser curvature. It is round or somewhat flat, yellowish in colour, firm on section, and varies from 10 to seven centimetres or more in diameter. At first the mucous membrane which covers it is stretched and thinned out from pressure, but as the nodule increases in size and its substance undergoes softening it usually becomes destroyed and an ulcer is produced. A gummatous ulcer consequently presents certain features which serve to distinguish it from the simple variety. In shape it is often irregular, scalloped, or even triangular, its edges are thickened and undermined, while its walls and base are shaggy, cheesy, hæmorrhagic, or covered with a firmly-adherent yellow slough. The mucous membrane in the vicinity of the neoplasm or its resultant ulcer exhibits signs of chronic inflammation and is not infrequently studded with minute gummata. Perforation of the stomach has not been observed, although in a case recorded by Lancereaux this accident was only prevented by the presence of a cheesy nodule. It is important to observe that in all these cases manifestations of syphilis were present in the other abdominal viscera, the liver, pancreas, spleen, or lymphatic glands presenting gummata or cicatrices. In cases of congenital syphilis in newly-born infants the small intestine is particularly apt to suffer and small gummata may often be found scattered throughout its length or congregated about the ileo-cæcal valve. Similar conditions have also been described in the fœtus (Bittner).

2. *Endarteritis.*—Obliterative endarteritis affecting the gastric vessels must not be regarded as necessarily an indication of syphilis. It may be observed in the fibrous base of nearly every chronic simple ulcer and in not a few cases of long-standing perigastris due to disease of some neighbouring organ. Its pathology is similar to that form of the endarteritis which commonly accompanies cirrhosis of the lung and kidney, and in the case of a gastric ulcer its existence is of some value to the organism since the gradual occlusion of the arteries which lie in the track of the advancing disease tends to prevent hæmorrhage. The syphilitic variety, on the other hand, is comparatively rare as a primary complaint, and as far as my own experience goes is always associated with gummata in the liver, spleen, pancreas, or retro-peritoneal glands. It chiefly affects the smaller branches of the pyloric vessels which ramify in the subserous and submucous connective tissue, and by thus diminishing the blood-supply to the part tends to induce inflammatory thickening of the mucous membrane and to give rise to interstitial hæmorrhages and superficial ulcerations. When the process is especially severe or widely diffused the nutrition of the gastric wall is so much reduced that the tissues are no longer capable of withstanding the solvent action of the gastric secretion, which consequently erodes the surface and gradually produces an indolent form of ulceration. In other cases the partially obstructed vessel becomes the seat of thrombosis and the mucous membrane which it supplies, being suddenly deprived of blood, is rapidly digested. In the former case the patient suffers from the symptoms of chronic ulcer of the stomach; in the latter from attacks of acute dyspepsia which are not infrequently followed by hæmatemesis.

3. *Chronic gastritis.*—This may ensue either as a direct or as an indirect result of syphilis. The latter variety is by far the most common and is due either to embarrassment of the gastric circulation from disease of the liver or spleen, to lardaceous degeneration of the vessels of the stomach, to secondary disease of the kidneys, or to the specific cachexia. This gastritis does not differ histologically from the usual forms and like them usually subsides when its exciting cause has been removed. Chronic inflammation of the stomach *directly* dependent upon the systemic infection occasionally results from repeated acute attacks during the early phases of the complaint, such as have been described by Jullien and Fournier, but as a rule it only appears at an advanced stage of the disease and is often associated with gummatous lesions of the bones, liver, or testes. To the naked eye the mucous membrane is either dull white and peculiarly opaque, or appears to be thickened and irregularly congested, with a surface like velvet pile. On microscopical examination the superficial roughness of the tissue is found to be due to an absence of the normal columnar epithelium and to a hyperplasia of the connective tissue between the mouths of the glands which give the section the appearance of being connected with fine papillæ. The capillary vessels which ramify between the glands are dilated and filled with blood corpuscles, but here and there their outlines are obscured by an accumulation of small round cells which pervade the whole of the connective tissue and form thick layers around the mouths and fundi of the glands. The lymphoid follicles are enormously enlarged and their cellular elements frequently penetrate the muscularis mucosæ and invade the submucosa. The gastric glands vary in appearance at different parts of the section, at one spot being comparatively healthy, while at another they are twisted, distorted, or disorganised by the round-cell infiltration. These general features are common to all forms of interstitial gastritis, from whatever cause they arise, but in the present case two special phenomena exist which indicate the syphilitic origin of the disease. The first of these takes the form of miliary granulations which occupy the whole thickness of the mucosa and may even invade the submucous tissue or project slightly above the free surface. These nodules, which are really minute gummata, consist for the most part of a homogeneous, granular, non-staining material, and where several have coalesced a large portion of the section appears to consist entirely of this cheesy material. The other characteristic feature of a syphilitic gastritis is a hyperplasia of the inner coats of the small arterioles situated in the submucosa which produces considerable narrowing of their lumina and not infrequently leads to thrombosis. These arterial changes may be observed in any part of the section but are always most noticeable in the vicinity of the miliary gummata.

Before proceeding to describe the clinical aspect of these diseases there are two errors against which I must caution you. In the first place, do not run away with the idea that every gastric ulcer is due to syphilis simply because the patient happens to have suffered at some time or other from that complaint. It should always be borne in mind that probably about 5 per cent. of the population suffer from ulcer at some period of their existence, and since syphilis is also by no means uncommon it must necessarily happen that the two diseases will frequently be associated in the same individual independently of any causal relationship between them. In 308 cases of chronic gastric ulcer of which I possess clinical notes a history of former syphilis existed in 10 per cent., but in the 132 fatal cases of the disease gummata or other evidences of syphilis were observed after death only in eight, or about 6 per cent. I am therefore of opinion that only about 5 per cent. of all chronic ulcers of the stomach have any direct connexion with syphilis, and that in the majority of these the connecting-link is to be found in arterial degeneration rather than in the formation of gummata.

My second warning is this: before you conclude that the symptoms of gastric irritation in a syphilitic subject are due to the specific malady make quite sure that they do not arise from injudicious medication. You are aware that many persons are very intolerant both of mercury and potassium iodide, and that the prolonged administration of these drugs frequently gives rise to troublesome gastritis, accompanied by anæmia, loss of appetite, emaciation, and great debility. When these symptoms develop in a patient who has been under our care from the first there is, of course, no difficulty in assigning the gastric disorder to its proper cause and, by discontinuing the line of treatment, in curing it. When, however, a patient of whom we know nothing except that he has had syphilis consults us for chronic gastritis there is always a great temptation to overlook the possibility of toxic influences and to prescribe the same drugs which were originally responsible for the disease. Some of you may recollect a good instance of this in the case of a woman who was sent to us with a diagnosis of cancer of the stomach on account of the pain after food, vomiting and loss of flesh from which she had suffered for several months. You will remember we found upon inquiry that she had been under medical treatment for some time for an ulcer of the leg and was inclined to attribute her indigestion to the pain and worry attendant upon that disease. As, however, she was obviously suffering from a gastritis of toxic origin we preferred to take the view that the medicine and not the sore *on the leg was the cause of the trouble, the assumption* being that the former treatment had been directed against possible syphilis. Careful regulation of diet combined with a rhubarb and bismuth mixture afforded immediate relief and within a month the patient reported herself as feeling perfectly well. It therefore behoves us to remember that gastritis occurring during the course of syphilis may result from injudicious treatment as well as from the disease itself.

Chronic ulceration of the stomach due to syphilis is most common in men between 25 and 40 years of age, in many of whom secondary symptoms of the infective disorder have either been very slight or were rapidly removed by treatment. The gastric complaint usually develops slowly and for several months may be mistaken for some form of simple or inflammatory dyspepsia, but sooner or later the characteristic symptoms of ulcer show themselves and soon become severe. So far as my own experience goes—and I am unfortunately obliged to quote it owing to the absence of clinical literature—these cases chiefly differ from the simple variety of the disease in three particulars, the first of which is the extreme severity of the pain and vomiting, the second the infrequency of hæmorrhage, and the third their obstinacy to ordinary treatment and tendency to relapse.

Pain is invariably present, and as is usual in gastric ulcer is principally experienced in the epigastrium within half an hour after a meal containing solid food. In many instances, however, the suffering is almost constant and even a diet of milk gives rise to oppression at the chest with distension and troublesome flatulence. When the disease has existed for some months the pain is often most intense during the night when the stomach is devoid of food, and it may then extend all over the abdomen and chest and radiate down the extremities or up the neck. Under these conditions the epigastrium is usually very tender, and the cranium, the tibiæ, and the heels may also be unduly sensitive to pressure. The attacks last for several hours and are frequently accompanied by flatulent and acid eructations, burning in the throat, intense thirst, and vomiting. They are temporarily relieved by a draught of milk or a dose of bicarbonate of sodium and more effectually by vomiting. Rosanow diagnosed a syphilitic ulcer in a patient on account of the nocturnal pain and successfully treated it, while Bartumeus appears to lay stress upon attacks of emesis during the night, but since both these phenomena are met with in simple ulcer when complicated with hypersecretion they cannot be regarded as pathognomonic of the specific form of the complaint. Vomiting is another conspicuous feature of the disease. At first the patient may only be sick during the painful crisis which the act of emesis tends to curtail, but as soon as secondary gastritis develops vomiting may occur after every meal, while from time to time attacks come on which last for many days and prevent the administration *of nourishment by the mouth.* The constant pain and vomiting soon induce a serious deterioration of the general health. The patient becomes very thin and feeble and presents the pinched and careworn look of one who is always suffering. The appetite may remain good or even be excessive, but he is afraid to gratify the desire for food on account of the punishment which is sure to follow, while at intervals he is tormented by a thirst which no amount of water will subdue. The bowels are confined and the tongue is often covered with a white fur. The urine is diminished in amount and its reaction is often neutral or slightly alkaline, while in many cases it contains an excess of phosphates but is deficient in chlorides. Anæmia is invariably present and the peculiar sallow complexion of many of the patients is very suggestive of specific cachexia. Although nearly 70 per cent. of the cases of simple ulcer suffer from hæmatemesis this symptom appears to be comparatively rare in the syphilitic disease, possibly on account of the gradual obliteration of the gastric vessels which, as I have already pointed out, occurs in the vicinity of the sore. When, how*ever, the portal circulation is embarrassed by coexisting* disease of the liver or spleen vomiting of blood may be an early and recurrent symptom.

As a rule the complaint fails to respond to the ordinary methods of treatment, and even when anti-syphilitic remedies are employed it may exhibit a great tendency to relapse. This latter peculiarity was very marked in the case of a woman who came under my care four or five times within two years for severe pain and vomiting after meals, accompanied by rapid emaciation. On each occasion the administration of mercury and iodides afforded almost immediate relief and the disease appeared to be cured at the end of two months, but as soon as she discontinued the medicine, though persevering with a liquid diet, the pain [illegible] vomited her food [illegible] f digestion I have very [illegible] stages of the complaint free hydrochloric acid may usually be detected after a test meal, and in those cases where nocturnal attacks of pain are present the vomit usually contains an excess of the mineral acid. But when the disease has given rise to great loss of flesh and to debility I have never observed hyperchlorhydria, but on the contrary have usually found evidence of lactic acid fermentation. When vomiting is excessive the ejecta consist almost entirely of alkaline and bile-stained mucus. The usual cause *of death is exhaustion from inanition*, but an intercurrent affection like tuberculosis or some syphilitic complication often hastens the fatal termination. Hæmatemesis and perforation appear to be rare. Among the sequelæ of the disease pyloric stenosis is the most important, as has been recorded by Cornil, Wagner, and Klebs.

Gastritis occurs both in hereditary and acquired syphilis and is chiefly characterised by its chronicity and intractability to ordinary treatment. In infancy and early childhood the intestine usually suffers along with the stomach, so that in addition to the vomiting there is either diarrhœa or obstinate constipation. In all cases the loss of flesh, anæmia, and debility are out of all proportion to the severity *of the local symptoms owing to the consecutive* atrophy of the gastric and intestinal glands which can be demonstrated in almost every case of so-called "syphilitic marasmus." During the period of childhood intercurrent attacks of acute gastritis, characterised by incessant nausea and vomiting and occasionally by severe gastralgia, are apt to occur from time to time. The bowels are confined, the tongue is thickly [illegible] appear at night. If no food c[illegible] the disease may prove fatal, bu[illegible] passes off in a few days and is again replaced by the chronic form. In almost every instance the child presents evidences of syphilis in the face, teeth, and eyes, while not infrequently the development of a gumma heralds the onset of an acute attack. In a case which I have often shown in this hospital a large mass could be felt for several months in the liver and subsequently a gummatous swelling appeared upon the forehead, while in the one reported by Heimmeter the child presented an enormous gumma of the lower jaw.

Mild forms of gastritis occurring in adult life are practically indistinguishable from the alcoholic variety, but in the more severe cases the progressive loss of flesh, excessive debility, anorexia, and profound anæmia, coupled with the absence of free hydrochloric acid from the gastric contents, are highly suggestive of a malignant growth. More than one case of this description has come under my care in which, if it had not been for a routine trial of iodide of potassium, I should have diagnosed cancer of the stomach, and I have known several patients who were condemned to carcinoma of the stomach or pancreas after an exploratory incision who made a perfect recovery under anti-syphilitic treatment. Although traces of altered blood may appear in the vomit, severe hæmatemesis is rarely observed unless the liver or spleen is also diseased.

DIAGNOSIS.

Specific ulceration of the stomach has to be distinguished clinically from the simple variety, from cancer, and from the gastric crises of locomotor ataxia. In every case of gastric ulcer the possibility of former syphilis should be borne in mind, and a careful search should be made for scars and other evidences of the disease. [illegible] severe pain and vomiting with great emaciation or profound anæmia are always suspicious symptoms, while nocturnal attacks in which pain is felt in the long bones as well as in the abdomen are most suggestive of syphilis. The [illegible] chief point of distinction, however, is the intractability of the disease to ordinary methods of treatment, while its symptoms rapidly subside on the administration of anti-syphilitic remedies. More than 60 years ago Andral diagnosed a syphilitic ulcer of the stomach from the fact that it was cured by mercury, and Galliard, Lancereaux, Wagner, Hayem, Rosanow, and Maic have all recorded instances in which the nature of the complaint was manifested in a similar manner.

The differential diagnosis of specific ulcer and cancer is often very difficult, especially when the former is accompanied by severe gastritis. In malignant disease, however, a tumour can usually be detected in connexion with the stomach: the loss of flesh and strength are more rapid, nocturnal attacks of pain are infrequent, and the vomit often contains altered blood. The subjects of gastric cancer are also very intolerant of mercury and iodides and after a few days' treatment will usually volunteer the statement that the medicine is making them much worse. In the syphilitic affection, on the other hand, these remedies are the only ones which are found to afford relief. The gastric crises of locomotor ataxia occur at irregular intervals and are seldom excited by the ingestion of food. There is little or no localised tenderness of the epigastrium and the patient presents the usual signs of early tabes. It is important to remember that the gastric disease and the specific lesion of the central nervous system seldom, if ever, coexist.

The diagnosis of syphilitic gastritis is made by the absence of the usual conditions which excite inflammation of the stomach and by the discovery of a strong history or of objective evidences of syphilis. A few days' trial of iodide of potassium will usually clear up any doubt, since in ordinary cases of gastritis this drug greatly increases the dyspeptic symptoms, while the contrary result is observed in the specific disorder.

TREATMENT.

Absolute rest is essential, and much time will be saved if the patient is confined to bed for the first fortnight. Milk should form the staple diet for the first three or four weeks, but as it does not always agree so well as in simple ulcer it may be necessary to administer it diluted with soda water or Vichy water. When vomiting is a troublesome symptom the milk should be peptonised. Clear soups and broths and jellies and junket may also be allowed if they can be taken without discomfort. After the first month, should the case be progressing favourably, milk puddings, soft bread-and-butter, eggs, tripe, and oysters may be allowed, and the diet may subsequently be increased by the addition of pounded fish, finely-minced sweetbreads, and chicken cream. Meat and green vegetables should not be allowed for at least six months. If vomiting is urgent it may be necessary to feed the patient by the rectum. When abdominal pain is severe the epigastrium may be constantly covered with a large linseed poultice, but as a rule the repeated application of small blisters is of greatest value. With regard to medicinal treatment it may be stated at once that mercury should always be combined with the iodides, since the latter are much less efficacious when given alone. In most instances it is sufficient to prescribe a mercurial pill of two grains with an equal quantity of extract of hyoscyamus night and morning, but occasionally drachm doses of the solution of perchloride of mercury are to be preferred. In young children inunctions of mercurial ointment or full doses of mercury and chalk are the most convenient method of administering the drug. If there is any tendency to diarrhœa a small quantity of opium may be included in the prescription. The iodide of potassium must be given in doses of from five to 15 grains, and is conveniently combined with carbonate of bismuth and liquid extract of sarsaparilla, while the addition of 10 minims of glycerine of carbolic acid often helps to prevent the oppression and flatulence experienced after food. Should the bowels remain constipated in spite of the mercury a teaspoonful or more of Carlsbad salts may be given each morning before breakfast. Lavage is chiefly indicated in chronic gastritis accompanied by troublesome vomiting and in cases of partial obstruction of the pylorus; but it must be avoided when the symptoms of ulceration are present. In every instance the patient should be warned of the possibility of a relapse lest he be tempted to discontinue the treatment as soon as the urgent symptoms have subsided.

VACCINATION STATISTICS.—At a meeting of the Bath Board of Guardians held on Sept. 18th it was reported that during 1900 there were 1668 births registered and that of these children 1071 were successfully vaccinated. 40 summonses for non-vaccination were obtained, of which 18 resulted in the defendants being fined, the remaining 22 being eventually vaccinated.

THE INFECTIOUSNESS OF THE MILK OF TUBERCULOUS COWS; THE BACTERIOLOGICAL DIAGNOSIS, AND THE PRACTICAL VALUE OF TUBERCULIN FOR THE EXTERMINATION OF TUBERCULOSIS AMONG CATTLE.[1]

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THE frequency and constant increase of tuberculous disease among cattle long ago drew serious attention to the question whether the milk of tuberculous cows is capable of carrying infection to other animals. By means of minute and varied experiments it has been established beyond doubt that such is indeed the case—that tuberculosis can certainly be produced in calves and swine through feeding them with infected milk. Nevertheless, it still remained to be shown how very common this mode of infection is under natural conditions. The magnitude of this danger of the spreading of tuberculosis among animals due to the consumption of milk is best illustrated by the frequent occurrence of tuberculosis among calves and by the alarming increase of the same disease among swine which has been observed within the last few years. About 90 per cent. of the latter cases have been proved to originate in feeding with infected milk. The frequent occurrence of intestinal infection need not be wondered at when we consider the extent of tuberculous disease among milch cows as well as the fact that for a considerable length of time after birth the young calves are almost exclusively fed with their mothers' milk. The increase of tuberculosis among swine is further explained by the fact that the farrows are likewise raised on cows' milk, the principal fodder of pigs in these days of large dairies consisting in the raw dairy residues made up of the deposits and the skim milk left over from the centrifuging process. The transmission of tuberculosis among cattle and pigs by means of milk being established, it now remains to be seen whether the milk of all tuberculous cows contains tubercle bacilli, or whether the infectious properties are confined to special forms of tuberculous disease.

The investigations of Bollinger, Bang, and a great number of other observers many years ago established that the milk of cows suffering either from general tuberculosis or from tuberculosis of the udder contains tubercle bacilli. A few observers, such as Hirschberger and others, have experimentally demonstrated the infectious quality of milk derived from cows with incipient tuberculosis and non-tuberculous udders. Since the important discovery of tuberculin, however, there has been no examination into the question as to whether tubercle bacilli may not be present in the milk of animals which do not show any clinical signs of tuberculosis but which nevertheless are shown by their susceptibility to the tuberculin test to be tuberculous. A positive answer to this question was furnished in 1899 by the joint investigations of myself and Dr. Kempner. We found that tubercle bacilli may be present in the milk in cases of tuberculosis, latent, but revealed by the tuberculin test. If, then, the milk of such cows contains tubercle bacilli, it must needs be regarded as infectious, and such milk must be held no less dangerous for the consumption of young animals than that of milk from cows with advanced general disease or with diseased udders. In these as well as in my subsequent experiments I tested the presence of tubercle bacilli in the milk by means of intra-peritoneal injection in guinea-pigs, as I consider this method to be not merely satisfactory, but indeed the only safe method. The alternative way to prove the infectious character of milk by feeding animals with it is unreliable, since the quantity of tubercle bacilli thus introduced in the course of one experiment or of several experiments is greatly inferior to the amount which the animals would actually consume within a given period of time as part of their food. In the long run even a very slightly infectious kind of milk is bound to produce the disease.

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[1] A paper communicated to the British Congress on Tuberculosis, Section III., Pathology, including Bacteriology.

The presence of tubercle bacilli in the milk of cows that respond to the tuberculin test without showing clinical evidence of tuberculosis was proved in the same year by Ostertag in regard to mixed milk and by Adami and Martin in regard to the milk of a number of individual cows. A further proof in support of this theory was furnished by my observations last year on milk supplied to infants in Berlin. I found no tubercle bacilli in the milk taken from cows which had been regularly subjected to the tuberculin test, while the supply obtained from animals not subjected to this test contained tubercle bacilli though they showed no clinical symptoms of tuberculosis. My own bacteriological observations of former years, as well as the more recent investigations chiefly concerning the milk of cows with suspected tuberculosis of the udder, established the following facts:—

The detection of tubercle bacilli by means of microscopical examination of specimens of cream and sediment from centrifuged milk is unreliable, because the absence of acid-resisting bacilli from the specimens examined cannot be considered convincing as their number may be so small as not to be found on every slide examined under the microscope, whilst even a very small number of tubercle bacilli can be detected by animal experiment. Besides, in milk there occur bacteria which with regard to their growth, as well as to the effect which they have on the animal organs, are very similar to the acid-resisting bacilli which were found by Koch in butter, and which under the microscope are unfortunately very difficult to distinguish from tubercle bacilli. These bacilli were not only found by Petri, Beck, Santoni, myself, and others in the ordinary market milk, but we were also able to detect and to isolate them by animal experiments from specimens of milk obtained under aseptic conditions from individual cows. The above-mentioned discovery of the acid-resisting bacilli, so similar in their nature and appearance to tubercle bacilli, in the milk of cows suspected of tuberculous disease made by our observations some years ago has been recently confirmed by the experiments of Kühnau. This investigator was able both in specimens of mixed milk and also in milk taken under aseptic conditions from individual cows, to prove by animal experiment the presence of these bacilli in from 20 per cent. to 25 per cent. of the cases examined. Whether these bacilli are secreted by the mammary glands or whether they enter the milk ducts of the frequently inflamed udders from without is still uncertain, and for the differential diagnosis of these bacteria is without importance. In the light of recent investigations we certainly need not be surprised to find these bacilli in the milk. Several years ago Severin found the same kind of bacteria in cow dung while Olt demonstrated their presence in the contents of the intestine of tuberculous as well as of healthy cattle. Moëller further succeeded in obtaining isolated cultures of these acid-resisting bacteria from the cow dung as well as from the timothy grass used as fodder. The same kind of acid-resisting bacteria, or similar ones, have been recently detected by Cowie on the udder, and by Ludwig Neufeld in the mammary gland, of the cow. Besides these acid-resisting bacteria Nocard and Mollereau, Bang, and others detected, some years ago, saprophytic as well as pathogenic bacteria, especially streptococci, in the udder of cows suffering from mastitis. These discoveries were recently confirmed by the experiments of Ward, as well as by those of Reed and Ward. The last named observers have even isolated streptococci along with harmless bacteria from the milk of cows which were apparently healthy, showing clinically no signs of mastitis. When the udders of the slaughtered animals were examined streptococci of the same kind were found to be present in all parts of them. The other bacteria too, which were found in the udder after the cow was slaughtered proved identical with those previously isolated from the milk. That streptococci may be present in the milk a long time after the mastitis has disappeared has recently been proved by the experiments of Lameris and van Harrevelt.

In view of these facts the presence in cows' milk of the bacteria which resemble tubercle bacilli is, after all, not difficult to explain, as these microbes, as well as streptococci, can either enter the udder from the outer world through the teat, or they can be taken in with the food and absorbed by the blood and lymph stream from the intestinal canal and carried thence to the udder. In the present state of our knowledge it is not yet certain whether these bacteria can be the cause of the mastitis, or whether, the mastitis already existing, the inflamed tissue merely furnishes a suitable nourishing medi[illegible] these acid-resisti[illegible] in a specimen of [illegible] tion of these from the genuine tubercle bacilli, especially when both kinds are present mixed in one and the same specimen of milk, is rendered extremely difficult or even impossible.

The only reliable method of proving the presence of tubercle bacilli in milk which remains is therefore, animal experiment—namely, the intra-peritoneal injection into guinea-pigs of a mixture of the cream and sediment of thoroughly centrifuged milk. The following interesting experiment made by Ostertag shows how very susceptible the guinea-pig is when subjected to intra-peritoneal inoculation. The milk of a cow with a tuberculous udder, 20 cubic centimetres of which being given to a guinea-pig by the mouth produced intestinal tuberculosis, was able to produce general tuberculosis when injected into the peritoneal cavity of guinea-pigs even after it had been diluted 100 000 times. By comparative experiments I was, indeed, able to prove that the last milk obtainable from the udders of suspected cows gave positive results in regard to the presence of bacilli whilst the first milk obtained from the full udders was not able to convey tuberculous infection in the animals. It must further be noted that it is necessary to examine the suspected milk repeatedly and at various times, as a single negative result cannot be considered finally convincing. Although it is easy to prove the presence of a small number of tubercle bacilli by means of inoculation the result of the experiments may be obscured where changes resembling tubercles are seen in the tissues when examined with the naked eye but which in reality have been caused by the action of the above-mentioned acid-resisting bacilli. Their pseudo-tuberculous nature can easily be proved when examined under the microscope. But, as we have already seen, real tubercle bacilli may be found in the tissues along with the acid-resisting bacilli; it is therefore advisable to carry on, in addition to a histological examination, inoculation experiments with parts of the suspected tissue until positive results are obtained. Thus the process of diagnosing tubercle bacilli by means of experiments on animals may become very tedious and two or even three months may elapse before we are able to decide whether the milk of the cow suspected of tuberculosis really contains tubercle bacilli.

The presence of tubercle bacilli in the milk does not, as a rule, correspond to the extent of the disease in the animal as we have already had occasion to mention. It must be admitted though, that in cases of extensive general tuberculosis or tuberculosis of the udder the presence of tubercle bacilli in the milk may be expected. How very often the clinical diagnosis of tuberculosis of the udder meets with great difficulties, even in the hands of the most competent observers I had an opportunity to convince myself in the course of my last year's observations. The milk of the cows in question as well as the results of the clinical examination, were kindly placed at my disposal by Dr. Schütz, professor at the Veterinary School in Berlin, and Dr. Schroeder. I made it my task this time to carry on my experiments on the occurrence of tubercle bacilli in the milk only of such cows as have been proved by repeated clinical examinations to be suspicious or to show tuberculosis of the udder. These 10 cows, the milk of which was repeatedly examined microscopically and by animal experiment, have not been submitted to the tuberculin test. In experiments this year it has merely been wished to ascertain whether the clinical examination of a cow, especially of her udder, allows the inference that the milk of the animal is infectious. It would lead us too far to enter here into details of our experiments. I shall only mention the results of the examination of those cows which throw most light on the subject in question.

In one case where the clinical diagnosis pronounced the udder to be tuberculous the presence of tubercle bacilli was only detected by animal experiment, microscopical examination was negative. In another cow with the same diagnosis the microscopical examination of the milk repeatedly revealed a great number of acid-resisting bacilli while the animal experiment gave negative results. The necropsy of this cow did not confirm the clinical diagnosis of tuberculosis of the udder; it revealed merely the presence of chronic interstitial mastitis. Inoculation experiments with portions of the suspected udder also failed. In two other cows in one of which the diagnosis of tuberculosis of the udder was made with great certainty while in the other a strong suspicion was entertained, microscopical examination repeatedly detected in the milk a great number of acid-resisting bacteria of the nature of which we could not be sure. We thought them at times to be real tubercle bacilli; at other times they seemed more like rod-shaped bacilli merely resembling tubercle bacilli. Inoculation experiments with the milk of these two cows produced in the animals experimented upon suspicious changes which were due to acid-resisting bacilli resembling the tubercle bacilli. Further inoculation with suspected tissues of these animals gave a negative result. Of special interest was a case where the clinical diagnosis of tuberculosis of the udder was confirmed by the post-mortem examination. Neither the microscopical examination nor the experiments on animals could show the presence of tubercle bacilli in the milk. The microscopical examination of sections of the tuberculous udder revealed numerous clumps of tubercle bacilli in the tuberculous interstitial tissue, while there were none to be found in the milk ducts.

From a review of these cases we arrive at the conclusion that the clinical diagnosis of tuberculosis, especially of tuberculosis of the udder, does not enable us to judge whether tubercle bacilli are secreted with the milk of the affected cows. For, on the one hand, our previous investigations, as is seen in the account of the same, have shown tuberculous disease of the udder sometimes to escape detection altogether, or simple inflammation may be diagnosed clinically, while later the histological examination, as well as the results of inoculation experiments with the milk and with portions of udder tissue, prove that it was clearly a case of tuberculosis of the udder. Delépine arrived at the same result in the examination of a cow the udder of which was not found to be tuberculous till examined histologically. The milk of this cow contained tubercle bacilli, although repeated clinical examination as well as the observation of the udder with the naked eye after the necropsy yielded no grounds for suspicion of tuberculous disease. Of course, it is not to be wondered at that the commencement of disease of the udder escapes detection when palpation is used.

On the other hand, the udder may be clinically pronounced tuberculous while both the necropsy as well as the histological examination clearly show that we have merely to deal with a case of interstitial mastitis or of cyst formation in the udder. This fact was not only proved by Dr. Kempner and myself, as may be seen from the above synopsis, but the investigations of Adami and Martin, as well as those of Delépine, illustrated by a series of interesting experiments, led to the same results. Kühnau, in his recent paper on the Extermination of Tuberculosis among Cattle, has further shown that streptococci, which not infrequently invade the udder, as seen before, are occasionally capable of producing changes closely resembling tuberculosis. A third possibility has been also demonstrated in the present year by my own investigations, in which I proved that even repeated inoculation of the milk may fail to show the presence of tubercle bacilli, though the clinical diagnosis of tuberculosis of the udder was confirmed by the necropsy, and though great numbers of tubercle bacilli could be detected with the microscope in the tuberculous interstitial tissue though not in the milk ducts.

The presence or absence of tubercle bacilli in the milk of cows with tuberculosis of the udder is, in our opinion, greatly dependent on the extent of the disease in the organ. It is easy to understand that in a case where the tuberculous foci in the udder are circumscribed and encapsuled the tubercle bacilli will not be able to enter the milk ducts with the same case as they may do when the disease of the organ is diffused. From examination with the naked eye and under the microscope, as well as histologically, of a number of tuberculous udders which were kindly placed at my disposal by Dr. Reissmann, the director of the Berlin slaughter-houses, I was enabled to convince myself how very much the occurrence of tubercle bacilli in the milk depends on the extent and the local seat of the tuberculous changes in the udder tissue. In many cases of very advanced disease I was only able to detect the presence of tubercle bacilli in the fluid expressed from the milk ducts after having examined a great number of specimens. In several cases I failed to detect tubercle bacilli in the capillary milk ducts under the microscope, while in other cases the milk capillaries were crowded with bacilli. In view of the great variety of bacilli found in tuberculous udders, as seen in my investigations in this field, I venture to express a doubt whether the method (first recommended by Nocard) of harpooning does always furnish us with a sure means of judging whether in a doubtful case we are dealing with tuberculosis of the udder or not. Besides this the harpooning method has been pronounced recently by Kühnau to be not quite without danger to the animal.

So far we have seen that the clinical examination of milch cows as a means of inferring the presence of tubercle bacilli in the milk is, without the aid of auxiliary methods of research, both insufficient and unreliable. On the other hand, the method of demonstrating the presence of tubercle bacilli by means of experiments on animals may prove very tedious. There remains only the tuberculin test which is the sole quick and sure method. The tuberculin test is recommended by most of the distinguished authors along with the clinical examination as the best means of diagnosing and thus aiding the extermination of tuberculosis among cattle. It is, on the other hand, not difficult to understand that in view of the enormous spread of bovine tuberculosis the farmers should try to discredit tuberculin. But the great diagnostic value of tuberculin can scarcely be diminished by the fact that the failures in the diagnoses only amount to 2·9 per cent. (as Schütz proved) of all the cases subjected to this test. In cases where the diagnosis of tuberculosis has been made with great certainty by means of clinical examination the tuberculin test becomes naturally superfluous. This does away with the argument that about 10 per cent. of the cattle which fail to react to tuberculin nevertheless are tuberculous. These 10 per cent., as is well known, consist of highly tuberculous animals which have themselves produced and contain in their bodies so much tuberculin that they are unable to respond any longer to the tuberculin test: this argument is nevertheless brought forward again and again by the adversaries of our method. The tuberculin test should only be applied to animals which are suspected of tuberculosis, and when thus used failures in the diagnosis never occur, as I am informed by Nocard, who based his opinion on a prolonged experience in France. Bang, in his last year's treatise, also appears as a champion of tuberculin for diagnostic purposes; he still considers it to be the finest and safest means for diagnosing tuberculosis in animals in spite of the many opinions to the contrary.

We must point out the fact that the present scientific data with regard to the extermination of bovine tuberculosis clearly show this to be practically impossible without the aid of tuberculin. Naturally we must, in the first place, make a point of exterminating the cows affected with tuberculosis of the udder and general tuberculosis, since their milk is more than all other to be regarded as infectious. In the second place come the animals in which the clinical diagnosis can only be established by the help of tuberculin. These cows must first of all be separated from the healthy ones. The questions whether they should be killed and as to the proper time for doing so will depend on the quicker or slower progress of the tuberculous disease. That is to say, that of course not all the animals which react to tuberculin need be immediately slaughtered. We may therefore say that combined with the clinical and bacteriological examinations the tuberculin test furnishes us with the safest means of obtaining milk free from tubercle bacilli as well as of rearing cattle free from tuberculosis.

A CASE OF ACUTE DOUBLE PNEUMONIA TREATED WITH OXYGEN; RECOVERY.

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THE treatment of pneumonia, like that of most acute fevers, is chiefly symptomatic and therefore more or less unsatisfactory. The great things expected of the anti-pneumococcic serum have scarcely been realised and one is sometimes tempted to think that the course of the disease has not been favourably altered by its administration.

According to Dr. Andrew Smith[1] of New York in pneumonia the cocci do not enter the substance of the lungs, but are contained in the air vesicles, as in a test tube, where they flourish and produce their toxins, which by absorption [illegible] the fever and prostration characteristic of the [illegible] e an acid reaction after [illegible] which by its accumulation in the air vesicles has been supposed to destroy the cocci and thus to bring about a sudden termination of the process. Now, it is well known that the pneumococci of Frænkel do not flourish in an atmosphere of pure oxygen, and [illegible] the administration of [illegible] pneumonia might pr[illegible] the lung which were still healthy and would probably be antagonistic to the growth of the cocci already present in the lungs.

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[1] Twentieth Century Practice of Medicine, article "Pneumonia."

Some years ago an interesting case in point occurred in the Miriam Ward of Guy's Hospital under the care of Dr J F Goodhart, whose clinical assistant I was at the time. The patient was an old woman who was admitted for leucocythæmia, for which she was given inhalations of oxygen lasting 10 minutes three times a day. Suddenly she developed a high fever and definite signs of pneumonia consolidation appeared at the left base. Dr Goodhart examined the case and, agreeing with the diagnosis, gave a very bad prognosis, pointing out that pneumonia was often the closing scene of such a chronic disease. The inhalations were continued, and, to the surprise of everyone, the pneumonia rapidly cleared up in two days' time. The *only other treatment adopted was hot linseed poultices to* the left side. The particulars of the present case are as follows.

A man, 23 years of age, belonging to Kitchener's Fighting Scouts, was admitted to the Imperial Yeomanry Hospital at Pretoria on July 23rd, 1901, suffering from pneumonia. He had been ill for two days on the train coming from Durban and was somewhat collapsed on admission. His temperature was 101° F, his pulse was 120, and his respirations were 60 per minute. The abdomen was distended and tympanitic. The spleen was not enlarged. No typhoid spots were present. The tongue was covered with white fur. There were sordes on the lips and the patient was in a typhoidal state. A very troublesome cough was present, with expectoration of thick white sputum mixed with bright red blood. The man complained of pain in his chest on breathing or coughing but no friction rub was present. Breathing was rapid and laboured and at the rate of from 60 to 70 per minute. The slightest movement brought on a paroxysm of coughing which greatly exhausted the patient.

On examining the chest in front and in the axillæ and over the upper lobes behind there was harsh, loud, compensatory breathing, with absence of any adventitious sounds or bronchophony. Behind there was dulness of both bases up to the level of the ninth rib, and over this area there was bronchial breathing, with small consonating râles and bronchophony of cough sounds. *Above* the area of dulness on both sides the air did not enter well except in the upper lobes, where compensatory breathing was heard. The temperature rose to 103° at 10 P.M., but the patient was a little more comfortable.

The treatment consisted in the application of a pneumonia jacket and the administration of a mixture containing five minims of tincture of opium, four minims of liquor strychninæ, five minims of dilute hydrochloric acid, and one *ounce of peppermint water every four hours*, two ounces of brandy were also given daily. On the next day (July 24th) the signs of consolidation were extending upwards *pari passu* on both sides behind. In front the lungs were still quite clear. The temperature varied between 102° and 103·8°, the pulse was about 120 per minute, and the respirations were from 50 to 60. Dr H D Rolleston saw the patient in consultation with me and agreed with the suggestion that oxygen inhalations should be given to prevent if possible the spread of the infection to the upper lobes. These inhalations were ordered for 10 minutes every four hours on the morning of the 25th, and as there were no oxygen cylinders in the hospital nor in Pretoria the gas had to be prepared in a laboratory in the town and then brought up to the hospital in 40 litre gas holders. Great credit is due to Quartermaster Lieutenant Bruce, R.A.M.C., for the despatch with which he procured oxygen and kept up the needful supply of 40 litres daily for the inhalations. On the 25th the temperature was 104·6°, the pulse was 120 per minute and the respirations were 80. The oxygen inhalations were commenced on this morning and were continued until the 29th inclusive. The physical signs of consolidation (dulness, bronchial breathing and bronchophony, &c.) had extended upwards and the whole of the lower lobe on the left side and the lower and middle lobes *on the right side* were quite solid; the upper lobes remained quite free and compensatory breathing was heard all over their area. Examination was difficult as the slightest movement brought on a paroxysm of coughing and caused great exhaustion of the patient, his pulse and respirations becoming very rapid at these times. The respirations were from 90 to 110 per minute. There was a considerable amount of white frothy expectoration mixed with bright red blood and the cough was troublesome.

Dr Rolleston saw the patient with me again; we both thought that he would probably succumb to his disease and suggested giving four minims of liquor strychninæ and four minims of liquor atropinæ hypodermically twice a day instead of the above mixture. A special sister was detailed for the case and her assistance did much to bring about a favourable termination. The injection was given that night for the first time and was continued until the evening of July 29th. A mixture containing 15 minims of tincture of digitalis was ordered every four hours and the brandy was increased to four ounces daily. On the 26th the temperature was 103°, the pulse was 124 and the respirations were from 40 to 60 per minute. The patient was more comfortable, the cough was less troublesome, and he had a fairly good night but did not sleep much. There was no delirium. The back was not examined, but in both axillæ there were the physical signs of consolidation of the anterior bases of the lower lobes. The upper lobes remained free. The temperature fell slightly during the day and was only 101° at 4 P.M. No change was made in the treatment, oxygen still being given every four hours. On the 27th the patient was much more comfortable. The temperature fell from 101° at 4 A.M. to 98·6° at 8 P.M., the pulse rate from 138 to 86, and the respirations from 50 to 36. After this the patient made a good recovery, although he had an attack of pleurisy with acute pain in both axillæ necessitating the administration of one grain of morphia hypodermically and the application of blisters. Another attack of pain occurred over the left base on the 29th and over the right base on the 30th. A definite friction rub was heard in both axillæ and over the bases of both lungs behind, appearing first at the left base and then on the right side one day later. The man was now quite well with the exception of being debilitated.

On summing up the evidence for and against the value of oxygen as a prophylactic agent in the treatment of this case of pneumonia we find that there are certain points in favour of the patient quite apart from all considerations of treatment and other points of grave prognosis which perhaps under less favourable conditions might have brought about a fatal termination. The three chief points in this patient's favour were: (1) he was a young man (23 years of age); (2) his constitution was fairly robust; and (3) the degree of toxæmia was not of that severe type which is sometimes met with giving rise to temperatures ranging from 105° to 106° or more. The highest temperature charted was 104·6°. But when these points have been brought forward there is little else that can be said in favour of the patient himself being able to combat the attack.

The points against a favourable termination were: (1) the pneumonia was double, a point of grave import always; (2) the disease progressed *pari passu* on both sides until the upper lobes alone were left intact; and (3) the patient fell into a typhoidal state without delirium it is true, but with respirations of 80 per minute and a pulse varying from 120 to 136, and after the slightest exertion the respiratory rate was anything from 80 to 120 per minute. If this condition had lasted a day or two longer than it did the patient must, I consider, have died from lack of respiratory capacity, or if the upper lobes on either side had been attacked the subsequent dyspnœa must have killed him very shortly. From the time the oxygen was given the temperature began to fall, whilst before that it had been rising, the highest temperature (104·6°) being reached just before the first inhalation.

The difficulty of deciding whether it was the patient's own constitution or the benign influence of oxygen upon the course of the disease which brought about the successful termination is very apparent. But personally, I think that the administration of the oxygen prevented the spread of the infection to the upper lobes and probably brought about an earlier termination of the process than would otherwise have occurred. I [illegible] to have [illegible] respiratory and cardiac stimulant the hypodermic injection of strychnine and atropine was apparently of more service than administration by the mouth.

Pretoria.

A RÉSUMÉ OF MODERN VIEWS ON GASTRIC DIGESTION.

BY HENRY F. BELLAMY, M.D.

THE complex nature of the gastric mechanism renders the discovery of its inner workings a matter of ever-increasing toil to the experimental physiologist. To the medical man, unless his treatment is to be largely empirical and the results thereof uncertain, the need of a proper understanding and appreciation of the circumstances which control or influence the march of digestion in the normal stomach becomes each day more pressing. Fortunately, recent experience of the behaviour of the organ in health supplies him liberally with the means from which to form a rational basis for his therapeutical measures when called upon to remedy its distorted functions in disease. It is the purpose of the present article briefly to pass in review some important facts in connexion with this subject which have lately found light in the Lausanne laboratory.

Since the introduction by Pawlow of improved methods for accurately observing the phenomena of digestion on the living animal the physiology of the subject has made immense strides. The advance of knowledge has chiefly been in the direction of ascertaining how far the gastric function is influenced by the foodstuffs habitually ingested by the organism. Many years ago Schiff entered deeply into the subject of these influences, but, possessing no method of determining, even approximately, the amount of juice secreted under given conditions, his researches were necessarily restricted. For him there were but two possibilities—viz., either simple gastrostomy or infusions of the mucous membrane. The first proceeding enabled him to measure the power of the juice, as judged by the progress of digestion in the interior of the stomach; the second to measure the amount of pepsin to be found in the mucous membrane after the death of the animal. Nowadays, the classical operation of Pawlow affords a trustworthy method whereby the quantity and quality of the juice secreted under certain experimental conditions may be accurately estimated. As is well known, the operation consists in forming from the fundus of the stomach a diverticulum retaining its nerve-supply both from the vagus and sympathetic; its nerves being intact, this cul-de-sac works and rests in unison with the rest of the organ and furnishes a quantity of absolutely pure juice proportional to the extent of its surface. It is then possible, by digestions in vitro, to estimate the digestive capacity of juice received direct from the living animal.

Schiff's experiments and the conclusions derived by him therefrom are too well known to need recapitulation here. Those of the latter which more nearly concern our present subject may be summed up as follows. 1. That the gastric mucous membrane can, by a suitable and adequate meal, be entirely exhausted of its holding in pepsin. 2. That while certain "indifferent" foodstuffs exercise no influence whatever either upon the quantity or the quality of the juice secreted at the time of their ingestion there are others which possess in a marked degree the property of furthering the formation of pepsin. Among the 27 foodstuffs examined by him 12 proved themselves to be more or less positive in this respect; he accordingly termed them "pepsinogenes." They are as follows: (1) raw meat, (2) watery meat extract, (3) meat broth, (4) bone gelatin, (5) bread, (6) watery extract of bread, (7) dextrin, (8) certain peptones, (9) cheese, (10) watery extract of small peas, (11) watery extract of linseed, and (12) black coffee.

In contradistinction to these, the pepsin-forming substances, Pawlow's experiments on dogs have led him to the discovery of another class of substances possessing the property of calling forth the rapid and copious secretion of juice normally rich in acid, but producing no corresponding increase in the amount of pepsin; these substances are called by him juice-forming or "succagogues." Out of 16 foodstuffs examined the following eight were found to possess this property: (1) raw meat, (2) meat-juice. (3) broth, (4) meat extract (Liebig), (5) milk, (6) gelatin, (7) certain peptones, and (8) water (in large quantities).

Now, a comparison of this list with the preceding one reveals the striking fact that the majority of the substances described by Pawlow as "succagogues" are identical with those to which Schiff ascribed pepsinogenic properties. One would thus be led to suppose that these substances (or at any rate those of them which had been examined by both observers) were possessed of the double property, pepsin-forming and juice-secreting—or, in other words, that these two properties were identical. But a closer examination of the experiments of the respective observers brings to light the fact that these two classes of substances differ in one very important respect. Whereas the "pepsinogenes" of Schiff retain their action when absorbed from the rectum, the "succagogues" of Pawlow work only when brought into actual contact with the gastric mucous membrane, their action being entirely negative when administered per anum. It thus appears that the "pepsinogenes" exercise their influence through the agency of the blood and the "succagogues" through that of the nervous system.

It now occurred to Herzen that there might possibly exist substances possessing entirely or in great part the one or the other property. It so happened that Schiff had never experimented with Pawlow's most active "succagogue" (Liebig's extract), nor had Pawlow tested the "succagogic" properties of Schiff's principal "pepsinogene" (dextrin). With the object, therefore, of testing these two substances equally in both directions Herzen undertook a series of comparative experiments, of which the following may be considered typical. Pawlow's operation was performed upon a young, well-conditioned dog weighing 40 kilogrammes. The operation failed, however, in this respect—that in spite of every care the stomach fibres of the vagus appeared to have suffered injury. The possibility of this accident was suggested by the observations that the animal showed no trace of psychical reflex. As it happened, the absence of the latter was a distinct advantage, since its presence would have become a considerable hindrance to the determination of the possible secretory power of the "pepsinogenes"; indeed, it would have been necessary to counteract this disadvantage by an œsophagotomy, a proceeding demanding constant and elaborate care. The dog made a rapid recovery and the gastric cul-de-sac was found to carry out its functions satisfactorily.

It would be as well to diverge at this point from the account of the experiments performed on this animal in order to emphasise the importance of certain experimental conditions necessary to be fulfilled before the experiments themselves could be of any value. The holding in pepsin of the gastric mucous membrane at a given moment obviously depends upon the amount of pepsin formed by the previous digestion and how much of it has been secreted; in other words, on how much true pepsin (not propepsin) has remained over in the mucous membrane. If, then, the observer contents himself with merely taking the animal in a fasting condition, without regard to the quantity and quality of the last intake of food, he obtains, as chance may direct, a juice of less or greater activity. Since there may be pepsin remaining over from the previous digestion, by what method may the experimenter determine how much of the quantity present in the juice is newly formed as the result of the action of the substance experimented with, or even if this substance has in any way contributed to this new formation? The value of this quantity can only be accurately determined by ensuring the apeptic condition of the mucous membrane at the time of the experiment; this has been found to be the case when, from 14 to 18 hours before the experiment, a copious preparatory meal is given to the animal, the stomach being compelled in this manner to throw out the whole quantity of pepsin formed during the digestion of the meal. In order that its stomach might be in the apeptic condition in the morning, when the experimental meal was given and the juice collected, the Lausanne dog received its preparatory meal every evening between five and six o'clock. Some idea of its appetite may be gathered from the fact that the latter meal consisted, as a rule, of 1500 grammes of horseflesh boiled in water and given to the animal together with its broth and 3000 grammes of half-liquid polenta. The dog then received nothing except fresh water until between eight and nine o'clock on the following morning (16 hours after the preparatory meal) when the experimental meal was given. Now this latter meal had to be of such a nature that its main mass was composed of an "indifferent" substance—i.e., a substance the ingestion of which provoked the secretion of juice minimal in quantity and activity Both Schiff and Pawlow had been in the habit of employing for this purpose boiled meat washed out in running water, or coagulated albumin, after experimenting with various foods Herzen discovered an excellent material in polenta given in a half-liquid form. To this were added 50 grammes of the substance the properties of which it was desired to determine, when occasion demanded it the latter could also be administered per anum. The juice flowing from the gastric cul de sac was then received into a graduated vessel In the summer of 1900 over 100 experiments were carried out in this manner on the same dog The following are some of the more important results

1. *July 30th* —The preparatory meal was given on the previous evening at five o'clock. This morning at eight o'clock the experimental meal was given, consisting of polenta alone. The beginning of secretion was at nine o'clock 10 cubic centimetres of juice were collected at 10 o clock, the same digested 1 5 cubic centimetres of albumin The result was little juice and very little pepsin

2. *August 3rd* —The preparatory meal was given on the previous evening at five o'clock This morning at 8 30 the experimental meal, with the addition of 50 grammes of dextrin, was given The beginning of secretions was at 8 50 A M 10 cubic centimetres of juice were collected at 9 10 A M and 45 cubic centimetres at 10 50 A M Digestion of the first, 10 cubic centimetres and six cubic centimetres of albumin, that of the last, 10 cubic centimetres of albumin The result was very much more juice and considerably more pepsin

3 *August 4th* —The preparatory meal was given on the previous evening at five o'clock. This morning at nine o'clock the experimental meal, of polenta alone, was given The beginning of secretion was at 9 20 A M 10 cubic centimetres of juice were collected at 9 30 A M, when an enema of 50 grammes of dextrin in 200 grammes of water was given Further 25 cubic centimetres of juice were collected at noon The first 10 cubic centimetres digested 2 5 cubic centimetres of albumin the last 10 cubic centimetres digested 10 cubic centimetres of albumin The result was less juice than in the case of No 2, but still more pepsin

4 *August 15th* —The preparatory meal was given on the previous evening at five o clock. This morning at eight o'clock the experimental meal, with the addition of 35 grammes of Liebig's extract, was given The beginning of secretion was at 8 50 A M The first portion (10 cubic centimetres) of juice was collected at 9 15 A M At 11 o'clock a further 25 cubic centimetres had been collected The first 10 cubic centimetres digested three cubic centimetres of albumin, the last 10 cubic centimetres digested six cubic centimetres of albumin The result was a large quantity of juice containing a moderate holding of pepsin

5 *August 21st* —The preparatory meal was given on the previous evening at five o clock. This morning at 8 30 the experimental meal, of polenta alone, was given The beginning of secretion was at 8 45 A M Five cubic centimetres of juice were collected at 9 25 A M, when an enema of 20 grammes of Liebig's extract in 200 grammes of water was given At 11.25 A.M a further 10 cubic centimetres of juice were collected The first five cubic centimetres digested one cubic centimetre of albumin (10 cubic centimetres = two cubic centimetres of albumin), the last 10 cubic centimetres digested eight cubic centimetres of albumin. The result was little juice with rather high pepsin holding

It will be apparent from these five examples of Herzen's experiments that, when given in *large doses* by the mouth the meat extract and dextrin act both as "succagogues and "pepsinogenes'—i.e, that the copious ingestion of either of them suffices to produce the double effect of more juice and increased pepsin holding It is obvious, however, that the administration of a dose of Liebig's extract sufficient to ensure its action in both these directions would of itself give rise to pronounced digestive disturbances, and that instead of being assisted, digestion would quickly become deranged by this treatment A similar drawback attends the employment of large doses of dextrin, the disagreeable flavour of which soon becomes objectionable to the patient. In order, therefore, to avail himself successfully of this line of treatment the therapist must take advantage of a further remarkable fact brought to light by Herzen's experiments. It is found that, when given in *small doses* the pepsinogenic property of the meat extract and the secretory property of the dextrine tend to disappear, in other words, owing to the diminished force of their converse properties, the meat extract and the dextrin tend respectively to become a true "succagogue' and a true "pepsinogene" By prescribing, therefore, small doses of one or both of these substances the therapist may modify, according to the needs of his patient, the quantity and composition of the juice secreted

It has been mentioned earlier that the "succagogues" lose their secretory property when caused to be absorbed from the rectum A brief glance at Experiment No 3 in the foregoing series reveals a surprising fact in connexion with the administration of dextrin in this manner: it will there be seen that all influence in the direction of increased secretion of juice becomes lost the pepsinogenic property of the substance being alone retained

We have now to consider the question, Do there exist substances possessing *exclusively* the one or the other property? The latest work in the Lausanne laboratory points conclusively to a reply in the affirmative. Radzikowsky, Herzen's assistant, and Madame Mark Schnorf, one of his pupils have recently devoted their attention to this subject, the former has succeeded in discovering a true "succagogue' and the latter two "pepsinogenes The work of Radzikowsky has shown that ethyl alcohol is a pure juice expelling substance devoid of any trace of pepsin forming properties Experimenting in the manner above described, he finds that when the stomach has been thoroughly exhausted of its pepsin by a proper preparatory meal, the acid juice secreted by the action of alcohol is as good as pepsin free. The alcohol however, does not hinder the transformation of the propepsin into pepsin under the influence of a pepsinogenic substance, since when dextrin is at the same time caused to be absorbed from the rectum, the secretion of a juice rich in pepsin is obtained It is a remarkable fact that when administered per anum, alcohol also exercises a certain succagogic influence This action would appear to be an elective one on the gastric mucous membrane since unlike pilocarpine its administration causes no secretion from the other glandular structures of the body In ethyl alcohol we thus have an exception to the general rule above enunciated that juice-expelling substances work only through the agency of the nervous system, it is quite possible that further research will reveal others possessing a like property The results of Madame Mark Schnorf show that inulin and glycogen, carbohydrates closely allied to dextrine, even when given in large doses are pure pepsinogenes exhibiting no trace of secretory action. Another remarkable fact gleaned from the experiments of this observer is that the white so called pure dextrin exercises no influence whatever, either pepsin forming or juice expelling on the gastric mucous membrane these properties being entirely confined to the yellow dextrine of commerce

The practical importance of these researches may be estimated from the under mentioned examples representing the average variations in activity of the stomach under the conditions already discussed 1 After a meal consisting of 'indifferent' food stuffs such as boiled and washed out meat or coagulated albumin 10 cubic centimetres of juice may be secreted by the stomach in one hour, these 10 cubic centimetres will barely digest one cubic centimetre of albumin 2. After a similar meal to which has been added a juice-expelling substance 50 cubic centimetres of juice are secreted in one hour A portion of 10 cubic centimetres taken from this juice will digest one cubic centimetre of albumin, thus the whole hour's secretion digests five cubic centimetres instead of one cubic centimetre This is already a great advantage for the digestion 3 After a meal similar to No 1, to which has been added a pepsinogenic substance barely 10 cubic centimetres of juice are obtainable in one hour, but these 10 cubic centimetres digest say, six cubic centimetres of albumin This also is a great advantage for the digestion 4 Finally after a meal similar to No 1 to which has been added both a juice secreting and a pepsinogenic substance 50 cubic centimetres of juice can be collected in one hour of which each 10 cubic centimetres digests from five to six cubic centimetres of albumin—i e, in all from 25 to 30 cubic centimetres Here the advantage for the digestion is enormous, it being from 25 to 30 times stronger than in the first case and from four to five times stronger than in the second and third cases

These results tend to throw some light upon the fact that the juice furnished by a normal stomach is always in sufficient quantity and contains enough pepsin to bring about the digestion of an ordinary meal The majority of the foodstuffs contain secretory and pepsinogenic principles sufficient to call forth the secretion of a juice adequate for their digestion; those foodstuffs which do not initially do so nevertheless furnish them during digestion by virtue of the chemical changes which they undergo within the stomach. Natural feeding thus offers ample means for putting digestion in motion. Once started, its march becomes each moment more rapid until the culmen is reached when, owing to accumulation of its products, it begins to decline. There can be no doubt, however, that without unduly fatiguing the stomach its digestive capacity may be considerably raised by the ingestion of those principles the properties of which we have been considering. The importance of this fact becomes emphasised when dealing with the diseased or functionally inactive organ. Since their action is to raise the digestive capacity of the stomach two- or three-fold the administration of these substances becomes a therapeutical measure of immense value. It is not to be imagined that the clinical importance of their results remained unrecognised by Schiff and Herzen. Though their knowledge was limited to the power of the pepsin-forming substances yet they did not fail to realise the fact that in this class alone they possessed a potent means of control over the more commonly occurring forms of gastric derangement. Indeed, the favourable influence exercised on these cases by the "pepsinogenes" was repeatedly tested and confirmed by them. They found, for instance, that in obstinate cases of hyper-acidity almost immediate relief could be afforded by restoring the normal balance of acid and pepsin in the juice by the administration of a pepsin-forming substance. Thus, the excess of hydrochloric acid, formerly causing such distressing symptoms, was utilised for the benefit of the organism

The advantages in other directions of this control over the composition of the juice are so obvious that their recapitulation becomes almost superfluous. There seem, however, to be pathological or semi-pathological conditions in which this simple form of treatment becomes more especially indicated. An instance may be found in pyloric constriction where, on account of the suspension or deficiency of intestinal digestion, malnutrition forms a prominent and troublesome symptom. In these cases, by means of suitable stimulation, a large proportion of the work performed by the duodenum may be thrown upon the stomach and by this means the general nutrition may be correspondingly improved. Again, in the fatigued condition of the stomach during convalescence from acute diseases, when, in spite of the relative integrity of the digestive function, the work of the stomach is not carried out with sufficient energy to maintain the increased metabolism demanded by the enfeebled system, the organ may be stimulated to increased exertion and, by its initiative, may incite the other factors in the digestive cycle to renewed activity. Further, relief may be obtained in obstinate cases of infantile dyspepsia due to the interruption or perversion of natural means of nutrition, with consequent emaciation of the child; in a large percentage of such cases malnutrition is the result of a resort to artificial feeding. The treatment of the acute dyspepsia arising from this cause by the simple means of mixing broth with the child's milk has long been known as an empirical preventive measure; but its *rationale* becomes apparent only when it is known that meat broth, by virtue of its activity in the double sense of pepsin-forming and juice-secreting, has the property of promoting the rapid and copious secretion of a juice rich in pepsin.

The simple and even nourishing nature of the substances which may be employed to further the production either of juice or pepsin is a great consideration in favour of their use under the circumstances above enumerated. Nature is, so to speak, assisted through the agency of her own materials; food is necessary for the maintenance of life, and it should be the aim of the therapist to remedy the cause of disordered digestion through the natural channel offered by alimentation rather than by the more artificial, but in no wit more scientific, resources of pharmacodynamics. Further, owing to the facility attending the administration of these pepsinogenic substances per rectum the stomach does not become surcharged with materials which can be equally well absorbed elsewhere; by this means also the whole energy of the remedial agents is secured to the performance of its allotted task, no part of it being held back by the process of digestion. Personally I have seen nothing but good result from this line of treatment. The combination of dextrin and Liebig's extract or of dextrin and alcohol is especially to be recommended. The efficacy of dextrin alone in cases of insufficient production of pepsin is surprising and in no case has its administration been known to produce unpleasant results. A very large proportion of the knowledge derived from these researches should, however, be applied in avoiding harmful modes of nourishment in those cases where the cause of the trouble is already recognised by the medical man. It is perfectly obvious, for instance, that in cases of hyper-acidity no substance known to be "succagogue" should be ordered to be taken, since the symptoms of the patient would only be aggravated thereby. By the observance of rules such as this a rational line of treatment can be marked out to suit the requirements of almost any type of gastric disorder.

Lausanne.

A DILATED SUPERFICIAL ABDOMINAL VEIN WITH A SUGGESTIVE HISTORY.

By THEODORE FISHER, M.D., M.R.C.P. LOND.,

PHYSICIAN TO OUT-PATIENTS AT THE BRISTOL HOSPITAL FOR SICK CHILDREN; PATHOLOGIST TO THE BRISTOL ROYAL INFIRMARY.

THE accompanying illustration is reproduced from the photograph of a mentally deficient girl who attended the out-patient department of the Bristol Children's Hospital under my care. A large superficial vein was found running upwards over the right half of the abdomen. The history of its appearance is interesting and may be considered to lend some support to one of the theories of the causation of infantile hemiplegia. At the age of one year and seven months the child was seized with convulsions and remained unconscious for about a week, but no loss of power in either arm or leg was apparently present.[1] Towards the end of the week the right leg and thigh were swollen and the dilated abdominal vein was noticed to have appeared. The girl is said to have been bright and intelligent at the time of the attack and to have been able to say a few words. After recovery of consciousness no attempt was made to speak for more than two years and the girl, now 10 years of age, is still unable to read. She is of cheerful disposition and on good terms with her brothers and sisters, but has not sufficient intelligence to be entrusted by her mother with the most simple errand. No indication of weakness of either side of the face is present and there is no defect of sight or hearing. There is no weakness of either arm or leg and the knee- and elbow-jerks and reflexes are equal on the two sides. The vein seen in the illustration runs upwards from the centre of the right groin to the costal margin, where it divides into several branches which spread over the front of the right half of the chest, some reaching nearly as high as the clavicle. Below the point of division the vein nearly equals an ordinary penholder in diameter. The blood in it flows upwards. When emptied from above it remains empty, but it immediately fills on removing the pressure of the finger. The girl has five brothers and sisters, two of whom have attended the hospital as out-patients. One boy has had empyema following pneumonia, but mentally and physically they present no defect. In this girl also the head is well-shaped and she is tall rather than short for her age. There is nothing to suggest congenital syphilis. A further detail in the history may be worthy of mention. The mother attributes the attack of convulsions to the falling of the child into a dirty stream about three weeks before their onset. The child was nearly drowned, and after being pulled out she vomited a considerable quantity of water which had been swallowed.

In this case there has obviously been blockage of the external or of the common iliac vein. Such blockage of acute onset may most reasonably be attributed to thrombosis. At the time that the obstruction of this vein occurred there were convulsions followed by unconsciousness of a week's duration which terminated in permanent mental defect. The association of acute cerebral symptoms with mental defect as a sequel points to some definite lesion in the brain.

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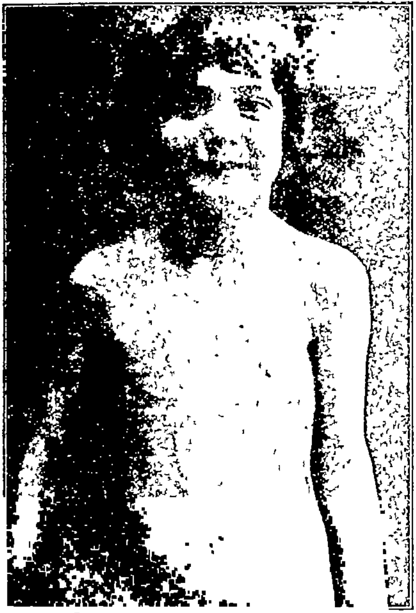
[1] Recently in going through my notes I discovered that this girl had been seen by me in August, 1896. The history then given by the mother in the main is the same as that recorded here, but a few additional facts of importance are mentioned. At the onset of the unconsciousness there are said to have been twitchings of the right side of the face and the mouth was drawn to the right side. Jerking movements were also present in the right arm and the right leg. The child could not walk for five or six weeks after the attack and then limped on the right side. At the time she attended the out-patient department she was said to be using the left hand in preference to the right, but no weakness of the grasp of the right hand could be detected. She was then commencing to say a few words, but was said to have been able to speak better before the attack, since which more than three years had elapsed.



An enlarged superficial abdominal vein in which the blood flows upwards. The child is mentally weak, and the cerebral defect dates from an acute illness which was followed by the appearance of the enlarged vein.

The evidence of thrombosis of a vein within the abdomen strongly suggests that the primary cerebral lesion was also a thrombosis.

No hemiplegia was present in this case and the lesion was probably outside the motor area. Apparently, however, thrombosis of a vein in the region of the motor area need not occasion hemiplegia. I have made a necropsy upon a case of death from broncho-pneumonia in a boy, aged four years, where the left cerebral vein was distended with a pale stratified thrombus, yet no weakness of either side had been noticed during life. Although the vein was completely blocked and the deposition of clot had apparently been taking place for several days before death the disturbance of the neighbouring circulation had not been great. There was little congestion of the pia-arachnoid and no softening of the cerebral substance was present. The morbid appearances were very different in a case where veins situated over the parietal lobe, passing up to the superior longitudinal sinus, had become thrombosed There the swelling and softening of the convolutions were very great. In this second case hemiplegia was present. The thrombosis occurred as a complication of ascites due to cirrhosis of the liver in a girl, aged 12 years.[2] In these two cases thrombosis of cerebral veins occurred as a complication, not as the primary disease, and consequently they do not necessarily lend support to the theory that hemiplegia of acute onset occurring in a healthy child is due to this cause. In one of the cases cultures from the thrombosed vein showed streptococci and in the other the thrombosis was probably secondary to the absorption of organic bodies contained in the peritoneal effusion which was disappearing at the time of onset of the hemiplegia. Cultures taken from thrombosed vessels in the great majority of instances show micro-organisms to be present. It is easy, therefore, to understand that when a child is suffering from some disease in which micro-organisms can readily obtain access to the circulation thrombosis of veins and arteries may occur, and it is not surprising that in a few cases in which hemiplegia in children has been present as a complication of acute disease thrombosis of a cerebral artery or of a vein has been found to have been the cause.

Hemiplegia of acute onset in an apparently healthy child is more difficult to explain. If the paralysis be due to a blood infection resulting in thrombosis of a cerebral vessel one would suspect some indication of ill health before the onset of the acute cerebral attack. Generally, however, the child is described as being strong and well at the time of the onset of the convulsions which usher in the hemiplegia. Yet apparently other manifestations of a blood infection, such as purpura, may show themselves suddenly, and one would think that the normal condition of the blood must be much impaired before a rigor can take place, but when a rigor is a symptom of commencing acute disease it has rarely been preceded by any feeling of ill health which has attracted the patient's attention.

It is of some interest to note that in the present case the child swallowed a considerable quantity of dirty water a short time before the onset of the cerebral affection, and it is not unreasonable to suppose that some organisms contained in the water were the cause of the thrombosis.

It may be added that, if thrombosis due to a morbid blood condition be allowed to be a probable cause of hemiplegia in an apparently healthy child, it is more easy to believe that such thrombosis occurs in a vein than in an artery. It must be remembered, however, that thrombosis of cerebral arteries as well as of veins has been found to occur as a complication of disease in children. I have met with both conditions in the post-mortem room. In the above case, although there was obviously thrombosis of a vein within the abdomen, if thrombosis existed also within the cranium it does not necessarily follow that the vessel affected was a vein. When the blood presents a liability to clot during life, thrombosis may sometimes arise in a vein in one place in the body and in an artery in another. In this case it cannot be proved that thrombosis occurred in either a cerebral vein or an artery, but it may be again mentioned that consideration of various points in the case seems to indicate the probability of such a lesion having been present.

Yet while no evidence of hemiplegia remains, the existence of cerebral defect shows that the brain has suffered injury The additional facts mentioned in the footnote seem to show that weakness of the right side was at one time present. The occurrence of such injury as the sequel of an acute cerebral attack in which ante-mortem clotting in a cerebral vessel was very probably present may be considered to lend support to the thrombosis theory of the causation of infantile hemiplegia.

Bristol.

THE PROSPECT OF CURE IN CANCER.

BY HORACE MANDERS, M.D. BRUX., F.R.C.S. ENG.

CANCER is a disease chiefly of the grand climacteric, when youth has attained its old age and the organs especially pertaining to that epoch are beginning their decadence, so, with the lessening supply of the vital fluid to those parts whose function is no longer needed in the economy come diminished vitality and a more feeble resistance to adverse influences introduced from without. So beautifully harmonised is this decadence in general that there just remains sufficient vitality to maintain the negative energy of resistance, but not enough to produce the active energy of function until physiological atrophy is arrived at. So long as these two balance each other in the normal proportion of decadence the system is protected, but should anything cause a disturbance of the harmony those parts in which the equilibrium is upset become open to assault and invasion from without. It is not my object here to enter upon the causes that may disturb the balance

Some remedies are designed to act against the *origo mali*, whatever that may be—plasmodium, zyme, or enzyme—and which will be determined eventually, but the great point in the treatment of cancer is to direct our attention to the natural forces inherent within the body.

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[2] Notes of both of these cases were read before the Society for the Study of Disease in Children in November, 1900 (THE LANCET, Dec. 8th, 1900, p. 1653) See also Brit. Med. Jour., July 6th, 1901.

It is a matter of common knowledge that the secreting power of cells can be influenced by the action of certain drugs acting on their protoplasm. Pilocarpine, for example, and arsenic have a beneficent action, but electricity alone is capable of directly and profoundly affecting the molecular changes that go on within the cells, of acting as a powerful tonic and restorative to the protoplasm itself whereby metabolism is promoted and resistance to adverse influences is greatly augmented. The immediate effect of this is to restore the lost equilibrium.

The term "electricity" comprises much, but the particular form of electricity only that affects cells so profoundly modified as are those of cancer is the current of high frequency and high potential discovered by Tesla and first introduced into therapeutics by d'Arsonval. It is now nearly two years ago (November, 1899) that I advocated the use of these currents in the treatment of pulmonary tuberculosis in combination with the open-air treatment. On account of the outbreak of the war in South Africa I was called away from pursuing further studies in that direction, but the successful results obtained by Mr. Chisholm Williams in 43 cases of phthisis treated by him recently by these currents are so clear that there can be no possible doubt in the mind of anyone who has observed the cases under this treatment that the protoplasms of the various cells of the body are marvellously vitalised and resuscitated, to the extent that they are once more able to repair the consequences of invasion and to resist attack. No doubt the leucocytes also are stimulated to secrete suitable alexines. I would wish to point out that the good effects of the Tesla currents are not limited to tuberculosis of the lungs only, but that if applied locally through a highly exhausted unipolar glass tube to tuberculous affections of joints and other parts a result equally satisfactory may be expected.

In cancer we may not have to deal with an invading microbe, yet it is evident that some malign source is at work whose influence the natural defensive powers of the body have become unable to resist, and it is only reasonable to infer from analogy that if these inherent powers could be re-vitalised to the extent that generally obtains in the equilibrium of health, as has been done in tuberculosis, then there is a definite prospect of a cure for that even more intractable disease cancer. If these inherent powers did not exist we should all fall victims, as it is unreasonable to suppose that we are not constantly exposed to the source of cancer just as we are to that of tuberculosis, of which we are now well aware.

Two cases have already been recorded, one in America and the other in the *British Medical Journal*, in which cancer has been arrested by means of the x rays, and I am acquainted with a third in which the improvement has been marvellous; but the treatment has not been without its disadvantages, and I am very strongly of the opinion that it is not the ultra-violet or x rays that produced the result, but that the real agent was the oscillatory violet rays which are generated at the same time as the former but are few in quantity and are masked by the greater quantity of the x rays. With Tesla's currents, run from a solenoid resonator into a unipolar highly exhausted glass tube as used by Tesla, one finds an enormous number of these violet rays given off with a few x rays—so few as to be a negligible quantity. Now, these violet rays, of tremendous speed of alternation from oscillation, amounting to millions per second, possess the advantage of being very easily applied, locally, to very small surfaces of the body—an advantage which is not possessed by the x rays, as these need, for local application, a considerable arrangement of covering for the protection of adjacent parts, otherwise severe burns are probable. Also it is impossible to charge the body as a whole with the x rays, a matter which is quite easy when the violet rays of the solenoid are used, whereby the protoplasm of the cells throughout the body is stimulated in its molecular action. It is well known to x-ray workers that after a little use a greater resistance is set up in the Crookes's tube and that rays of a different character are produced; in fact, the rays emitted from a Crookes's tube at different speeds of alternation, resistances, &c., are not yet thoroughly understood, or sifted for the different work expected from them.

It is quite probable that there is more than one cause of the various forms of cancer, and that this is the case I am inclined to think from the results of the yeast treatment in my hands, sometimes so efficacious in arresting this disease, at other times with little or no effect. Therefore I think it unwise to limit oneself to any one form of treatment, but I am of opinion that in these currents of high potential and exceeding frequency we have a means, hitherto unknown, of stimulating the vital energy of cells and of enabling them to utilise, by taking into their protoplasm, auxiliary remedies of which hints have been given, and that sometimes one and sometimes another, when used in conjunction with these currents, will be found to be the particular one needed. The progress of my cases undergoing this treatment is already most encouraging.

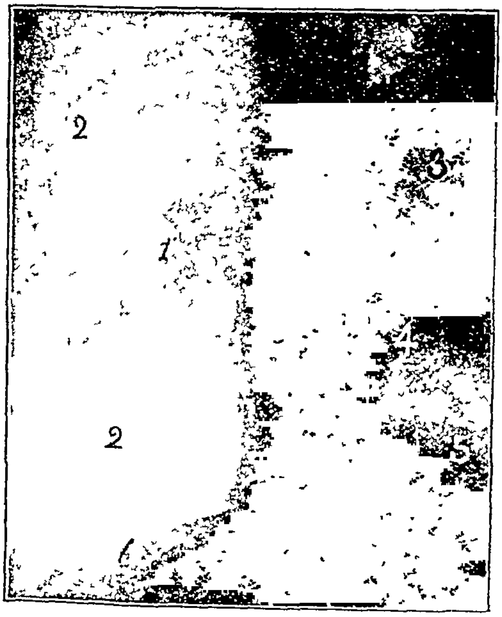
Bentinck-street, W.

A CASE OF PNEUMOTHORAX SHOWN BY THE ROENTGEN RAYS.

By ERNEST W. MARTIN, M.B., CH.B. EDIN.,
RESIDENT MEDICAL OFFICER, CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, VICTORIA PARK, E.

THOUGH within the last year a large amount of work has been done with the x rays in connexion with medical diseases of the chest, as far as I can ascertain up to the present time no photograph of the chest in the condition of pneumothorax has been taken. The case I obtained the negative from was one of pneumothorax in connexion with caseous tuberculosis, and the photograph is of interest as showing more accurately than physical signs could demonstrate the actual condition of affairs within the thorax and the displacement of the viscera.

The patient, a man, aged 22 years, was admitted into the City of London Hospital for Diseases of the Chest, Victoria Park, on August 5th, 1901. He gave a history of continuous cough for the last two years, together with loss of flesh, sweating, and shortness of breath. On examination he was found to be suffering from chronic phthisis, both lungs being affected throughout. The apex-beat was in the fifth intercostal space one inch internal to the vertical nipple line. The history of the attack of pneumothorax was as follows. On April 12th at 5 P.M., after a fit of coughing, he was suddenly seized with severe pain in the left side, accompanied by dyspnœa, the latter not being very marked. On examination it was found that the percussion note over the apex posteriorly was resonant, but that there was no displacement of the heart; at 7 P.M., after another fit of coughing, the patient had more pain and the dyspnœa



1. Collapsed left lung. 2. Air in pleural cavity. 3. Tuberculous lung. 4. Right margin of heart. 5. Right dome of diaphragm, normal. 6. Depressed left dome of diaphragm. The heart is not seen at all to the left of the vertebral column, the shadows of the vertebræ being quite clear. The intercostal spaces on the left side of the chest are broader than are those on the right.

increased to orthopnœa. On examination it was then found that the percussion note was resonant all over the left side of the chest back and front, the cardiac dulness was obliterated, and the heart's impulse could not be felt at all to the left of the sternum. The bell sound was easily obtained The patient died on April 13th from syncope. The skiagram was taken shortly after death; an exposure of three minutes was given, the tube being at a distance of two feet above the chest

At the necropsy on puncturing the chest-wall over the left pleural cavity gas escaped under pressure. On opening the chest the cavity of the left pleura was found to contain a large quantity of gas, the lung being collapsed and compressed and the heart being displaced so as to be almost in the middle line. The pneumothorax extended throughout the pleural cavity; there were a few recent adhesions at the apex. No fluid or pus was present. The perforation had taken place posteriorly and above the root, there being a small slit-like opening leading into the lower part of an apical cavity. The lungs showed caseous tubercle throughout. There was no recent pleurisy.

Remarks.—In a case such as the above there is of course no difficulty in making a diagnosis of the condition present and the chief interest of the skiagram, apart from what may be learned from it by the practical x-ray worker, lies in the very clear demonstration of the position of the displaced viscera in a case where the lung is not firmly bound by adhesions and where there is a positive pressure within the pleural cavity. The flattening and downward displacement of the diaphragm could hardly be made out by physical signs; the position taken up by the lung and the complete displacement of the heart from the left side of the chest are all clearly shown in the skiagram. Another point well brought out is the broadening of the intercostal spaces on the side of the pneumothorax. In addition the skiagram shows the shadows thrown by caseous tubercles, the portion of lung immediately above the right arch of the diaphragm being the only clear piece of lung shown.

For permission to publish these notes I am indebted to Dr. Clifford Beale, under whose care the case was.

P.S.—Since sending this case to THE LANCET I have shown in the museum of the British Congress on Tuberculosis five cases of a similar condition; and I believe other cases are on record, one being shown by Professor Béclère of Paris

Victoria Park, E.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF EXTRA-UTERINE GESTATION; RUPTURE INTO THE GENERAL PERITONEAL CAVITY; OPERATION; RECOVERY.

BY D. LLOYD CLAY, M.R.C.S. ENG., L.R.C.P. LOND.

ON April 19th, at 5 A.M., I was called to see a woman, aged 31 years, who presented all the signs of internal hæmorrhage. Her face was deadly pale and her pulse was very quick and almost imperceptible. She was bathed in cold perspiration and she complained of agonising pain in the lower part of the abdomen, chiefly on the right side, and also about the right shoulder. On examination slight distension of the lower part of the abdomen could be made out and there was great tenderness in the right iliac region, the slightest touch causing the patient to call out. The breathing was very shallow and purely thoracic. Per vaginam I was able to make out a little fulness on the right side and behind the uterus. The history of the case was as follows. For six weeks she had suffered from irregular hæmorrhages accompanied by shooting pains; the discharge would sometimes last two or three days At times she passed some solid material. Previously to the appearance of these hæmorrhagic discharges she had not "seen anything" for six weeks. From the above symptoms and the history I diagnosed extra-uterine gestation (three months) with rupture into the peritoneal cavity, and I called in Dr. W. Fell who confirmed the diagnosis and advised immediate operation.

At 7 A.M., after the patient had rallied slightly, I accordingly opened the abdomen midway between the pubes and the umbilicus, the incision being three inches long. On reaching the peritoneum that membrane bulged into the wound and on being opened a quantity of blood escaped. I then easily reached the gestation sac, transfixed the base with an aneurysm needle threaded with stout silk, and tied it in two places. One ligature was cut short, while the other was thrown round the whole pedicle and tied again and the sac was removed. All clots were removed, Douglas's pouch was well sponged out, and the abdominal cavity was washed out with large quantities of boric lotion, saline solution being used at the finish. The abdominal wound was now stitched in the usual way and the patient was put back to bed, having stood the operation, which lasted 35 minutes, very well. Vomiting was very troublesome for the first 24 hours, and the patient was given ice to suck and small doses of morphia hypodermically. The patient did very well up to the nineteenth day, when I was again sent for. On examination some fulness and tenderness could be made out in the lower part of the abdomen. The temperature was 102 6° F. I now felt sure that there was some collection of pus somewhere in the pelvis. On the twenty-first day there was great abdominal distension, together with retention of urine. The temperature was 101°, the pulse was quick, and great pain was complained of. Per vaginam a fluctuating swelling could be made out in Douglas's pouch, pushing the uterus upwards and forwards, the cervix being felt right above the pubes. The posterior vaginal wall was very tense and bulged externally. Pelvic abscess was diagnosed, and I decided to make an opening as soon as possible per vaginam. On examination per rectum, however, the abscess was found pointing and on the verge of bursting about three inches above the anus. Slight pressure by the finger was sufficient to open the abscess and a large quantity of pus mixed with blood escaped. There was immediate relief; the temperature dropped and the patient recovered without a bad symptom.

I report the case on account of its successful result and because it was so very heavily handicapped. The operation had to be done in a great hurry and in a private house—where, of course, strict antiseptic principles could not be carried out. The patient was so blanched that not a single vessel had to be seized on cutting through the abdominal wall.

Wellington, New Zealand.

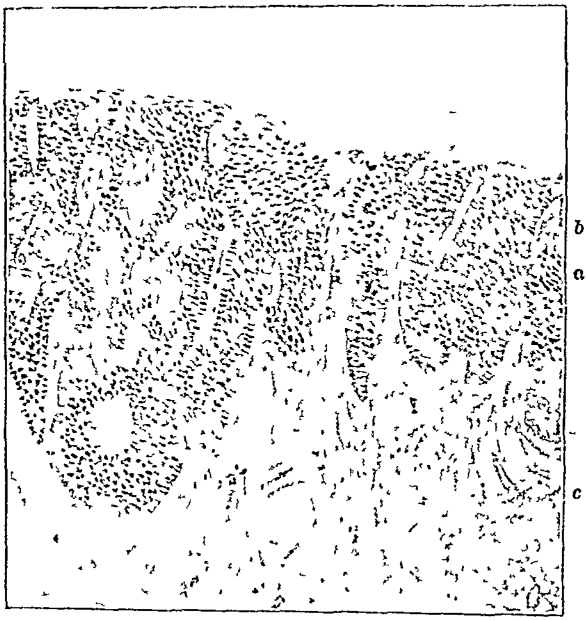
A CASE OF PAGET'S DISEASE OF THE NIPPLE OCCURRING IN A YOUNG SUBJECT.

BY RICHARD ALCOCK, M.D. VICT.

SOME time in 1892 I was consulted by a woman on account of an eczematous condition of the right nipple and areola She was 28 years old, was married, and had borne children. She came to me from time to time afterwards, but no treatment had any effect In 1893 I advised her to have the entire breast removed. The condition at that time was as follows. Occupying the situation of the areola was a slightly raised eczematous surface, moist, red, and exuding a discharge clear, yellow, and viscid. There was no ulcer, strictly speaking, the surface of the sore retaining a cutaneous appearance. The nipple itself was non-existent; as the patient expressed it, "it had scaled away," probably a literal statement of actual fact The condition was sharply limited to the region of what was formerly the areola. I advised complete removal on account of the known tendency to carcinoma in these cases and also because a nippleless mamma would be a useless appendage.

In November, 1893, the patient was removed to the Goole Cottage Hospital and the operation was performed by my friend Dr Macdonald Brown, surgeon to that institution. The after-history was uneventful Up to the present time (1901) there has been no recurrence and she has enjoyed good health since and given birth to further children

I prepared sections for the microscope, from one of which a drawing was made under a low power (vide illustration) It will be seen that there is a considerable proliferation of the epithelium downwards into the subcutaneous tissues in the form of branching and anastomosing columns of cells. The vascular papillæ reach up as far as the free surface and no doubt account for the exudation On the surface there are abundant evidences of loss of substance by shedding of the superficial epithelial cells. The morbid conditions were limited to the cutaneous tissues. The condition is clearly a neoplasm, simulating epithelioma to a certain extent, but differing from it in many respects, notably in the entire absence of "nests." I have thought it worth while to place the case on record on account of the youth of the patient and also on account of the microscopical characters which I have not seen described as here presented in any text-book to which I have immediate access.



a, Epidermis. *b*, Papilla. *c*, Dermis.

Goole.

HÆMORRHAGE DUE TO INCOMPLETE ABORTION.

By F. W. ERNEST HUTCHISON, M.B., C.M. GLASG.

A WOMAN, aged 36 years, who had been married 10 years and was the mother of four children, consulted me in January last, complaining of losing blood at different times, first dating the symptom from a miscarriage which she had had six months before. She was two and a half months pregnant, she said, when the miscarriage took place. Just before consulting me she was losing a much greater amount of blood than previously. She was extremely anæmic and weak. On examination blood could be seen escaping from the os uteri. The sound passed three inches and the uterus was slightly enlarged. The patient losing so much blood and being so weak I decided at once to explore the interior of the uterus. This I did in the usual way by Hegar's dilators, and passing the finger inside I at once detected a number of small lumps studded over the surface. These were removed by the finger-nail chiefly and also by Récamier's curette. Afterwards I applied pure carbolic acid to the endometrium Subsequently the patient menstruated normally in every respect.

Kelvedon, Essex.

LONDON TEMPERANCE HOSPITAL.—A stained-glass window has been recently unveiled at the London Temperance Hospital by Mr. Alderman Strong, chairman of the board of management The window is the gift of the brother of a patient, is the personal work of the donor, and was given as a token of appreciation of kindness and benefits bestowed by the hospital staff. The window is pictorial in design, the central figure being that of Christ, surrounded by those in fetters, the suffering, and the young; underneath is inscribed the text, "Come unto Me, all ye that labour and are heavy laden." On either side are angels praying and shields bearing the words, "Amor," "Pietas," "Patientia," and "Fortitudo," surmounted by angels in glory; the canopy is white and gold. Among those present were the Rev. Dawson Burns, D.D., Colonel Sheffield, L.C.C., and the members of the board of management.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

UNIVERSITY COLLEGE HOSPITAL.

A CASE OF TUMOR CEREBRI IN WHICH ROTATION OF THE TONGUE WAS PRESENT.

(Under the care of Dr. J. ROSE BRADFORD.)

THE abnormal movement of the tongue described in the case recorded below is remarkable and difficult to account for by the light of our present knowledge. In cases of lingual paralysis it is very desirable to determine, when possible, which individual tongue muscles are paralysed, both intrinsic and extrinsic. For the notes of the case we are indebted to Mr. A. Ernest Jones, late house physician.

A woman, aged 37 years, was admitted into University College Hospital on Jan. 5th, 1901, with the following history. She had suffered from headache, which was not localised, for two years. Attacks of vomiting had occurred every month for the past five months, lasting for three days. These attacks had no relation to food. There was no nausea. She had had fits for three years. The convulsions started in the right arm or leg and never became general. They were accompanied by no loss of consciousness and could be stopped by sitting on the twitching hand. She had had two "strokes." The first "stroke" occurred on August 21st, 1899, when she became unconscious after several fits and was comatose for six weeks. There was no vomiting. The right arm, leg, and face were found to be paralysed on the tenth day. The second "stroke" occurred on Dec. 26th, 1900, and left her weak in the left side of the face. Her memory had been failing for 18 months.

On admission there were slightly marked cerebral hemiplegia on the right side, involving the face, and fine occasional tremor in the right hand, which was increased by exertion. Sensation was unaffected. The movements of the eye and the pupils were natural. The palate moved well. On opening the mouth the lower jaw distinctly went over to the left, and the left masseter was weak. The tongue, when protruded, went to the left, but not more than would be accounted for by the jaw movement. It, however, rotated in such a manner that the dorsum looked upwards and to the left. It was horizontal when at rest and showed no atrophy or trophic changes. Well-marked optic papillitis with commencing atrophy was present, the inflammation being more marked on the left side than on the right. The sight was unaffected. There was no other evidence of involvement of the cranial nerves. The sphincters were unaffected. The intelligence was dulled.

The patient died seven weeks after admission. During that time she had 50 or 60 fits, no aura occurring. The only changes in the physical signs were that the rotation of the tongue became less marked in the last two weeks of life and rigidity of the left limbs supervened a few hours before death. Twitching of the right face also frequently occurred

Necropsy.—At the post-mortem examination a subcortical tumour was found on the left side of the cerebrum. It was five or six centimetres high; it had its centre opposite the arm area, involved the corpus callosum, and was evidently pressing on the opposite hemisphere. Microscopically it was a round-celled sarcoma

Remarks by Mr. JONES.—I have been unable to find a case of rotation of the tongue occurring clinically anywhere recorded. Beevor and Horsley[1] state that on stimulation of a localised area of the cortex in the lower part of the ascending frontal convolution opposite the upper end of the inferior transverse frontal sulcus of Eberstaller the tongue rotates in such a manner that its dorsal surface becomes applied to the cheek of the same side. This movement was not obtained by the same authors[2] on stimulation of any part of the internal capsule. The movement therefore appears to have been described experimentally before it was noted clinically.

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[1] Philosophical Transactions of the Royal Society, vol. 185B., Part i., 1894, pp. 54-58.

Applying the above knowledge to this case, as the centre for this movement was assumedly paralysed, when the tongue was protruded one might expect the opposite centre to have unopposed action and to rotate the tongue so that its dorsum was applied to the right cheek, whereas what really happened was that its dorsum was applied to the left cheek. This anomaly is parallel to the difficulty that meets the clinician with respect to the experimental and clinical deviation of the tongue—namely, that appropriate stimulation of the left cortex causes the tongue to deviate to the right, whereas in hemiplegia from tumour, &c., which destroys that centre, the tongue also deviates to the right when the patient is asked to protrude it. Beevor[3] has suggested the following explanation of the apparent anomaly. Stimulation of a localised area with an electrode is not parallel with asking a patient to put out his tongue, but rather with asking a patient to touch one cheek with the tip of his tongue, so that it is not justifiable to antagonise the two facts although they apparently contradict each other. In health protrusion of the tongue is a bilateral movement, but in disease it is not known by what movements protrusion is effected, and up to the present no complete explanation has been offered as to why the tongue deviates to the paralysed side in hemiplegia. The presence of the rotation phenomenon clinically suggests a lesion in or near the cortex, but as to the side of the lesion I do not think that one can at present dogmatise. I am indebted to Dr. Rose Bradford for permission to publish the case.

NORFOLK AND NORWICH HOSPITAL.

A CASE OF MYOSITIS OSSIFICANS.

(Under the care of Dr. F. W. BURTON-FANNING.)

WITH our present absence of knowledge of the etiology of myositis ossificans the record of every case is desirable. In one respect the following case differs from most of those which have hitherto been reported; there is very distinct evidence of the occurrence of the disease in the patient's father. Dr. W. P. Herringham[4] says: "All agree that it is congenital but not hereditary"; and the absence of any history of inheritance of the disease is certainly marked in most cases. For the notes of the case we are indebted to Mr. A. Ll. Vaughan, late house physician.

A man, aged 33 years, was admitted into the Norfolk and Norwich Hospital on account of increasing difficulty in opening his mouth. He gave the following history. At the age of eight years his left shoulder gradually became stiff without any previous injury or pain. The stiffness had only progressed slightly. At the age of 12 years the movement of the right knee became impaired and had gradually become worse till all power of movement had gone. Following this in order came stiffness to the left hip, sides of the chest, and lower part of the back. The immobility of these parts had been slowly increasing since the onset. At the age of 26 years the right arm from the shoulder downwards was much swollen, the skin becoming red and tender. The inflammation was so acute that the arm was thought to be poisoned. The swelling, however, passed off and then the arm was found to be absolutely fixed in the extended position while the movements at the shoulder—previously impaired—were further diminished. Flexion and extension remained at the wrist, but the forearm could only be supinated through half the natural extent. Two years later stiffness of the right hip was noticed. During the winter of 1898 difficulty in opening the mouth began but passed off during the summer, only to return, however, in the following winter in a worse degree. There was some slight improvement in the summer of 1900, [illegible] the legs [illegible] but had [illegible] an increase of his malady directly to any injury. He had been remarkably free from any other disease except for constant trouble with his eyes, which were affected with ciliary blepharitis.

The patient's family history is worthy of special note. His grandfather, who was a healthy man and lived to the age of 60 years, had two sons, of whom one was in perfect health and had no congenital deformities; the other one was the father of the patient and suffered from myositis ossificans, dying at the age of 33 years from an accident. In this case the disease began at the age of 15 years in the right arm and was attributed to an injury from a fall. The disease had steadily progressed, but had not reached the same degree as that found in the patient. This man had a congenital deformity of the thumbs, there being no joint beyond the metacarpal one.

The present patient was a spare man with an unhealthy look due to the inflammation of his eyelids. The face was directed downwards and forwards due to slight flexion at the hips and fixation of the vertebræ The left foot was kept about six inches in advance of the right and there was slight flexion of the left knee. Progression was effected by sliding the left foot forwards by using all the power of flexion that remained in the left knee and ankle and then dragging the right leg up to it.

Examination of the muscular and osseous systems showed that both erectores spinæ were almost completely replaced by bone which had retained the natural outline of the muscle and which prevented any movement whatever in that portion of the spine over which the muscles lie. The deep muscles at the back of the neck were similarly affected and the only movements along the central axis of the body left to the patient were a slight rotation and flexion of the head. Both of these movements were limited. There were bony plates between several of the ribs on each side and along the anterior border of the left quadratus lumborum was a hard band fixing the twelfth rib to the crest of the ilium. These growths together prevented any movement of the chest except in the region of the first two ribs which moved slightly on respiration. The teres major and pectoralis major on each side had their distal halves bony and by them shoulder movements were nearly prohibited. On the right humerus immediately above the olecranon fossa was a bony mass of about the size of a walnut which involved the whole thickness of the triceps, binding the muscle to the bone and preventing any flexion of the elbow. There was another similar growth over the upper ends of the radius and ulna limiting pronation and supination. In the lower extremities the quadriceps extensor on each thigh was almost replaced by bone. There were diffuse osseous growths round the head of the right fibula and enlargement of both internal malleoli and also of the tuberosity of the right scaphoid. There were no growths on any other bones of the feet. The big toes on each foot presented the deformity met with typical in this disease—namely, slight hallux valgus with shortening and broadening of the phalanges which were fused together.

Remarks by MR. VAUGHAN.—In considering the new formation of bone found in this patient two groups present themselves: (1) deposition along the course of a muscle, and (2) deposition over some existing prominence of bone. The majority of the new bone belongs to the first group and seems to be an ossification commencing at the attachment of muscle to bone and extending along the muscle in a manner analogous to the "rider's bone." In a great number of the recorded cases there is evidence of injury preceding a deposit of bone, making the analogy more striking, but in this case no injury has been assigned as a cause of any increase of the disease while, on the other hand, there was marked progression of the affection during the winter months with a remission during the summer.

The disease for the most part is chronic, but occasionally, as in the case of the right arm of this patient, there is an acute inflammatory process, accompanied by much pain. In the *United States Journal of Medicine*, De Witt has described minutely the sequence of pathological events, prominent amongst which is a phlebitis accompanied by an exudation into the connective tissue of the muscle rich in osteoblasts. Such a lesion would explain satisfactorily all the symptoms present during an acute process preceding the deposit of bone in the right arm of the patient now discussed, but this is the only instance in which any acute inflammation had occurred during his malady nor has there been pain of any character in any other part of him that could be attributed to his disease Pain as a symptom of this disease is remarkable for its absence, whereas in rheumatism and osteo-arthritis it is most constant.

In the present instance there are no masses of bone lying free in the muscle substance, but all are connected to bone. The joints are free from disease and what movement is left to the patient is unaccompanied by pain, creaking, or grating. In conclusion, I would draw attention to the fact of the disease occurring in the parent and being in him associated with a congenital deformity of the thumbs. I am indebted to Dr. Burton-Fanning for permission to record the case.

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[2] Ibid., vol. 181B, 1890, p. 139.

[3] Diseases of the Nervous System, 1893, p. 233.

[4] Transactions of the Clinical Society of London, vol. xxxii., 1899, p. 5.

Reviews and Notices of Books.

Anæsthetics and their Administration. A Text-book for Medical and Dental Practitioners and Students. Illustrated. By Frederic W. Hewitt, M.A., M.D. Cantab., Anæsthetist to H.M. the King. London: Macmillan and Co. 1901. Pp. 552. Price 15*s.* net.

The first edition of Dr. Hewitt's manual was issued in 1893: the present is, however, more than a second edition, as the author has recast his material and added much which is important, as well as including two sections dealing respectively with the history of the introduction and development of anæsthetics and the physiology of the subject. We welcome the last-mentioned addition, for no rational knowledge of anæsthetics can be acquired without a thorough grasp having been obtained of the very large amount of experimental work which has been prosecuted during the last half century. The views of Dastre are prominently advanced in these pages, but a meritorious effort has been made to present other schools of thought. Even in the 50 pages devoted to the subject it is not possible to give anything like a complete *résumé* of the researches bearing upon the physiological aspects, and it is difficult to avoid at times attaching what some physiologists may regard as undue weight to the opinions of certain workers and too little to those of an opposite school. The alteration which under many conditions takes place in the activity in conveying power of the blood corpuscles, influencing as it does the oxidation and vitality of the tissues of the body, is one which must be reckoned with when the physiology of anæsthesia is being discussed, and the omission of the investigations upon this point breaks the chain of reasoning, especially in connexion with the gases in blood from anæsthetised animals. Most of the analyses of the gases in blood which have up to the present been given must not be accepted as final since many precautions and errors of experiment require examination. The whole subject is worthy of fuller elaboration. We gather that Dr. Hewitt accepts the views of Professor Leonard Hill with regard to the much discussed question, "Does primary cardiac syncope occur under chloroform?" The arguments advanced by the Hyderabad Commission, and more recently in Surgeon-Lieutenant-Colonel Lawrie's book on Chloroform, do not appeal to Dr. Hewitt as sufficiently convincing, for he says (p. 91): "To sum up, then, on this much disputed point, it may be regarded as established that during chloroform anæsthesia this anæsthetic directly produces a depressing effect upon the heart itself; and that while it is true, not only in the physiological laboratory but in actual practice, that respiration generally ceases before cardiac action finally fails, it is the want of cardiac action which is the essential factor in the causation of death under chloroform."

In Part II. various matters connected with the selection of the anæsthetic are considered and this section, taken in conjunction with Chapters XIII. and XIV. dealing with anæsthetic mixtures and sequences, presents the writer's views upon the merits of the agents in common use. Nitrous oxide given with oxygen is recommended for brief cases, and nitrous oxide followed by ether for prolonged operations. The nitrous oxide and oxygen mixture is not advocated for long cases, although the author admits that this mixture may in some few instances be employed for periods exceeding two or three minutes. Such sequences as nitrous oxide and ether followed by chloroform, and chloroform or the A.C.E. mixture in sequence with ether, also find favour with Dr. Hewitt and thus far it appears that the author falls into line with the usual custom among English anæsthetists. Those who have used oxygen with ether in appropriate cases will not agree with the adverse criticism which Dr. Hewitt pronounces upon the method. As, however, the "best" plan is said on page 285 to be to introduce the oxygen through a small tube into a Rendle's inhaler the failure to obtain more satisfactory results may be due to the methods suggested. Dr. Hewitt is, perhaps, less in accord with the prevalent feeling in not reprobating the administration of morphine concurrently with chloroform, but he is probably quite correct in saying that provided morphine is only employed in carefully selected cases it should be retained in the armamentarium of the anæsthetist. The addition of atropine appears to us to be advisable even if, as Dr. Hewitt suggests, there is at present an increasing disbelief in the danger of cardiac failure through vagal inhibition. It must be admitted that many of the undoubted dangers of morphine given in association with chloroform are removed when atropine is added to the other alkaloid. In the chapter dealing with Mixtures, Schleich's method of employing a solution of chloroform, ether, and petroleum ether in different proportions is accorded a place. These solutions have been very extensively employed in Germany as well as in the United States and have been highly spoken of. Dr. Hewitt says that he is not aware of their having been employed in this country, but we believe that they hav been tried with success at the London Hospital by Dr Probyn-Williams who regarded his trial as encouraging.

In describing apparatus and the methods of employing them Dr. Hewitt is peculiarly felicitous. He devotes most of his space in the sections dealing with the practical side of his subject to the methods and apparatus which he himself employs. Other methods are detailed although less fully. He is not in favour of Clover's larger gas and ether inhaler, although we believe that this apparatus is much used and is by many preferred to the smaller regulating inhaler even with the numberless modifications to which it has been subjected. Certainly the charge that the larger apparatus cannot be cleansed is inaccurate, as we have seen it constructed in such a way as will allow of every part being fully cleansed and disinfected. For chloroform administration Dr. Hewitt advocates the employment of a Skinner's mask and a drop bottle, using Junker's inhaler only in nasal and oral surgery. We find ourselves in accord with him when he insists upon the peril of accepting the use of Junker's or any inhaler as a "perfectly safe" method, but we venture to think that the plan which he suggests is open to a similar objection. Dr. Hewitt's favourite anæsthetic appears to be the A.C.E. mixture or a sequence containing it and his description of his method of employing it is admirable. Sections are given dealing with bromethyl, amylene (pental), and ethidene dichloride, but these agents do not appear to have appealed to Dr. Hewitt who, rightly we think, rather deprecates their use. Professor Wood's careful study of the effects of dichloride of ethidene upon the heart clearly shows that that anæsthetic is at least as dangerous a circulatory depressant as chloroform. Nitrogen, which comes in for a rather full notice, cannot, we think, ever be worth the attention of the practical anæsthetist on account of its comparative inertness. The same remark applies to carbonic dioxide, although Waller's careful work upon this gas deserves notice. In comparing the various anæsthetics Dr. Hewitt comes to the conclusion that ether is at least five times safer than chloroform judged from statistics—a less favourable result than Waller obtained in his research upon isolated nerve. His ratio of safety was seven times in favour of ether. The common criticism that ether kills by its after-effects makes Dr. Hewitt's careful study of the whole question of dangers and after-effects particularly valuable. He has since the issue of his first edition altered his views with regard to so-called ether pneumonia. His experience has convinced him that certain patients do succumb to lung trouble apparently initiated by ether inhalation. He has not, we think, quite appreciated the undoubted fact that bronchitis and even broncho-pneumonia are by no means uncommon in hospital practice after chloroform, especially after prolonged operations. We regret that the limits of his space prevented Dr. Hewitt from giving an even longer discussion of this most important question. Again, renal dangers have been carefully studied and it is reassuring to find that Dr. Hewitt's experience is in favour of ether. The section dealing with the dangers and *contretemps* of anæsthesia is very valuable, but it might, we think, be made more so by some re-arrangement and division into paragraphs. Dr. Hewitt declares himself little in favour of drugs, and this probably accounts for his comparatively slight notice of the use of strychnine, a drug in which Professor Wood places the utmost confidence, and for the omission altogether of the recently advocated use of freshly prepared suprarenal capsule, which, according to Schäfer, is the most powerful remedy in cases of circulatory failure at present known. Among remedies "forced respiration," or pulmonary perflation, has in the hands of Professor Wood proved of the greatest value. We believe, indeed, the authority given goes so far as to say that death from respiratory failure will never occur when this plan is adopted. Although Fell's method is mentioned on p. 464 Dr. Hewitt has not emphasised the use of forced respiration as opposed to the routine plans of Sylvester and Howard. What Dr. Hewitt insists is that whatever restorative measures are adopted the anæsthetist should devote himself wholly and solely to restoring respiration and should not allow his attention to be diverted from that object. Undoubtedly "prevention is better than cure" in anæsthetic emergencies, and so the sections, which Dr. Hewitt has carefully written, dealing with preliminaries and contained in Chapters V. to VIII. inclusive, should be read with close attention. The author is right in insisting upon the extreme importance of posture and has done valuable service by systematising the subject. We find, however, that, although apparently accepting Professor Leonard Hill's view with regard to vaso-motor paralysis under chloroform and the incidental danger of the collection of blood in the "abdominal pool" so causing cerebral bloodlessness, Dr. Hewitt says (p. 476): "There seems to be very little evidence that the sitting position is of *itself* a danger in chloroformisation provided that the respiration be unembarrassed and the corneal reflex is not completely abolished." This is undoubtedly true if the corneal reflex is not completely abolished, for in that case the "stop-cock action" of the capillaries is still safeguarding the circulation, but we think that Dr. Hewitt's caution that the sitting posture should be avoided in chloroformisation is weakened by the concluding words of the paragraph which we have quoted. We say this in no carping spirit, but as the result of our experience that it is most important to be dogmatic on general principles, and we contend that only the most experienced of chloroformists can be relied upon to conduct a chloroformisation except under the most favourable conditions. Dr. Hewitt's book, as a whole, is a valuable one; good as was the first edition, the present one is better. It has been enriched by a larger experience, the experience of a man who has lost few opportunities of learning from his cases and studying his results, and we congratulate him upon his work.

Pernicious Anæmia, its Pathology, Septic Origin, Symptoms, Diagnosis, and Treatment. By WILLIAM HUNTER, M.D. Edin., F.R.C.P. Lond., F.R.S.E., Senior Assistant Physician to the London Fever Hospital; Joint Lecturer on Practical Medicine, Pathological Curator, and late Pathologist, Charing Cross Hospital. With Plates, Charts, and Illustrations. London: Charles Griffin and Co. 1901. Pp. 480. Price 24s.

DR. WILLIAM HUNTER, having made a prolonged study, extending over 15 years, of pernicious anæmia in all its aspects, may fully claim a right to be considered an authority on the subject, yet in this work we find a strange mixture of certainty and hesitation—certainty in the results of his extensive and painstaking investigation, but hesitation in exactly determining the etiology of the condition concerning which he is writing with exhaustive intent. The impression (it may be a false one) we received after reading the book was that Dr. Hunter would like to assign cario-necrotic conditions of the teeth as the sole cause of pernicious anæmia, but is afraid to do so on account of the obvious question, As dental necrosis is so common, if it be the cause of pernicious anæmia, how is it that the latter condition is so rare? In fact, Dr. Hunter himself remarks: "Dental cario-necrosis is far too common to be itself the cause of so rare a disease as pernicious anæmia." Yet further on he says: "Pernicious anæmia is a chronic infective disease. ..... The chief source of the infection is oral sepsis, arising in connexion with long-continued and neglected cario-necrotic conditions of teeth"; then he still further weakens his argument by adding, "Sometimes, possibly, arising from other causes—e.g., drain poisons." It is true he acknowledges it to be a "special infection of the digestive tract," but the contrast between such statements as the above is confusing, and we are forced to the opinion that Dr. Hunter would have acted more wisely by deferring coming to the above conclusions as to the etiology of the disease until he had examined more cases, for apparently 12 cases only were observed by himself. He also lays too much stress upon the statements of patients themselves as connecting the dental condition with the general condition. Dental cario-necrosis will, as is generally known, cause glossitis and general gastric and intestinal troubles, partly due perhaps to direct infection from the teeth and largely, no doubt, to the defective manner in which the food is masticated.

Dr. Hunter makes a strange statement when dealing with the bacteriology of dental caries. He says: "On this point—the infective nature of dental caries—I need not dwell." Now, we should have imagined that from his point of view—viz., that the infection arises from dental caries—nothing could be of more importance than a thorough investigation of the micro-organisms found in connexion with the teeth. He refers to the acknowledged fact that the pneumococcus is frequently found in the mouths of healthy people, yet under certain circumstances the organisms take on a malignant action and an attack of pneumonia is the result. If he means to suggest that a similar course of events occurs in connexion with pernicious anæmia we should consider this a very plausible theory. Dr. Hunter's observations on Dental Disease as a Cause of Septic Gastritis and his remarks on the Nature of the Infection of Pernicious Anæmia are rather vague and in marked contrast to the decided manner in which he discusses the pathology of the disease and the nature of hæmolysis. He designates the infection as "most probably of a 'mixed' character," and also states that "one element in the infection is streptococcal. ..... Such infection the more readily occurs if the stomach or intestine is already from any cause the seat of disease; the most potent antecedent cause is 'septic' gastritis arising in connexion with oral sepsis." Such statements as these, in which "oral sepsis" is in one sentence stated to be the "chief source" of infection and in another as an "antecedent cause" producing a condition which enables the "chief source" to produce its pathogenic action, are confusing and make the etiology most involved. The bacteriological and pathological conditions must be further investigated to ascertain their relative dependency on each other before we can accept Dr. Hunter's theory as he now presents it; or as he himself expresses it: "It must remain for future observations to determine the nature of the organisms concerned and their relative rôle."

If we consider the author's investigations as to the etiology of pernicious anæmia as incomplete we can speak in the highest terms of approbation as to his investigations on hæmolysis, which are some of the most elaborate and instructive yet carried out; and his conclusions regarding the pathology of the disease are the result of prolonged and patient observation. With regard to the morbid anatomy of the disease he maintains that "none of the pathological conditions—e.g., malignant disease, atrophy of the stomach, gastro-intestinal lesions, &c.—occasionally found associated with the features of pernicious anæmia can be rightly regarded as the essential anatomical lesion underlying the anæmia present, or as reasonably accounting for the remarkable degree of its anæmia as compared with that of all other forms of anæmia." This conclusion is based mainly on two considerations—(1) that similar anatomical changes, often far more marked, are constantly to be met with in cases presenting none of the features of pernicious anæmia; and (2) that still more frequently cases of pernicious anæmia are met with without any such anatomical lesions. Dr. Hunter then proceeds to discuss the changes in the blood and blood organs, pointing out the interesting fact that the rich hæmoglobin colour of the spleen always contrasts markedly with the bloodless condition of all the other organs and tissues with the single exception of the bone marrow. He also shows that in pernicious anæmia the hæmolysis differs in important respects from that occurring in health, and cannot be regarded merely as an exaggeration of the normal process. The most important point in this connexion is that the hæmolysis is confined to the portal area, and inasmuch as gastro-intestinal influences are those which, even in health, specially determine the occurrence of hæmolysis Dr. Hunter considers that it is reasonable to conclude that the conditions that determine the hæmolysis in pernicious anæmia are also situated within that tract—moreover, "that they are of a special character." This last conclusion we have already commented on.

The symptoms of pernicious anæmia are described in an interesting manner and the treatment as based on Dr. Hunter's theory is duly considered, stress being naturally laid on the hygiene of the teeth and mouth, but he very rightly urges that such measures as may prevent or remedy oral sepsis should not replace, but should be supplemented by, the use of arsenic. The part of the volume devoted to the Physiology of Blood Destruction (Hæmolysis) is well worthy of careful study. His experiments in regard to this process have been carefully carried out and demonstrate that the spleen is the chief seat of hæmolysis, the liver being less important, its rôle being mainly that of an excretory organ. Second only in importance to the spleen, the gastro-intestinal capillary area is the chief seat of hæmolysis. Dr. Hunter's reasons for coming to these conclusions are clearly demonstrated. We have not been able to agree with the whole of Dr. Hunter's arguments and consider that portions of his investigations—especially in reference to the etiology of pernicious anæmia—are incomplete, but we do not wish to detract from the value which his work possesses. He has added greatly to what was previously known as to the nature of the disease; in fact, he has been one of the first to establish it as a separate disease, in no way connected with other forms of anæmia, and has shown it to be in all probability a toxæmic condition. We trust that he will carry his investigations further so as to be able to isolate definitely the organisms on which it is dependent.

Vorlesungen über die Pathologische Anatomie des Rückenmarks. (Lectures on the Pathological Anatomy of the Spinal Cord.) By Dr. HANS SCHMAUS, with the coöperation of Dr. SIEGFRIED SACKI. Wiesbaden: J. F. Bergmann. 1901. Illustrated. Pp. 600. Price 16s.

THIS large and exhaustive treatise, which deals exclusively with the pathological anatomy of the spinal cord, affords eloquent testimony to the industry and genius of modern neurologists. It is hardly a hyperbole of speech to say that three-quarters of the facts which go to make up the monumental contents of this book had not been discovered 20 years ago, and that for the most part their discovery has been rendered possible by the vast improvements in histological technique which we owe to Weigert, to Golgi, to Marchi, and to Nissl. The illustrations which adorn the pages of this work are among the finest examples of reproduction with which we are acquainted.

Although the story of the neuron is but a matter of recent history it has proved so complete and satisfactory a basis for the understanding of what were previously little better than pathological conundrums, that the doctrine of these independent cell systems has become practically an article of neurological faith. It will come, therefore, as a matter of surprise to many of us that Dr. Hans Schmaus should be at pains to explain his reasons for accepting this doctrine as the anatomical basis of his neuro-pathological arguments. Although Golgi himself has all along maintained his belief in the probable continuity of contiguous neuronic systems by means of an anastomotic network of fine fibrillæ, this belief has not been shared by the majority of workers in this field of pathology. The view almost universally held has been that the connexion between different neurons was one of contact only and that the nerve-cell exercised a controlling influence over the entire neuron with which it was associated. However, according to the recent researches of Apathy, there seems reason for believing that, at least in the case of certain of the lower animals, the axis-cylinders of nerves are composed of primitive fibrillæ floating in a more or less fluid medium, and that the final ramifications of these fibrillæ or telodendrites are woven into a variety of anastomotic network (*Netzwerk*, *Gitterwerk*, or *Elementar-gitter*) not only in the substance of the nerve-centres but in the ganglion cells themselves (neuropile).

Although up to the present we are in want of actual demonstration that the same histological arrangement holds good in the case of man, Nissl has commented on the considerable hiatus which exists in our knowledge concerning the elements of which the grey substance of the brain and spinal cord are composed, and has ventured on the speculation that the unknown elements may consist of the terminal filaments of primitive fibrillæ woven into an anastomotic neuropile of the same character as that described by Apathy in the case of lower animals. And, further, the controlling influence of the nerve-cell, except as regards its trophic functions, has been called in question by Bethe. By a very delicate manipulative process he has convinced himself that in the case of a crab (*Carcinus mœnas*) reflex actions can occur without the intermediate influence of the nerve-cell, and to the neuropile he relegates this important function. After a very careful consideration of the evidence on which the above hypotheses are based Dr. Schmaus has elected, with all reservation, to abide by the orthodox conception of the independence of separate neurons and the central administration of the nerve-cell. Pathologists will, however, read with the greatest interest the able summary which the author supplies in Lecture II. of the views which threaten to assail the anatomical foundations of modern neuropathy. The significance of the "Nissl bodies" in the life-processes of the nerve-cell are dealt with at considerable length. The process of chromatolysis, whereby the stainable matter disappears, is not regarded as being associated with any specific influence in the determination of disease; it may occur as the result of totally distinct exciting causes, and in various degrees in a great variety of pathological and physiological conditions: it is to be regarded not as a degenerative process *per se*, but as a reaction condition (*Reaktionzustand*) of the nerve-cell. In accordance with the suggestion by Lenhossek the names "tigroid" and "tigrolysis" are respectively adopted throughout this work for the colouring matter of which the "Nissl bodies" are composed and for the process whereby it disappears. These modifications in the nomenclature will obviate many of the ambiguities and misunderstandings which were involved in the use of the terms "chromatin" and "chromatolysis." The consideration of tabes dorsalis occupies three lectures and nearly 100 pages. As a type of a nervous system degeneration which offers the widest scope for discussion the space which is devoted to this subject cannot be grudged. The condition which gives rise to this variety of degeneration is regarded as an elective toxæmia which acts directly upon the intra-medullary fibres in conjunction with other coöperating etiological factors, such as nerve-strain, cold, traumatism, &c. With regard to the possibility of an initial lesion of the ganglion cells of the posterior roots being able to give rise to organic changes in the terminal nerve filaments in the posterior columns, when no demonstrable organic change is present in the ganglion cells themselves, Dr. Schmaus suggests that the conception of a functional disturbance of the nerve-cell leading to degeneration of its most distant process-endings is not altogether incompatible with what we know of cell pathology. The application of Edinger's "adequate nutrition" theory (*Ersatztheorie*) to the pathogenesis of tabes, as well as to that of certain trade palsies, is suggestive and to the point.

The distinctions between atrophy and degeneration on the one hand, and between degenerations and inflammatory processes on the other, which have recently been exposed to the destructive criticisms of most enlightened pathologists, have once again to run the gauntlet of a very severe analytical examination on the part of Dr. Schmaus. We gather that he is inclined to the view that such distinctions as have been attributed to these processes must properly be regarded as distinctions in degree and not in kind. In conclusion, we can only hope that much of the extremely valuable information contained in this volume will, through the medium of our lecturers on pathology, filter through to the rank and file of the profession in this country.

The Twelfth Annual Report of the Asylums Committee of the London County Council for the year ending March 31st, 1901. With Graphic Charts and Statistical Tables London: P. S King and Son. Folio, pp. 188. Price 2*s*.

IN this valuable document, issued by the London County Council, with its wealth of facts and figures concerning London's pauper lunacy, we are informed that the total number of pauper lunatics in the county of London on Jan. 1st, 1901, was 21,369, showing an apparent reduction of 24 on the corresponding number for Jan. 1st, 1900 This apparent diminution is partly due to the recent incorporation of the hamlet of Penge in the county of Kent, thus relieving the county of London of 50 pauper lunatics, and partly to the removal of 124 patients in the London county asylums originally classed as paupers to the class of "private" patients. Allowing for these circumstances the original figures represent an increase of 150 lunatics during the year. Besides, "certified lunatics" the above returns include all lunatics in workhouses and "with relatives or friends." Limiting consideration, however, to pauper lunatics under reception orders (this being the class for which accommodation has to be found in the London county asylums), the total number on Jan. 1st, 1901, was 15,274, being an increase for the year of 213. "During the 11 years the Asylums Committee has had the control of the asylums there has been an increase of 5174 certified pauper lunatics. ...... As the 1901 census figures for London have just been published it is possible to give the ratio of lunatics to the population [in 1901] as compared with 1891, and this shows that there is an increase in the ratio of pauper lunatics to the population." Thus the ratio of "certified" pauper lunatics in January, 1891, was 2·467 per 1000 of population of the county of London (excluding the City), and in January, 1901, it amounted to 3·389 per 1000. The ratio of all pauper lunatics, whether certified or in workhouses or in the care of relatives, in January, 1891, was 3·940 per 1000 of population, and in January, 1901, it amounted to 4·739 per 1000. These facts comparing the increase of lunacy with that of the population are graphically shown in a coloured chart. The normal capacity of the existing asylums has been of late utilised to the utmost and there yet remain 1283 patients in excess of the accommodation at the date of the report. To meet this and future increases an asylum at Horton for 2000 patients is in course of construction and an epileptic colony for 300 male patients will shortly be commenced. Meanwhile temporary buildings put up five years ago at Colney Hatch and Banstead for the accommodation of 600 patients (300 females and 300 males) have been occupied under the sanction of the Home Secretary, and a further extension of time for another five years has been applied for and allowed. The building of the new asylum at Horton Manor is progressing satisfactorily, and 110 male patients are now located there in a temporary annexe to the main building. The Council recently approved of the provision of a working colony for 300 insane male epileptics on the Horton Estate and sanctioned a sum of £89,000 for carrying out the plans, and after consultation with the Commissioners in Lunacy it was finally decided that villas on the single floor plan should be built. Suitable plans were prepared, and they received the sanction of the Commissioners in Lunacy in November, 1900, and the sealed approval of the Home Secretary in April, 1901.

The recovery- and death-rates of the patients in the county asylums are given in Table I. of the Report. From this it appears that during the year 218 patients were discharged as "recovered" from Hanwell Asylum, 242 from Colney Hatch, 238 from Banstead, 150 from Cane Hill, 213 from Claybury, 175 from Bexley Heath, and 45 from Horton Manor Asylum The total number of recoveries thus amounted to 1281, or 9·02 per cent. of the average number of patients resident in the London county asylums. The deaths during the year amounted to 232 at Hanwell, 212 at Colney Hatch, 247 at Banstead, 190 at Cane Hill, 233 at Claybury, 165 at Bexley Heath, and 43 at Horton Manor. The total deaths thus amounted to 1322, or 9·31 per cent., calculated on the same basis. It will be seen from a consideration of Table III A. that the recovery-rates varied considerably for different asylums. Thus, at Horton Manor it was 6·56 of the average number resident, at Cane Hill it was 6·77, at Claybury 8·53, at Hanwell 8·66, at Colney Hatch 9·52, at Banstead 9·74, and at Bexley Heath 13·53 Leaving out the first and last institutions, which are both of recent origin and in which the recovery-rates show the lowest and the highest figures respectively, the five older (and larger) asylums show a variation in the recovery-rate from 6·77 (Cane Hill) to 9·74 (Banstead), which is difficult to apprehend except on the supposition that the term "recovery" has, as regards insanity, no hard-and-fast demarcation, and is differently construed by different authorities. The death-rates, however, show a remarkable uniformity throughout the asylums, being 8·3 per cent. at Colney Hatch, 8·5 at Cane Hill, 9·2 at Hanwell, 9·3 at Claybury, and 10·1 at Banstead, the mean death-rate being 9·3 for all the asylums.

The weekly cost of the maintenance per head during the financial year 1899-1900 was 10*s.* 1½*d.*, but as this was insufficiently met by the weekly charge to the unions and parishes of 9*s.* 11*d.* per patient, it became necessary to revise the latter, and in view of the increased prices of coals, provisions, and stores the charge has been raised to 10*s.* 9½*d.* per week as from July 1st, 1901.

An interesting and concise report of the work done at the pathological laboratory at Claybury is appended by Dr. F. W. Mott, the director. The work includes investigations in neuro-pathology and the pathology of insanity. A small department with apparatus for psycho-physical measurements has been placed under the charge of Mr. W. G. Smith, M.A., Ph.D. of Leipsic. A second volume of the "Archives of Neurology" will shortly be published which will contain the record of the work done in these departments. The Report on the whole is a weighty document, showing how large and important is the question of lunacy for London and the nature of the social and financial burden which it entails on the community.

Gynæcology: a Manual for Students and Practitioners. By MONTGOMERY A. CROCKETT, M.D. Series edited by BERN B. GALLAUDET, M.D. Illustrated with 107 Engravings. London: Henry Kimpton. 1901. Pp. 368. Medium 8vo. Price 7*s.* 6*d.* net

IN this book Dr. Crockett has endeavoured to reflect the accepted views of the foremost authors and practical gynæcologists as expressed in the rich standard literature of the subject. He has succeeded in producing a book which undoubtedly does give a fair view of the present conditions of gynæcology. The space devoted to the various subjects is well proportioned and there is no unnecessary detail. The tendency to over-estimate the importance of minor gynæcology and local applications is not yielded to by the author who rightly points out that "there are a few cases of uncomplicated metritis which may be benefited by local applications, but they are so few that womankind as a whole would be the gainer were topical application within the uterus utterly abolished except in connexion with the operation of dilatation and curettage." A good and practical account is given of the uses and mode of application of the vaginal tampon—a useful means of treatment with which students are often somewhat unfamiliar. Dr. Crockett holds that the routine method of disinfecting the vagina must be severely criticised if it be judged by the results of Whitridge Williams's work upon the bacteria of the genital tract. Part of his argument—viz., that after labour healing takes place more favourably if internal disinfection be omitted—hardly holds good. It must be remembered that the passage of the child's head tends to obliterate all the vaginal folds and the escape of liquor amnii washes out very effectually the whole of the lower genital tract. There is nothing at all analogous to this natural cleansing in the case of a patient who is to have an operation performed upon the uterus or vagina. We are glad to see that in discussing the treatment of chronic metritis and chronic pelvic peritonitis the author lays stress upon the importance of treating the general health of the patient. The value to the patient of conservative measures in operations upon the ovaries is very great, and we are fully in agreement with Dr. Crockett when he says, "There is developing such an array of clinical facts in favour of conservative gynæcology that the surgeon who as a routine practice removes tubes and ovaries is now put upon the defensive and must show cause why he is not open to severe criticism." On the whole, a book we may safely recommend for the use of students.

LIBRARY TABLE.

Brief Notes on the Outbreak of Plague in the Jammu Province, Kashmir State, during 1901. By B. R. SAWHNEY, M.B., B.S. Durh. Jammu, 1901. Pp. 21.—In this pamphlet Dr. Sawhney, Chief Medical Officer, Jammu Province, gives a detailed account of the spread of plague in 16 villages having an aggregate population of 7620, among whom there were 489 cases of the disease with 329 deaths between Feb. 27th and June 11th, 1901. In the largest of these places, a town called Samba, with 2618 inhabitants, popular feeling was so much opposed to the measures adopted for limiting the spread of the epidemic that all official interference had to be suspended. In one of his statistical tables Dr. Sawhney shows that the proportion of persons attacked and also the duration of the epidemic were much greater in the villages in which the people had to be left to themselves than in those where preventive measures were adopted officially.

Shanklin Spa: Its History and Guide to the Town and Neighbourhood. By "MONOPOLE." Shanklin: Silsbury Brothers. 1901. Pp. 150. Price 6*d.*—This little book describes the Shanklin Spa at which comparatively recently an installation of warm ferruginous baths has been established on the same principle of the iron baths at Spa and Schwalbach. It is profusely illustrated and the illustrations are pleasing and artistic. "Monopole" is enthusiastic in favour of Shanklin as a health resort and he certainly has strong argument in favour of his case. It is stated in the preface that some change will be made in the next edition when the report of the Special Commissioner of THE LANCET[1] on the chalybeate water will be inserted. Intending visitors to Shanklin and to the charming scenery of its environment will find this little book of interest, and we should not be surprised if "Monopole's" example were followed by writers resident in other health-resorts.

JOURNALS AND MAGAZINES.

The Quarterly Journal of Microscopical Science. Edited by E. RAY LANKESTER, F.R.S., with the coöperation of ADAM SEDGWICK, F.R.S., W. F. R. WELDON, F.R.S., and SYDNEY J. HICKSON, F.R.S. With Lithographic Plates and Engravings on wood. London: J. & A. Churchill. 1901. New series, Vol. XLIV., Part 4 (price 10*s.*), and Vol. XLV., Part 1 (September, pp. 88, price 10*s.*).—The articles contained in Part 4 of Vol. XLIV. are as follows: 1. On Two New Species of Onychophora from the Siamese Malay States, by Richard Evans, M.A., B.Sc., of Jesus College, Oxford. Mr. Evans was fortunate enough to obtain 13 specimens of Peripatus, two of which—both females—he has named Eoperipatus Weldoni and 11 of which—six males and five females—are named Eoperipatus Horstii. The first specimen, he says, was brought to him by a Malay who carried it between the prongs of a split stick. On handling the animal it suddenly squirted upon Mr. Evans a whitish sticky slime to a distance of fully 18 inches. His hands were covered with it, and though it did not stick to the body of the animal itself he only succeeded in getting it off with much difficulty. This slime, though fluid when first exuded, solidifies almost immediately and whilst semi-solid can be drawn out into threads like the juice of the rubber tree. A very detailed description is given of both species and six plates with many figures accompany and illustrate the article. 2. A second article by Mr. R. Evans, supplementary to the foregoing, gives a description of a single female of a new species sent to this country by Mr A. M Butler, curator of the museum at Selangor Straits Settlement, which Mr Evans has named Eoperipatus Butleri. The details of the structure of this species are given in a plate 3 On Two New British Nemerteans, by R C Punnett, B A., with two plates These animals were found by Mr Punnett whilst digging in the mud of the river Yealm at low water mark. He has named one of the species Micrella rufa, which belongs to the family of the Lineidæ, and the other Oxypolia beaumontiana, which belongs to the family of the Eupolidæ. Two plates illustrate the dissection of these animals 4 The Coelomic Fluid in Acanthodrilids, by W Blaxland Benham, D Sc, with a plate Dr Benham finds that in addition to amœbocytes there are "eleocyte" cells or cells containing refringent oily globules There are also some curious thread containing cells or linocytes, and lastly large rounded cells with a distinct pedicle without pseudopodia. The cytoplasm is occupied in these cells, which he names lamprocytes, by numerous vacuoles, each of which usually contains a small, highly refringent granule The lamprocytes are the most abundant of the four forms of corpuscle 5 The Crystalline Style of Lamellibranchia by S B Mitra of Calcutta The style is pronounced by Mr Mitra to be in reality a secretion, a digestive ferment whose function it is to digest starch—i e to convert starch into a reducible sugar The structure of the style is given in a plate This part of the *Quarterly Journal of Microscopical Science* contains the table of contents and the index of the forty fourth volume of the new series —Part 1 of Vol XLV contains two memoirs The first is by J Graham Kerr on the Development of Lepidosiren Paradoxa, with a note upon the corresponding stages in the Development of Protopterus Annectens illustrated by four plates The author shows that the earlier stages of the development of the protopterus closely resembles that of lepidosiren He remarks that the contradictory statements to be found in the accounts of the development of these and other animals given by distinguished observers are due in part to insufficiency of material and in part to differences in the methods of preparing specimens for section and in their subsequent treatment The second memoir is by Richard Evans, M A., B Sc, of Jesus College Oxford, on the Malayan Species of Onychophora, dealing especially with the Development of Eoperipatus Weldoni The article is illustrated with five plates

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[1] THE LANCET, Oct. 6th, 1900, p. 1029.

The *Practitioner* for September continues the discussion of Fractures Mr John Poland contributes a comprehensive article on Separation of the Epiphyses which is very well illustrated, including some good reproductions of skiagrams Fractures of the Spine and their Treatment are dealt with by Mr C A. Morton, who takes on the whole a view very unfavourable to operation in the remedying of these injuries His opinion is that in the vast majority of the cases the chief damage is that done to the cord at the time of injury which is unaffected by subsequent operation In this connexion the little value of skiagrams, as showing nothing of the injury of the cord, is remarked upon. The rare cases in which there is fracture of the arch alone are by far the most hopeful ones for operative treatment Dr C H Bond writes on Fractures in the Insane, showing their frequency to be due to nutritional bone-changes giving to the bones a much diminished breaking strain The review of Infectious Diseases contains an account of researches as to the etiology of small pox that will be read with interest at the present moment. Definite peculiar corpuscular elements have been observed in variolous pus, but the interpretation of their significance is at present different at the hands of different observers

Progressive Medicine Vol II June, 1901 Edited by HOBART AMORY HARE, M D, assisted by H R M LANDIS M D London Henry Kimpton 1901 Pp 470 — The list of contributions to the June number of this quarterly is a short one, and therefore may not inappropriately be mentioned at length The first is by Dr W B Coley, and deals with the Surgery of the Abdomen. The second is on Gynæcology and is from the pen of Dr T. G Clarke The third and fourth are contributed by Dr A Stengel and Dr E Jackson respectively, and supply the latest information with regard to the Diseases of the Blood and the Surgery of the Eye In addition to a general review of the most important developments in abdominal surgery, Dr Coley has selected as a subject for special discussion the Surgical Treatment of Malignant Disease of the Stomach and Bowels This affords him an excellent opening for dealing generally with recent advances in the methods of intestinal suturing, and particularly with the "Connell method" of end to end anastomosis and the Lee holder, a most convenient instrument for maintaining the intestine in position during the operation In this section also a full account is supplied of the indications for surgical interference in cases of suspected perforation during the course of typhoid fever Dr Osler's recent and important paper on this subject[1] is carefully abstracted and his schedule of instructions for house physicians with regard to the diagnosis of this complication is given at length To prove how useful such a schedule may be in the hands of intelligent medical officers it may be mentioned that at Dr Osler's own hospital 11 cases of perforation had been surgically treated up to January, 1901, with five recoveries The chances of successful surgical treatment of course largely depend on the celerity with which the diagnosis of perforation is made by the attending physician Dr Clarke prefaces his article on Gynæcology with an account of Leopold's blastomycetic theory of cancer, a little further the subject of enteroptosis is considered chiefly from the pathogenetic point of view of weak abdominal walls and relaxed pelvic floor The author also describes at length Kelly's modified operation for the removal of the uterus, uterine tumours, and appendages by his "bisection method" The value of pain in the diagnosis of diseases belonging to this department is also fully discussed Dr Stengel's contribution which is the only one which deals with medical subjects occupies about 80 pages and is all too short The examination of the blood as a help to diagnosis together with an account of several improvements in method and technique occupy the first 15 pages of this section. For the rest anæmia hæmophilia scurvy, diabetes, and gout represent the chief diseases which deserve to be included among those which may be said to have "progressed." In the article on Ophthalmology although it is an excellent summary of recent improvements in eye surgery, there is nothing to arrest the reader's attention with the exception of an account of the retraction movements of the eyeball in certain congenital conditions of maldevelopment of the extrinsic musculature of the eyeball

New Inventions.

THE TWIN ICE BAG

THE twin ice bag represented in the accompanying illustration is intended for the application of ice to the thorax or abdomen of restless patients and has been made according to my instructions by Messrs Arnold and Sons of West Smithfield London E C It is made entirely of plain rubber, straps included and is thereby not injuriously acted upon by the secretions from the body Having given it a good practical trial I have found it to give complete satisfaction and I can confidently recommend it to the profession. The advantages I claim for it are as follows :—1. In its application to the thorax, back or front; restlessness of the patient does not interfere with its perfect action. The ice or ice water, owing to the two separate compartments, cannot gravitate from the side on which it is required to act. It can be emptied or filled with very little disturbance to the patient if the nightdress is put on so that its opening corresponds to the seat of the ice-bag—namely, on either the anterior or posterior surface of the body. On loosening the shoulder straps (not interfering with the waistband) whilst the patient lies on his side and allowing the upper portion of the bag to hang down, removing the stopper, and slightly pressing on the bag, the contents can be emptied into a dish and the bag refilled with a minimum of disturbance to the patient. If the patient is not too ill to sit up in bed it will be easier still to empty and fill the bag. The openings in the bag are so placed that they are very unlikely to press on the patient, but if they happen to do so they are within such easy reach of the patient that he can place them just where he likes. The application of ice in pneumonia I believe to be the most satisfactory treatment, especially from its effect in controlling the temperature. 2 In its application to the abdomen, as will be seen, the shoulder straps can be made use of round the thighs, and the ice-bag in this situation has all the advantages claimed for it in its application to the thorax. On the abdomen it is not only useful in cases of inflammatory troubles situated in this cavity, but also as a general temperature reducer I have found it to act very beneficially. I see no reason why this bag should not be applied to the head as well in cases of refractory patients, using the arm straps under the armpits and the waistband under the chin.

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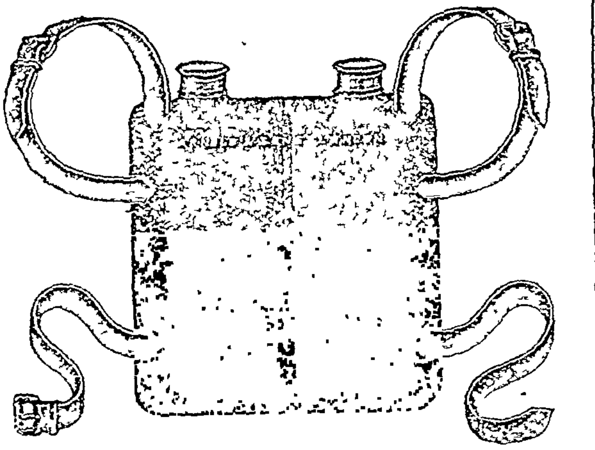
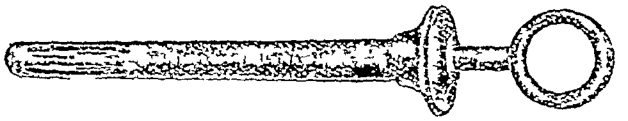
[1] THE LANCET Feb 9th 1901 p [illegible]



MARTIN J. CHEVERS, L.R.C.S., L.R.C.P. Irel.
Huddersfield.

NEW FORM OF OINTMENT CARRIER FOR THE RECTUM.

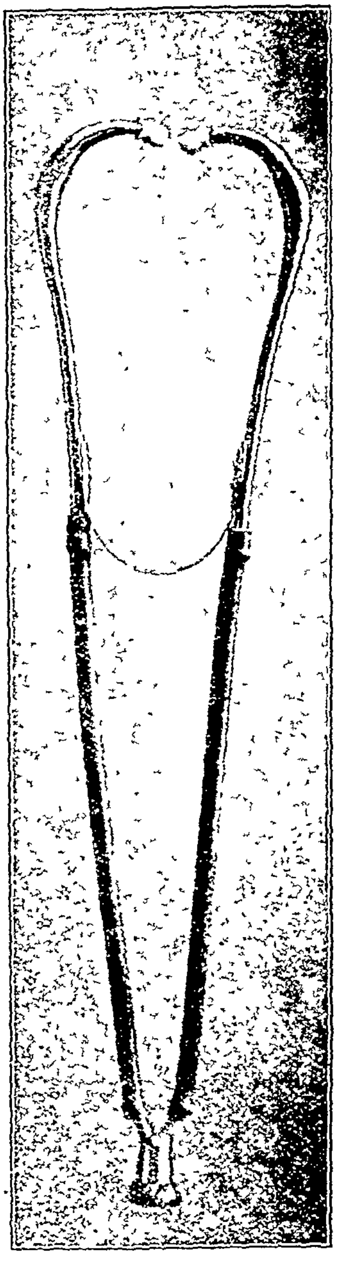
THE various forms of ointment carriers (rectal and otherwise) are, I consider, made on a wrong principle, being fed from below. When such instruments have been used and then left for some time till required again, it will be found a difficult matter to get them to work, the ointment left after previous use having become hard and dry. The form depicted in the illustration and made for me by Messrs Arnold and Sons of West Smithfield, London, E C., gets over the difficulty completely. The point is to be dipped into the ointment receptacle and then rotated while the piston is being withdrawn, when the cage at the top will be filled, and if the instrument is then introduced into the bowel and the piston pushed home all the ointment will be extruded and none left to block the tube when required for use again. The openings at the point are much larger than usual, which is another advantage, for in the older form the small perforations became completely plugged after one using. The simplicity and saving of time by the use of the form of ointment carrier now described should ensure its universal adoption.



ALEXANDER DUKE, F.R.C.P. Irel.
Cheltenham.

A BI-RESONATING STETHOSCOPE.

I HAVE devised this instrument with a view of intensifying and rendering more distinct the sounds which the auscultator is accustomed to listen for when examining a patient. As seen from the illustration, the stethoscope is a simple one no complex mechanism being brought into its formation, thus avoiding any danger of the production of accessory sounds, which might be produced by the friction of a complex mechanism. The difference between my instrument and those that are already used for the same purpose is that in others there is only one resonating chamber and that is placed against the chest wall, or in very close proximity. In my instrument it will be observed that there are two resonating chambers, and that they are placed in close apposition to the ear-pieces. The advantage of the above arrangement is that the various sounds are conveyed up the almost straight tubes and enter the resonating chambers; there they are intensified and the impressions are conveyed direct to the ears and have not to travel through any tubing after being so rendered more distinct. Another great advantage in this instrument is that by the position of the resonating chambers the sounds have the impression to the auscultator of being very much nearer, thus some of the minutest sounds are comparatively easily heard and detected and no buzzing noise interferes while using the instrument The instrument is light in weight and compact, being similar to that of the ordinary stethoscope. The spring is fixed on to the tubes by means of an additional plate, thus the lumen of the tubes is in no way interfered with



Any chest-piece can be used with this instrument, but the one I find best is of simple construction and is dome-shaped, as seen in the illustration. The instrument has been made for me by Mr. A. Schollar, instrument maker, 64, Praed-street, London, W., and the complete cost is 12s. 6d

J. COUBRO POTTER, M.D. Edin.
Sutherland-avenue, W.

Analytical Records

FROM

THE LANCET LABORATORY.

(1) MAMESIN; AND (2) MA.ME CO.

(THE MYOSIN ALBUMIN MEAT EXTRACT COMPANY, 107, STRAND, LONDON, W.C.)

LIEBIG long ago admitted that meat extracts possessed but feeble if any real nutrient property at all, and it is regrettable that Liebig's conclusions, which were correct in every detail, are not more seriously regarded than they are. The bulk of meat extracts at the present day only represent the actual nutritive value of meat to a very limited degree. The real essence and nourishing portion of meat is the albumin of the muscle which is readily digested, readily absorbed, and readily appropriated Yet most commercial methods reject, if not altogether, certainly the greater part of, this powerful nutrient material. We therefore recognise in the preparations before us an important advance, for they both contain myosin albumin in a proportion exactly adapted for nutritive requirements. The albumin is extracted by an ingenious and physiologically sound process which at the same time is simple enough in detail to admit of the product being sold at a moderate cost. Ma.Me.Co., to describe it as simply as possible, is wet myosin albumin. Its proximate composition is as follows: water, 86·04 per cent.; mineral matter, 0·66 per cent.; and meat derivatives, 13·30 per cent. The albumins amounted to 12·46 per cent., equal to 1·99 per cent of nitrogen, and the meat basis amounted to 0·30 per cent., equal to 0·01 per cent. of nitrogen, while fat was present to the extent of 0·54 per cent. The total nitrogen was thus 2·00 per cent. Mamesin differs from Ma.Me.Co only in containing besides myosin albumin the extractives and gelatines of beef. *Its proximate analysis was as follows:* water, 81·24 per cent.; mineral matter, 3·21 per cent.; and meat derivatives, 15·55 per cent. The total amount of albumin was 11·73 per cent., equal to 1·87 per cent of nitrogen, while the meat bases amounted to 3·27 per cent, equal to 0·79 per cent. of nitrogen, and the fat to 0·55 per cent. The total nitrogen was 2·66 per cent., of which nearly three-fourths are contained in myosin albumin. The preparations readily peptonise, giving quite clear solutions of peptone. An important feature is the entire absence of fibroid matter or similar insoluble nitrogenous stuffs of meat which are difficult of digestion. Thus while both Mamesin and Ma.Me Co. are practically equal from a nutritive point of view, weight for weight, to meat, they obviate any difficulty of digestion arising from the presence of meat fibre. Mamesin is tasteless, while the taste of Ma.Me.Co is of a pleasant beefy character. Both preparations are contained in tins and we could not find the slightest evidence of any action upon the metal having taken place; it was bright and without any signs of corrosion We also searched for chemical preservatives but without any evidence of their presence. The preparations are a very obvious advance on many so-called meat extracts; they present the actual albumin of meat, which is easily absorbed, sustaining, and powerfully nourishing.

AROMATIC IRON MILK (DOLLE BREMEN).

(A. STRAUSS COLLIN, BUSH LANE HOUSE, CANNON-STREET, LONDON, E C.)

This is a somewhat remarkable preparation In appearance it is exactly like milk, but on analysis we found it to consist of a liquid containing pyrophosphate of iron in suspension, associated with spirit, glycerine, and sugar, and certain aromatics. "Iron milk" certainly does not present the appearance of a preparation containing iron, being quite white, while it possesses no taste except that of aromatics and has no astringent effects. We found the preparation to contain 1·12 per cent. of ferric oxide, which is equivalent to 2·9 per cent. of anhydrous ferric pyrophosphate. Of course, the preparation does not affect the teeth because the iron is in an insoluble form until it reaches the gastric organs. It is an excellent means of administering iron, pleasant to take, and free from medicinal taste. Having regard to the fact that the iron is associated with phosphorus the preparation is calculated to exert marked tonic effect. We could find no objectionable preservatives in it. In German clinics "iron milk" is spoken of as a very satisfactory means of exhibiting iron and as free from the objectionable disturbing effects often set up by ferruginous preparations.

SINARO NATURAL TABLE WATER.

(LONDON OFFICES, 29, ELY-PLACE, HOLBORN, E C.)

On analysis Sinaro shows only a moderately saline composition. The chief saline ingredients are common salt, carbonate of calcium, and carbonate of soda. The amount of salt given in an analysis by Professor Fresenius is considerably below the amount which we found, so that we infer that a small quantity of salt has been added to the natural water to make it more palatable. The total saline ingredients amounted to 2·138 grammes per litre and were comprised as follows: carbonate of soda, 0·55 gramme per litre; carbonate of calcium, 0·74 gramme per litre; and common salt, 0·848 gramme per litre. The water is very agreeable to the taste, bright in appearance, and though pleasantly sparkling contains not a great excess of carbonic acid gas. We could find no evidence of organic impurity. It possesses antacid properties and is a table water of a good description.

CROWN MALT EXTRACT

(THE UNITED BREWERIES COMPANY, LIMITED, COPENHAGEN LONDON OFFICES, 46, QUEEN VICTORIA-STREET, E C)

Malt extract contains chiefly malt sugars and dextrine and potassium salts (mainly the phosphate), while nitrogen-containing substances are not present to any important extent. On analysis the Crown malt extract gave the following results: extractives, 10·51 per cent; mineral matter, chiefly phosphate of potassium, 0·23 per cent; absolute alcohol, by weight 5·81 per cent., by volume 7·25 per cent, equal to proof spirit 12·70 per cent It will thus be seen that the extract presents much the composition of stout, though with its nourishing qualities enhanced and its acid contents reduced to a minimum The extract effervesces slightly and possesses a strong malty flavour. It, however, shows no digestive action upon starch, so that what diastase may have been in it has been rendered inactive, probably by boiling. It presents the nourishing qualities of malt in a concentrated form.

(1) TABLOID SODIUM CACODYLATE, (2) TABLOID HYPODERMIC SODIUM CACODYLATE, AND (3) TABLOID MORPHINE AND EMETINE

(BURROUGHS, WELLCOME, AND CO., SNOWHILL-BUILDINGS, LONDON, E C)

The salts of cacodylic acid are interesting in that they enable a comparatively large quantity of arsenic to be administered in diseases in which arsenic is of known value. The accuracy of dosage is, of course, of great importance and this is secured by the use of tabloids both for administration by the mouth and for hypodermic use. Both tabloids contain a quarter-grain of the pure sodium salt The tabloid morphine and emetine contains $\frac{1}{20}$th of a grain of morphine sulphate and $\frac{1}{30}$th of a grain of emetine—a formula which is designed to be of service as a sedative and expectorant in alleviating irritable cough. The tabloid is to be dissolved gradually in the mouth, where it exerts also demulcent properties.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 28, 1901.

The Local Government Board and Vaccination.

ON Sept. 17th the Local Government Board, in order to strengthen the hands of vaccination officers in the discharge of their duties, addressed to boards of guardians throughout the country a circular containing the opinion of the law officers of the Crown on certain questions which have arisen in course of the enforcement of the Vaccination Acts. This circular deals with some of the defences that have been raised by legal gentlemen defending parents charged with neglecting to have their children vaccinated. These defences have often shown considerable ingenuity and have frequently been successful before paid magistrates as well as before country benches, mainly, no doubt, because the vaccination officer is pitted against a professional advocate, while his own practical knowledge of the law of evidence and of the interpretation of statutes is limited to those cases in which he has been engaged under the Vaccination Acts. The defences to which the Local Government Board calls attention relate to the service, to the proof of the service, and to the contents of two notices which have hitherto played an important part in vaccination proceedings. The first of these notices is the notice which is to be given by a public vaccinator of his intention to visit a child's home in order to offer to vaccinate it, if it has not been vaccinated within four months of its birth. The notice is given under Section 1 (3) of the Vaccination Act of 1898. The second is the notice to procure a child's vaccination referred to in Section 31 of the Act of 1867, which must be given as a preliminary to any proceedings under that enactment. With regard to both these notices it has been urged that they must be served personally on the parent or other person having the custody of the child. The Local Government Board, on the advice of the law officers of the Crown, informs vaccination officers that personal service is unnecessary, and that both these notices may be sent by post in ordinary unregistered letters.

The circular then calls attention to the proper procedure to be followed in issuing summonses under Section 31 of the Act of 1867, intimating that the points to be stated in the information when the summons is applied for are—(1) that the child has not been vaccinated; (2) that the parents have had notice under Section 31; and (3) that the notice has been disregarded. Then it is pointed out that upon the hearing of the summons the only question to be determined is whether the child has or has not been vaccinated, or has already had the small-pox. To the determination of this question it is entirely irrelevant whether the parent had notice that the public vaccinator would come to his house, nor does it matter whether the public vaccinator ever went there and offered to vaccinate the child or not. No evidence, therefore, need be given as to this. Nor is proof of the sending of the second notice (that is, the notice under Section 31 of the Act of 1867, to procure the vaccination of the child) a necessary part of the case for the prosecution. But as it may become so, owing to evidence being given for the defence that no notice was received, or as magistrates may refuse to adopt the view of the law officers of the Crown upon this point, the further opinion is given:—(1) that the service of the notice will be *primâ facie* established by showing that it was sent to the defendant properly addressed, prepaid, and posted; and (2) that the contents of the notice may be proved by verbal evidence without production of original or duplicate documents. At the same time, however, excellent advice is given to vaccination officers as to the best method of keeping accurate record of all notices given, with a view to proving their contents, and with this advice the circular ends. That it was desirable that some such attempt should be made to elucidate the procedure in vaccination cases there can be no doubt. Without multiplying instances we may mention the following. In last November Mr. FORDHAM, sitting at the North London Police-court, allowed two points to be successfully taken by the defendant's advocate, only adjourning the case on the vaccination officer paying £5 5*s.* as costs, and this in order that notice might be given to the defendant to produce the notice given to him of the intention of the public vaccinator to call and offer vaccination. This notice is now declared by the law officers of the Crown to be wholly irrelevant. On the other hand, sitting in South-west London within a short time of this, Mr. R. O. B. LANE, another metropolitan magistrate, took the opposite and, as it now appears, correct view, and held that proof of the service of the public vaccinator's notice was not a condition precedent to prosecution and conviction. If London magistrates who are barristers of experience thus differ among themselves it can hardly be expected that the lay bench will do better; but in future, on these points at any rate, magistrates will only go wrong if they care to decide in the teeth of the opinion of the Attorney-General and Solicitor-General and to risk attention being called to their errors by appeal to the High Court.

The Local Government Board has also addressed a letter to the London School Board in order to obtain if possible the coöperation of the London School Board in dealing with the outbreak of small-pox in the metropolis. The Local Government Board asked the London School Board to accord the same facilities for the examination of children in the schools under its control as have been afforded by the managers of voluntary schools with a view to the protection of the children, and so of the public, by vaccination. In seeking the coöperation of the London School Board in the present emergency the Local Government Board has not been charged with the carrying out of powers to compel. It has rather had to endeavour by persuasion and diplomacy to convince a body—and a body fully alive to its own importance and the strength of its own position—of the urgency of maintaining the public health by all possible precautions. In this it has not been altogether successful owing, no doubt, to the views held by admitted anti-vaccinationists on the School Board and to the fear of arousing unpopularity among their constituents on the part of others. In response to the representations addressed to it by the Local Government Board the School Board passed on Sept. 23rd, after a lengthy discussion and the moving of many amendments, a motion which in its final form was as follows:—

"That facilities be given to the public vaccination officers of the metropolis, on the application of the proper local authority, to enter the schools of the Board in infected areas for the purpose of examining the arms of the children with a view to advising the parents to allow their children to be vaccinated, provided that the School Board issue a circular to the parents of the children asking if they have any objection to that examination, and in case of such objection in any particular case that the said examination shall not take place, and that the Local Government Board and the public vaccination officers be informed accordingly."

On the principle that half a loaf is better than no bread the facilities thus afforded may be accepted by the Local Government Board and by the London public, but it must be pointed out that facilities so hedged round with conditions and qualifications do not amount to much. The steps that may now be taken are not the most effective that the law would have permitted, and will not be sufficient to ensure the safety of the London School Board children as a body from small-pox, while any estimate of the number of vaccinated and unvaccinated children in the metropolis based upon the examination of the Board's children will be untrustworthy. Presumably, parents of vaccinated children will, as a rule, offer no objection to the arms of their offspring being examined by the public vaccinator, and the objectors will be mainly the parents of at proportion of the unvaccinated; but it will not be safe to assume that they are entirely so, while figures based solely on the proportion of vaccinated and unvaccinated among those actually examined would undoubtedly be fallacious. It is to be hoped that the parents—some at any rate—of the unvaccinated will yield to the advice which the London School Board, with great consideration for their prejudices, allows to be administered to them, and that a serious spread of the epidemic will not necessitate the closing of schools on any large scale

On Sept. 25th three more circulars emanated from the Local Government Board, each showing that our official bureau of public health is on the alert to prevent a disastrous spread of small-pox in the capital. The first is a memorandum on the steps specially requisite to be taken by boards of guardians, their vaccination officers, and sanitary authorities in places where small-pox is prevalent The second, a supplement to the first, specially urges upon boards of guardians the value of prompt revaccination, and the necessity of seeing that their vaccination officers immediately take such steps as may be necessary to deal effectively with any arrears in the union or parish. The boards of guardians are enjoined to see that any cases of default are dealt with by the vaccination officers under the Vaccination Order of 1898, and that the addresses of unvaccinated children are ascertained from all available sources; while they are instructed to assist their vaccination officers if there is any difficulty put in the way of a quick performance of their duties The third circular is addressed to the metropolitan borough councils, and asks the councils to specially instruct their medical officers of health to visit without delay all houses where an outbreak of small-pox has been notified, and to take immediate steps for the isolation of the patient and the disinfection of the premises

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The Nursing Home.

ONE of the most remarkable developments in medical life of recent years, arising naturally enough as a side issue from the growth of modern surgery, has been the creation and the extensive use of private surgical homes. As the success of surgery became more and more apparent since the introduction of the aseptic principles, so the number of operations performed every year increased enormously. It was not only that operations hitherto believed to be impossible, or unjustifiably risky, or at least inadvisable, were one after another brought within the ordinary list of the surgeon's operative scheme, but also the public became more and more aware that a surgical operation was no longer a dreadful ordeal with a more than doubtful issue, but that it was in many cases a painless experience with a perfectly satisfactory result. Thus an ever-increasing number of persons, particularly of the better-educated and better-off classes, came to seek the help of surgery; and surgeons, anxious to repeat the successes of their hospital experience, naturally enough strove to assimilate the conditions of operations in private to those that had stood them in good stead in hospital work. And so the private hospital and the surgical home became established things. Once inaugurated such institutions soon proved their usefulness to both patient and surgeon Sojourn in them was necessarily somewhat expensive, but on all hands their great convenience was so much insisted upon that to be a patient in one was part of the routine of a surgical patient of some means. Now it may well be questioned whether entry into such a refuge is not sometimes insisted upon when a patient's welfare and comfort would be better consulted if he were to remain at home.

The great advantage which operating in a surgical home originally offered, as opposed to operating in a private house, was that in the former a surgeon secured all those conditions which he considered necessary to success A clean, simply-furnished room, the proper light, plenty of nurses and all the elaborate requirements of perfect antisepsis were at his hand, and in a building near his own home. These were rarely available in a private house. To-day the same does not hold good. We have learnt by experience that surgical cleanliness is more simply guaranteed than was at first thought possible. Antiseptic sprays altogether, and strong antiseptics with many surgeons, are things of the past A steriliser for the instruments, the concentrated form of some chosen antiseptic, and a liberal supply of hot water satisfy nowadays the most exacting surgeon, and allow him to achieve successes rarely attempted and never surpassed a few years ago. He has also learned that there is no safety in a multitude of counsellors, and counting every fresh pair of hands a fresh chance of danger he likes to keep down the number of nurses immediately concerned in the operation to a minimum. There are, too, more well-trained nurses now than formerly, and one of these can rapidly render any bedroom of fair size as favourable an operating theatre for all ordinary proceedings as that of any surgical home. For these reasons, unless the operation has to be done at very short notice, a surgeon who can send his nurse into the house 24 hours before the operation may usually count on success in a patient's residence just as surely as in a nursing home. Moreover, in a private house his nurses are under his own control, whereas in a home it is not unknown for the authority of an ill-trained matron, who is constantly on the spot, to bear adversely upon the directions of the surgeon.

From the patient's point of view to go into a nursing home offers this great advantage, that his own house is spared the inevitable disturbance that an operation demands, as well as the continual inconvenience of harbouring one nurse, if not two or three. The nurses, however, presuming that they are of a kind now happily becoming common, will soon be found to add to the convenience of the household, and the upsetting of the house for the operation will not be of much moment unless it is a very small abode. Unhappily, it is just in these instances that a nursing home is likely to be out of the question for pecuniary reasons, which brings us to a second criticism of the institutions. In spite of the large number of homes there is no doubt need of one, in London at any rate, where patients could be received belonging to that large class who are not suitable for hospital treatment and yet cannot afford the expense of a surgeon's fee, in addition to the hotel charges during the long period necessarily passed in a surgical home if the operation is one of any severity. Except the saving of inconvenience in his own house there is no advantage offered by a nursing home that a patient in well-to-do circumstances cannot get if he is in the hands of a careful medical attendant who has provided good nursing. There are, however, several disadvantages from which he will be free. First of all he will be among his own people, and this is not simply a sentimental consideration, but often one of therapeutic influence. We are, of course, excluding all cases in which removal from familiar surroundings and too sympathetic friends is an essential part of treatment. Again, choice of food will be freer, subject to professional advice, and the manner in which it is served will be more to the patient's taste than is possible at any rate in most nursing institutions. Quiet, too, is far more easily obtained in a private house than in a nursing home, where there is an inevitable amount of constant movement due to the passing to and fro of nurses, the arrival and departure of surgeons and physicians and anæsthetists, and the visits of friends. With regard to the visitors there is in some homes an amount of tyranny exercised that is unknown to the medical man in charge of the case but is very annoying to his patient. The matron may decide that a patient is to see nobody on a certain day, and the very visitor may be refused admittance whose presence would have favourably influenced the progress of the case.

We have mentioned the surgeon's point of view, in which must be included the great advantage to him of being able to see several patients in one visit to a home, that home being probably quite close to his residence. We have considered the point of view of the patient. Now there is a third aspect of the case requiring attention—that, namely, of the general practitioner. When the patient is placed in a surgical home it often means that visits entailing no exercise of particular skill are paid by the operating surgeon, often a comparative stranger, rather than by the general practitioner to whom the patient is accustomed and by whom he would be welcomed. The surgeon no doubt has said, "Come and see your patient whenever you like," but perhaps the home is not within the practitioner's usual round, and perhaps he knows that the patient will not relish paying for two professional visits when only one is necessary. When after-treatment requires particular knowledge and skill the case is, of course, different; but in the vast majority of instances the general practitioner, fortified by the definite instructions which he will be careful to receive from the operator, is perfectly capable of taking charge of the case. He will naturally arrange for additional visits from the surgeon as may be necessary. The surgeon should not overlook the point of view of his colleague the general practitioner nor forget that the patient, whose welfare and comfort are of course the main objects of both, may desire to see and consult his regular adviser. Such are the pros and cons of the surgical home question. From them, in our opinion, it becomes apparent that the main objects desired—namely, the patient's safety and comfort and the surgeon's and practitioner's convenience, will be as well, and often better, met if the sufferer is nursed in his own house than if he is bundled willy-nilly into the strange surroundings of a nursing home.

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On Coming Back.

THE proper conduct of a holiday is a subject upon which many writers have expatiated from different aspects. We have pointed out in these columns the futility of making a holiday only a change of work, and have urged upon persons no longer in their first youth to refrain from rushing to Switzerland, immediately to climb mountains regardless of the facts that their arteries are no longer so elastic as formerly and that their heart muscle is somewhat more easily tired than of yore. But if the change from work to play has its dangers so also has the return from holiday-making to the daily grind of professional or office work. The change in methods of life is not properly appreciated, and in the desire to extend the holiday to its utmost limit the return journey is apt to be made at the greatest possible speed, so much so that we know of certain instances where the repatriated travellers have been compelled to rest for a week to recover from fatigue. But allowing that the holiday has been a real holiday, a time of rational enjoyment and of healthful exercise duly adjusted to the physical condition of the holiday-maker, the return to work is often accompanied by attacks of ill-health. It is not at all uncommon in our experience for those who return to London (or to any large city) from a country holiday to complain of suffering from a form of sore-throat. The explanation of this is probably to be found in the presence of dust in the air; and this dust, in London at any rate, is mainly composed of horse-dung, particles of wood, and the various débris to which four or five millions of human beings constantly moving about naturally give rise. All this foreign matter sets up an irritation in the air-passages and pharynx. After a residence of some weeks in the midst of a more or less polluted atmosphere the tissues get acclimatised to the irritation and the cough and sore-throat subside, but they are one source of malaise which has to be looked for after a holiday. We do not suggest that, because continued residence in a large town begets a certain amount of tolerance, therefore it is of no avail to go away; for although a holiday may make the tissues more responsive to external irritation yet the same holiday increases the resisting powers of the body, so that it repels with greater ease the attacks of other poisons. Therefore too much importance must not be laid upon the fact that many persons who felt in robust health while away on their holidays, upon returning have the sensation of being worse in health than they were before they went away. Their natural disappointment at these sensations can as a rule be justly removed by a few optimistic words. Yet again, too little is made of the change from active exercise to sedentary life. From passing most of his time in the open air engaged in some form of exercise a man turns suddenly to working in an office or study—in the case of members of our own profession to going from one sick-bed to another. There is no section of the community so notoriously careless of its own health as is the medical profession, and while its members would impress upon the returned worker to avoid errors in diet we doubt whether it is their habit to be careful themselves in this respect. It cannot be too much insisted on that, although on a holiday a large breakfast, a large luncheon, and a large dinner may be partaken of with impunity, under the altered conditions of the working life no such heavy feeding can be right. To a man employed in fishing or shooting most of the day, or to one who spends his time in walking or bicycling, a dose of alcohol may give a feeling of contentment as well as wholesome slumber at night, which it will completely fail to do when the daily round of work is taken up again. Properly enjoyed and used a holiday is of illimitable use and if care be taken the return to work will be felt to be all the more easy for the rest enjoyed during the vacation. But it is impossible to combine, as so many think they can do, the brain expenditure of work-time with the physical digestiveness of play-time.

Annotations.

"Ne quid nimis."

MR. BRODRICK'S COMMITTEE ON THE ROYAL ARMY MEDICAL CORPS.

ALTHOUGH the report of Mr. Brodrick's Commission on the reconstitution of the Royal Army Medical Corps is not yet published there can be no indiscretion, we think, in saying that the document, when it appears, will give considerable pleasure to those interested in the branch of the service concerned. The report will recommend that the Royal Army Medical Corps should be in the hands of an advisory committee, not an unwieldy one, to be made up of the Director-General, certain officers of the Royal Army Medical Corps, certain civilian medical men, and certain War Office officials. The dignity of the position of the Director-General will, we hope, be preserved, while his responsibility will be lightened. Three changes will be suggested as making for the better scientific education of the officers of the corps. A candidate for the Royal Army Medical Corps, if on the verge of holding an appointment as house surgeon or physician, is to be allowed after passing his examination for the Royal Army Medical Corps to hold his appointment and to count the term of office as part of his military service. By this wise recommendation the Commissioners attempt to secure for the service what may be termed the flower of the medical students. Study leave, which has always been somewhat of a farce, is to be done away with, but in its place surgeons are to be gazetted to large provincial or metropolitan medical centres where they can attend hospital practice and perform their duties as military surgeons as well. Lastly, but not lastly in importance, the pay will be increased. The Commissioners have not taken into question the Indian Medical Service at all. This service is in no way touched by these recommendations, and no amalgamation of the Royal Army Medical Corps with the Indian Medical Service appears to have been contemplated.

THE NEW CRANIOMETRY.

IN his Presidential Address delivered to the Anthropological Section of the British Association Professor D. J. Cunningham, while reviewing the features which distinguish the brain of man from that of the higher apes, entered a powerful but, many will think, a premature plea for the careful consideration and, where possible, the revision, of the present system of craniometry. Broadly speaking, the cranium under normal circumstances was considered to exert but little influence in determining the head form, so that, he said, "in speaking of brachycephalic or short heads and dolichocephalic or long heads we are merely using terms to indicate conditions which result from individual or racial peculiarities of cerebral growth." Probably few anthropologists would deny this, yet if followed to its logical conclusion the cephalic or length-breadth index, for instance, should be derived from measurements taken from the interior of the skull. This is Professor Cunningham's view, which he supported by the argument that "the measurement of the long diameter of the cranium does not give the true length of the cranial cavity. It includes, in addition, the diameter of an air-chamber of very variable dimensions which is placed in front." A case in point was given. "Measured in the usual way the Neanderthal skull is placed in the dolichocephalic class, whereas Schwalbe had shown that if the brain-case alone be considered it is found to be on the verge of brachycephaly," while Huxley was quoted to the effect that no "safe basis for that ethnological craniology which aspires to give the anatomical characters of the crania of the different races of mankind" will be found "until it shall become an opprobrium to an ethnological collection to possess a single skull which is not bisected longitudinally." While regretting that our present knowledge of cerebral growth and the value to be attached to its various manifestations was still so far from complete, Professor Cunningham held that since "the areas of cerebral cortex to which man owes his intellectual superiority are now roughly mapped out, the time has come when the effect produced upon the cranial form by the marked extension of these areas in the human brain should be noted, and the skulls of different races contrasted from this point of view." He dwelt on the development of the occipital lobe and its predominance in apes, especially the lower forms, while he discussed the great size of the parietal lobe—"a leading human character"—in relation to the morphology of the insular district. The opercula appear early, the fronto-parietal and temporal opercula being together responsible for closing over more than three-fourths of the insula. At first the lower or temporal operculum grows more rapidly upwards than the fronto-parietal grows downwards, hence the former covers in a greater part of the insula, and the Sylvian fissure formed by the approximation of the margins of the opercula runs very obliquely upwards and backwards as in apes. At a later stage, when the frontal and parietal lobes assume their more distinctly human characteristics, correlated by Professor Cunningham with the increased complexity and differentiation of the functions and movements which they govern, the fronto-parietal operculum enters into a growth antagonism with the temporal operculum which results in the latter being pressed down and the Sylvian fissure assuming its almost horizontal human position. It is especially interesting that on the left side the Sylvian fissure is more depressed than that of the right hemisphere, the surface area of the left parietal lobe being greater than that of the right. Three ready-made explanations, as frankly teleological as any ever taught in a dissecting-room, were at Professor Cunningham's service to explain this condition, and it was with a feeling of relief that we read "not one of these theories when closely looked into is found to possess the smallest degree of value." Even the obvious explanation that the increase in size of the left parietal lobe is associated with right-handedness is regarded as doubtful since it occurs in apes, among whom Professor Cunningham has been unable to satisfy himself that there is any decided preference for the use of one arm more than another. Finally, the manner in which speech assumed shape in man's early ancestors was briefly discussed, Professor Cunningham laying stress on the value of the imitative theory and following Darwin in being "inclined to believe that articulate speech came at an early period in the history of the stem-form of man."

INEBRIATE REFORMATORY HOMES.

ONE consequence of the Inebriates Act of 1898 has been the establishment in various parts of the country of reformatory homes for persons whom repeated convictions for drunkenness have rendered eligible for admission. We learn from the latest report of the Reformatory Committee that 18 county divisions and 78 county and municipal boroughs—a relatively small proportion to the whole—have availed themselves of the facilities granted under the Act for this purpose. The reformatories established comprise the following: Ashford, Brentry and Horfield near Bristol, Duxhurst Farm Colony, Girgenti (Ayrshire), Farmfield (Surrey), Ennis, and Perth. These collectively afford accommodation at the present date for 357 females and 164 males. So far the details to hand of work accomplished in these homes are very scanty. Only those obtained from the institutions at Ashford and Brentry are approximately complete. The record of results at the former home shows that of 28 persons discharged on licence during the year ending on March 31st 14 are doing well and 14 have had their licences revoked. In the case of Brentry a brief note asserts that "far too many [of persons out on licence] are doing badly." So far, then, it cannot be said that home reformatories have achieved very great success. The work, it is true, is still young and is quite in the experimental stage. It is not to be expected that it will prove entirely successful, nor, on the other hand, can it fail under reasonable conditions to accomplish a certain amount of good. How much benefit may be fairly expected of it is quite an open question. The answer to it with which experience has provided us does not so far justify an optimistic view. Happily, there is no necessary finality in speculations of this kind and hope finds a place in every counsel of reform. Another question, and a very practical one, is whether the means employed are those most likely to attain the object in view. It will not do to look upon the drunkard as a pure and simple invalid or a lunatic. If he is such his place is not in a reformatory. He is essentially one who has acquired a bad habit and has indulged it until, as always happens with our pampered fancies, it has become his master. Reform in his case, therefore, implies a process of disentanglement, the removal of temptation, the stimulation of any energy remaining in the will and its employment for wholesome ends. Not nursing, not rustic beauty, ease, and recreation are required to carry out the common rule of this kind of reformation. As judged of by photographic views the arrangements at Brentry appear too luxuriously considerate to give promise of the best results. We would rather prescribe a condition of plain, quite plain, comfort, with abstinence from alcohol, and, above all, with regular and pretty continuous occupation in any suitable form. Homes arranged on this model have a further advantage in the fact that they might be made in great measure, if not entirely, self-supporting. Such, we believe, they ought to be. The thrifty and well-doing members of the community already bear the heavy burden of expenditure for national purposes, besides the maintenance of the aged, the sick, the destitute, and the insane. They may reasonably ask that the cost incurred by vicious habits should rest as far as possible on those immediately responsible. We are of opinion that they will agree with us in upholding the general principle that inebriate reform and reformatories should be conducted as far as possible on the lines of self-support.

DRY WASHING.

IT is a familiar boast of English people that we are above all others a washing nation. Soap-and-water is a standing dish in Great Britain, but so little were we disposed to credit the habitual cleanliness of foreigners that a piece of soap in the valise was till recently the habitual companion of an Englishman on his travels. Nowadays such an item is scarcely a necessary part of the traveller's impedimenta, though there are still fair-sized hotels on the continent where soap may be searched for in vain in the bedrooms, while the smallest inn in this country would blush to the roof at such a deficiency. All kinds of theories have been raised to account for this national tendency to ablution, and most diverse qualities have been attributed to its possession. The familiarity of islanders with water, and the use of it occasioned by the national custom that led the ancient Britons to paint their bodies, are solemnly urged as the foundation of the English proneness to washing; and the fresh complexions and smooth skins of young Englishmen are held to replace the more dusky and hirsute countenances of the Latin races because of their closer and more frequent acquaintance with the articles of the washstand. With fanciful theories we have naturally no concern, and we believe that clear ruddy cheeks are a national inheritance for the same, if equally indiscernible, reasons as a tendency to roam or a dull ear for music. If, however, we do not attempt to explain the presence of a widespread habit and leave it to idle imaginations to determine why Englishmen wash, it is nevertheless our concern that such habits should be for the general welfare and should not be carried to injurious excess. It is quite obvious that even in England there are people who wash too little. It is not so generally recognised that some people wash too much. The skin is not well adapted to frequent applications of water accompanied by even the least irritating of soaps.

A tendency arises to maceration of the superficial part of the epidermis, which is too frequently removed and occasions probably too rapid a proliferation of the cells of the Malpighian layer. There is no doubt that many cases of roughness of the skin of the face come from the frequent applications of water. It is a good thing to rub the face with a soft, clean, dry towel two or three times a day. If, in addition, water is used in the morning and at night the skin will be kept in a sounder, smoother, and healthier state than if, as is often the case, soap and water are used three or four times a day. Men are not often offenders in this respect, most men sparing little time for the refinements of the toilette. Women and children, whose skins are the most easily affected by superfluous ablution, are the very persons in whom such excess is too common. They should be taught that there are dry methods of cleanliness as well as wet ones.

IDIO-MUSCULAR CONTRACTION AS A DIAGNOSTIC SIGN IN MENTAL DISEASES.

Dr. S. Soukhanoff and Dr. P. Sannouchkine of Moscow contribute the results of a lengthy research on this subject to the *Revue Neurologique* of August 15th They refer to the statement of certain authors who claim idio-muscular contractility as an aid to the more exact diagnosis of disease—e.g., Bernstein[1] who has investigated this symptom in great detail. The investigation of Dr. Soukhanoff and Dr. Sannouchkine was carried out on 355 patients from the psychiatric clinic of the University of Moscow and the special muscle selected for the test was the biceps of the upper arm which was percussed with a small hammer. The following were the results obtained. 1. In a general way idio-muscular contraction was absent in 15·2 per cent. of the cases, it was slightly marked in 11 per cent, and well marked in 73 8 per cent. Thus, in the majority of cases of mental disease it showed itself in a marked manner 2. The forms of mental disease classified below gave the following results :—

Form of mental disease.	Idio-muscular contraction		
	Absent.	Feeble.	Marked.
Melancholia	2 cases.	2 cases	17 cases.
Amentia of Meynert	3 ,,	—	17 ,,
Idiocy and imbecility	1 case.	4 cases.	15 ,,
Paranoia	1 ,,	4 ,,	15 ,,
Dementia præcox	3 cases.	1 case.	13 ,,
General paralysis	8 ,,	2 cases	52 ,,
Acute alcoholic insanity, not including delirium tremens	1 case.	1 case.	9 ,,
Prolonged alcoholic delirium	—	—	10 ,,
Epilepsy	—	—	11 ,,

Its diagnostic value thus becomes considerable, and this is enhanced by the fact that the authors took care to exclude all phthisical cases from their research to obviate the well-known tendency to idio-muscular contraction which is developed in phthisical patients. 3. In the other forms of mental disease the frequency of occurrence of idio-muscular contraction was as follows: in secondary dementia it was 62 5 per cent., in chronic alcoholism and dipsomania it was 63·6 per cent., in the degenerative psychoses (insanity of obsessions, hypochondria, and the aboulic neurasthenias) it was 64 1 per cent., and in periodic insanity it was 68·3 per cent. 4. The authors point out that in pubescent and adolescent subjects there is normally a condition of irritability of muscle which renders the manifestation of idio-muscular contraction easy. The value of this symptom as a diagnostic measure thus increases when adolescence is past and the patients are persons of adult, middle, or old age 5. The singular feature of its occurrence in every case of epilepsy with insanity, and of prolonged alcoholic delirium, is emphasised by the authors, who also draw from their research the conclusion that when the nutrition of the patient is low idio-muscular contractility tends to appear. It is important in every case to examine the patient for phthisis, as the absence of the latter makes the value of idio-muscular contraction as a diagnostic sign greater in mental diseases.

THE DISTRIBUTION OF PLAGUE.

A TELEGRAM from the Governor of the Cape of Good Hope, received at the Colonial Office on Sept. 18th, states that for the week ending Sept. 14th the cases of plague in the Cape Peninsula numbered 0. At Port Elizabeth the cases were as follows: Europeans, 2; natives, 8. In all other places the cases numbered 0. The deaths were as follows: Cape Peninsula, 0; Port Elizabeth, 1, a native. In all other places the deaths numbered 0. The area of infection remains unchanged and the cases of plague among persons under naval and military control numbered 0 As regards the Mauritius a telegram from the Governor, received at the Colonial Office on Sept. 20th, states that for the week ending Sept. 19th there were 24 cases of plague and 17 deaths. At Hong-Kong a telegram from the Governor, received at the Colonial Office on Sept. 23rd, states that for the week ending Sept. 21st there were 2 cases of plague and 2 deaths As regards Egypt during the week ending Sept. 15th 11 cases of plague and 6 deaths from the disease have been reported throughout all Egypt Of these 1 admission, 1 death in hospital, and 1 death out of hospital were reported from Port Said; from Alexandria 4 admissions, 2 deaths in hospital, and 2 deaths out of hospital; from Mit Ghamr 2 admissions; and from Benha 2 admissions.

"PUBLIC BODIES AND TUBERCULOUS FOODS."

IN THE LANCET of Sept. 14th (p. 745) we commented upon the activity shown by various public bodies with regard to the possible dangers accruing from tuberculous meat and milk We instanced the memorandum issued by the medical officer of health of Finsbury, and we have now received a similar memorandum from the Public Health Department of the Borough of Stockport. The circular is as follows :—

COUNTY BOROUGH OF STOCKPORT.

PUBLIC HEALTH DEPARTMENT.

Great Egerton street, Stockport, Sept. 18th, 1901.

SIR,—I am directed by the Sanitary Committee to draw your attention to the fact that it has recently been denied by Professor Koch that tuberculosis can be transmitted from animals to man. The views expressed by Professor Koch have not by any means received the [illegible] ust been appointed to inquire [illegible] Professor Koch. Pending the [illegible] Commission the Local Govern[illegible] cal authorities that they should [illegible] as heretofore for dealing with [illegible] berculous meat. [illegible] esire you to understand that [illegible] degree the taking of all proper [illegible] the sale of tuberculous meat and milk.

In the case of meat they will, through their officers, carry out the [illegible] from tuberculous animals on the lines laid down by the [illegible] the case of milk from tuberculous [illegible] as heretofore in accordance with the [illegible] als, and Milkshops Orders, 1885 and 1899, and the Stockport Corporation Act, 1899

Notice of the provisions of these Acts has already been sent to you and information relating to them can always be obtained on application at this office.

The attention of butchers and meat-dealers is called to the fact that in cases where the existence or extent of any disease in an animal intended for human food is doubtful, or where there is any uncertainty as to the fitness or otherwise of any meat for human food, they should at once send word to the Sanitary Office and obtain the opinion of the medical officer of health or an inspector of the Sanitary Department.

When this is done nothing whatever should be removed from the carcase or meat in question until it has been seen by the Sanitary Department officials, since if anything be dressed or trimmed away or any parts be missing the officials of the department are instructed to regard such missing parts as having been in the worst condition possible and to form their opinion as to the remainder of the carcase accordingly. The Sanitary Committee will not take any action against butchers or meat-dealers who carry out the suggestion contained in this paragraph in good faith, but they reserve to themselves the right of taking legal proceedings (even though information be sent to them as suggested) should they have the slightest doubt about the perfect good faith of the responsible person. (Signed)

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[1] Archives Russes de Pathologie, 1899, and Thèse de Moscow, 1900

MEREDITH YOUNG, M.D., D.P.H., Medical Officer of Health.

The last paragraph is, to our minds, particularly admirable. Objection to inspection, whether in the case of laundries or of school boards, is almost a proof in itself that there is something wrong, and we think that the Sanitary Committee of the Stockport Public Health Department has acted most wisely.

EYE DISEASE IN THE RUSSIAN ARMY.

THE *Voenno-Medicinski Journal* for April last contains an article by Dr. Reich on the prevalence of ophthalmic affections in the Russian army. According to a review of this contribution in the *Archives de Médecine et de Pharmacie Militaires* for the current month it would seem that although in many respects the sanitary condition of the Russian army has advanced of late years there is still considerable room for improvement with regard to eye diseases, especially among the troops quartered in the Eastern and South-eastern provinces. At first sight the proportion of 16·8 per 1000, which represents the official rate for eye affections in the Russian army, does not strike an observer as excessive, but on closer examination it will be found that this ratio refers merely to cases admitted into hospitals and takes no account of those which are treated in the infirmaries. The vital statistics of the latter class of establishment are, unfortunately, not available, but the writer of the article is satisfied that from 100 to 360 Russian soldiers out of each 1000 are treated in them for ophthalmic affections. He is also of opinion that in the year 1898 no fewer than 70,000 men were suffering from pathological changes consecutive to trachomatous conjunctivitis, this number representing 70 per 1000 of the total strength. Incidentally he mentions the fact that out of 1047 men who were invalided from four different military districts on account of affections of the organs of vision and their annexes 500 were victims to trachoma and its sequelæ.

A CLINICAL CLASSIFICATION OF INSANITY.

PROFESSOR F. X. DERCUM of Philadelphia contributes to the September number of the *Journal of Nervous and Mental Disease* a paper in which a practical attempt is made to give a clinical classification of mental disease which may be helpful to the student and general practitioner. He regards classification based upon psychology, etiology, or symptoms as unsatisfactory, and thinks that the insanities may be disentangled from one another and the various clinical forms arranged in five or six groups, the members of any one group being closely allied to one another. Thus, starting with delirium, which is manifested in the child by incoherent cries, mental confusion, and fleeting hallucinations, he divides it into febrile and non-febrile forms. The febrile form of delirium is associated with acute infectious fevers—e.g., pneumonia and scarlet fever; the non-febrile form with alcoholism, plumbism, trauma, and shock, or with the post-febrile (convalescent) stage of fevers. The special form of insanity known as "acute delirium," or typhomania, should be included also in this group. When a condition of debility or of mental exhaustion (asthenia) with stupidity is present, agencies which otherwise would give rise to delirium produce stupor. In this condition there is mental confusion attended with great obscuring of consciousness, so that conduct and expression are in abeyance. There may be all grades of stupor down to complete suspension of mental activity (anergic stupor). The three forms of mental disorder—delirium, mental confusion, and stupor—are members of one clinical family group. In mania, melancholia, and circular insanity we have another group. The identity of the etiology of mania and melancholia, the great rôle of heredity in their production (80 per cent. according to Kraepelin), and the fact that both affections occur in persons of emotional and excitable nature and in early adult life, emphasise the affinity of these disorders. Mania and melancholia both tend to recover, to recur, and to blend and alternate with one another in the circular form of insanity. Indeed, so closely are the two disorders related that Kraepelin has proposed to include both under the common designation "manisch-depressive Irresein." This group differs from the delirium-stupor group. Paranoia, or chronic delusional insanity of gradual evolution, starting from a hypochondriacal basis and passing on through hallucinations to delusions of persecution, forms a third group. Here the evolution of symptoms is slow and occupies many years, and when the delusions have fully developed a transformation of the *ego* takes place and the sense of personal identity is altered. Paranoia comes close to the mania-melancholia group in its symptoms and sequelæ. The neurasthenic insanities form a fourth group, in which are included simple cerebral neurasthenia, morbid fears and paralyses of the will (e.g., agoraphobia and dipsomania), *folie du doute*, and the other forms of insanity attended with mental obsessions. Many of these forms of mental disorder occur in "degenerates," whose mental development in childhood and youth have proceeded on abnormal lines. The fifth group includes dementia. To this belongs dementia præcox, a condition to which attention has already been drawn in these columns,[1] katatonic insanity, and general paralysis of the insane. Lastly, a diathetic group of mental disorders exists, associated with an abnormal metabolism of the body, such as the insanity of diabetes, gout, and rheumatism, and an intoxication group of mental disorders due to alcohol, lead, opium, and cocaine.

DISSATISFACTION IN THE MEDICAL DEPARTMENT OF THE UNITED STATES ARMY.

A FREQUENT correspondent writes to us from New York as follows:—"The provisions of the United States Army Reorganisation Bill affecting the Medical Department which was passed by Congress last session have given rise to much discontent among army surgeons in the United States. The grading of medical officers has been rendered lower than that of any other branch of the military services. The *New York Medical Record* of August 10th has a fair but pungent criticism of the altered conditions which has called forth a somewhat apologetic reply from the *Army and Navy Journal.* The *Army and Navy Journal*, however, undoubtedly hits the right nail on the head when it declares that the medical corps has suffered because medical men ignore their own interests, and because army surgeons have refrained from joint action. Until medical men as a body become convinced that they must exert themselves in the field of politics their interests will be regarded with more or less indifference. Organisation for medical men is essential both in army and civil life if they are to hope for fair dealing at the hands of Congress." The situation in the United States and in Great Britain as regards the army medical departments of both countries is in many respects identical, and in both countries the power of union is recognised even if its principles are somewhat ignored. Undoubtedly the pressure which our American correspondent thinks should be brought to bear on Congress might in this country well be employed in Parliament upon many questions of medical interest; but it is difficult with us to be a politician without being a party politician. And medical men feeling this do not enter an arena where they might often serve their generation well, while upholding the prestige of their order.

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[1] THE LANCET, Feb. 3rd, 1900, p. 397.

SIR JAMES PAGET'S MEMOIRS.

A GLANCE at the "Memoirs and Letters of Sir James Paget," published this week by Messrs. Longmans, Green, and Co., has enabled us to see how fascinating a book Mr. Stephen Paget has compiled in his father's memory. Though dealing with a long life and one of more importance than some to which greater volumes are dedicated, the book is not a massive one. It contains some charming portraits and other illustrations, and is divided into two portions, the first containing the whole of the memoirs left by Sir James Paget and the second giving an account of his later life. The volume is one that many medical men will be eager to possess, the reasons for which opinion we shall give after further perusal.

FEES FOR THE CERTIFICATION OF LUNATICS.

AT a recent meeting of the Southwark Guardians, held at the offices, John-street West, Blackfriars-road, the Finance and General Purposes Committee reported that they had had under their consideration the question of the amount of the fees paid to their medical officers for the certification of lunatics. They recommended the board to approach the various justices of the peace who were in the habit of dealing with the lunatics of the union with a request that they should direct a fee of 10*s.* 6*d.* instead of 21*s.* to be paid to the medical officers of the union in future, as that sum seemed, in the opinion of the committee, to be a reasonable amount for the services rendered, having regard to the fact that the medical officers were paid officials of the union. Mr. T. Cooksey, the chairman, congratulated the committee upon endeavouring to cut down expenses in view of the great increase in the board's expenditure—and the recommendation was adopted. Guardians have looked upon the fees paid to their medical officers for the certification of lunatics with much disfavour. They have an objection to the system under which the payments are made, for they have no legal control over the amounts paid. By Section 285 of the Lunacy Act, 1890, the justice orders the payment by the guardians of what he considers to be a "reasonable remuneration" for the examination and certification of a lunatic. Many guardians have expressed their opinion that a guinea is a large fee for merely, as they think, writing a statement that A. B. is a lunatic. They have no idea of the mental and physical labour involved in the daily record of the patient's symptoms; in the accurate descriptions in the case-book of every little bruise, scar, and abrasion which the patient had on his body when admitted; and in the careful examination of the whole person and notification of every abnormal appearance which are required on the day the patient is removed to asylum. The guardians have little regard for the mental strain which is undergone by the medical officer when he is dealing with the numerous "border-line" cases sent into the wards. In these he writes his certificate with a sword of Damocles over his head. The least error or mis-statement may make his certificate quite invalid, may bring him into difficulty with the Commissioners in Lunacy, may make him guilty of a misdemeanour, or may render him liable to heavy pecuniary damages. If, on the other hand, he refuses to certify on the ground of insufficient evidence, and the patient is discharged, there is the not by any means uncommon result of a suicide or a homicide, with more trouble for the medical officer. These are some of the circumstances under which we think the fee of one guinea to be thoroughly well earned. There is, however, another aspect of the question before us. The guardians, knowing from past experience the average number of lunacy fees to be paid in the year, have in many instances fixed the salary of the medical officers at a mere nominal sum for the work to be done. They have stated that they considered the fees would bring the remuneration to an adequate amount. It would not be difficult to name a large metropolitan workhouse containing about 1600 people where the medical officer receives a salary of only £50 a year. The guardians are quite aware that the lunacy fees are the real salary and that without them no medical officer would hold the post for the sum they have fixed. Bearing the fact in mind that a similar method of utilising the lunacy fees obtains at many large workhouses, let us ask the question whether the action of the guardians in requesting the justices to award diminished fees is not a departure from fair and straightforward dealing? It is not likely, however, that the justices will be influenced. They will not readily surrender any of the power they hold under the provisions of the Lunacy Act.

THE DIAGNOSIS OF ADDISON'S DISEASE WHEN PIGMENTATION IS ABSENT.

IN exceptional cases of Addison's disease the characteristic pigmentation is absent. In ordinary cases the pigmentation can be locally intensified by irritation, such as the application of a blister. This fact might have suggested the possibility of producing pigmentation by irritation in cases in which it is entirely absent, but such an experiment does not appear to have occurred to anyone. At the meeting of the Société Médicale des Hôpitaux of Paris on July 19th M. L. Jacquet and M. Trémolières related two cases in which pigmentation was thus produced accidentally. In the first, a case of spinal caries, the application of poultices produced pigmentation of the abdomen and the necropsy revealed tuberculosis of the suprarenal capsules. In the second case the patient was a man, aged 31 years, who was admitted to the Saint Louis Hospital on Feb. 28th, 1901. He was very feeble and "wasted to a skeleton." He suffered from acute and incessant abdominal pains, especially in the right iliac fossa. They were increased by movements and by light pressure, relieved by deep pressure, and became recrudescent about two hours after meals. After paroxysms of pain vomiting supervened Slight pigmentation had recently appeared in the fronto-temporal regions and there were one pigmented spot on the upper lip and another on the lower lip. At the apex of the left lung was a cavity and at the base friction sounds were heard. Fulness was felt in the epigastrium. To relieve the pains linseed-meal poultices with a little mustard and compresses of camphorated alcohol were alternately applied to the abdomen About a fortnight afterwards marked brown pigmentation of the abdomen was noticed. The pigmentation extended beyond the limits of application of the poultices The hairs were not hyper-pigmented. On July 18th the pigmentation was still present and of the same intensity, though no applications had been made to the abdomen since April. The poultices and compresses were applied to the anterior surface of the right thigh A rosy and transitory discolouration was first produced. In some days it became red and permanent. In less than three weeks pigmentation similar to that of the abdomen was produced. Linseed-meal poultices (without mustard) were applied daily for two hours to the left shoulder, beginning on June 12th After the removal of the poultice a rosy tint remained which progressively became more and more intense and persisted longer and longer. On July 2nd it was red and permanent and pigmentation was commencing. On July 6th the latter was well marked. In a similar manner pigmentation was produced on the calves. The importance is obvious of this method of *extériorisation de la mélanodermie latente*, as the authors term the phenomenon. The diagnosis of Addison's disease in the absence of pigmentation can thus be made possible.

THE MEDICO-LEGAL ASPECT OF WOUNDS.

IN many cases of suspected murder we have to depend chiefly on circumstantial evidence, and the most important elements in determining whether certain wounds could have been self-inflicted are their position and their extent. In THE LANCET of Sept. 14th, p. 744, we published a case of suicide in which the wounds were inflicted on the back of the neck, and in the present issue is a letter from Dr. J. Little of Maryport in which he points out that we published two similar cases in 1889. In nearly all cases of self-inflicted wounds the injuries are on the anterior aspect of the body, and the reason is obvious, for the front of the body is necessarily much more accessible; if, therefore, in any case we find that the wounds are all or chiefly situated posteriorly the first idea is that they have been caused, not by the wounded man himself, but by someone else. Yet these three cases which we have mentioned demonstrate conclusively that the mere position of the wound is no true criterion of its source. The extent of the wounds inflicted has also frequently served to distinguish suicidal from homicidal injuries, but this diagnostic point also is very fallacious. The cases already referred to, and especially a case of auto-extirpation of the larynx upon which we commented in THE LANCET of Sept. 21st, p. 801, demonstrate clearly that very severe injuries may be self-inflicted. The medical "expert witness" must exercise great caution in saying that certain injuries could not have been self-inflicted. The life of an innocent prisoner may depend on his decision

REPORT ON LUNATIC ASYLUMS IN NEW ZEALAND.

IN the report recently issued by the Inspector-General of Asylums of New Zealand for the year 1900 it is stated that the total number of registered insane persons on Dec. 31st, 1900, was 2672, being an increase of 115 over the previous year. The public asylums number seven in all, the accommodation varying from 120 beds (Hokitika) to 625 beds (Dunedin), while there is but one private asylum which accommodates 45 patients. The proportion of the male insane to the male population of the colony is 1 to 270, and for the female insane the proportion is 1 to 351. The total insane are in the proportion of 1 to 303 of the general population, a ratio almost exactly identical with that of England and Wales. A number of interesting observations are scattered throughout the report. Dr. R. M. Beattie, the medical superintendent of Auckland Asylum (487 beds), states that about 16 per cent. of the deaths were due to phthisis, and that as long as Maori patients are admitted it will be impossible to reduce the mortality from this source. A considerable proportion of the Maoris are phthisical upon admission, while others acquire the disease with remarkable facility. At the Wellington Asylum (280 beds) Dr. W. Baxter Gow, the medical superintendent, urges the erection of a separate ward or block for the reception of acute and recent cases of insanity. Owing to want of such accommodation there is not only some degree of overcrowding, but the chances of recovery of recent cases are diminished from contact with chronic and refractory cases of insanity. At Seacliffe Asylum a suicidal patient escaped from the attendants into the bush and hanged himself before those who were pursuing him could find his exact whereabouts. Of the causes of deaths two are attributed to alcoholism, 10 to cerebral hæmorrhage, eight to Bright's disease, 10 to epilepsy, 12 to senile decay, 22 to general paralysis, 24 to phthisis and other forms of tuberculosis, 32 to cardiac disease, 40 to pneumonia, and the rest to other causes. The total number of deaths during the year amounted to 145, or 5·61 of the average number resident, a ratio which is about half that of England and Wales. The number of cases discharged as recovered during the year was 199, or 7·5 per cent., as calculated on the same basis, being about two-thirds of the recovery-rate in England and Wales. Seacliffe Asylum at Otago is the largest in the Colony; 16 years ago it was described by the then Inspector-General in his official report as "out-of-date and defective in construction." During the last 12 years extensive and thorough alterations in the building, including lighting, ventilation, and drainage, have been steadily carried out to remedy these defects, and it has now "been brought to such a condition that Otago may well be proud of it." The report is of interest as showing what enlightened medical opinion and steady perseverance can accomplish in the way of treatment of the insane in a colony as far removed from the mother country as New Zealand. "The medical superintendents [of the asylums] are," concludes the Inspector-General in his report, "without exception highly qualified and deserving of the highest confidence and esteem. No department could have better officers." The separate reports of the various asylums incorporated in the text fully bear out the view that steady progress is being achieved in the treatment of the insane in New Zealand.

SMALL-POX IN LONDON.

THERE is as yet no abatement in the outbreak of small-pox in London. We refer in a leading article to the vigorous circulars addressed to boards of guardians, sanitary authorities, and borough councils of the metropolis by the Local Government Board. During Wednesday, Sept. 25th, five cases of small-pox were notified, it appears from the returns issued by the Metropolitan Asylums Board. The deaths from small-pox, which had been seven, seven, and nine in the preceding three weeks, fell last week to three, all of which belonged to the borough of St. Pancras. The total number of cases in the isolation hospitals is now 165. At a meeting of the St. Pancras Borough Council held on Sept. 25th the report of the Public Health Committee was presented, with which was incorporated the report of the medical officer of health upon cases of infectious disease certified during the weeks ended August 31st, Sept. 7th, and Sept. 14th. There was also a further report upon the present outbreak of small-pox in the borough which was illustrated by spot maps. Dr. Sykes pointed out the difficulties of diagnosis, and with regard to the all-important question of dealing with contacts recommended either immediate vaccination or revaccination, or else a quarantine period of 14 days. It had been found effectual to quarantine all persons in an infected house for at least 14 days and only to release them upon being vaccinated. There was no legal power to do this, but in the face of the epidemic it was a serious matter for consideration. The committee had approved of the closing of certain schools, both board and national. The council by 42 votes to 13 carried the following recommendations of the committee:—

(*a*) That it be suggested to the guardians to instruct their officers dealing with vaccination, or their assistants, to pay particular attention to suspicious rashes and illnesses, and where no medical practitioner is in attendance to report such to a medical practitioner of experience in small-pox with a request that he shall forthwith visit and certify, if necessary.

(*b*) That in each ward a medical man be appointed as medical referee to be called in by the medical attendant in doubtful cases of small pox or suspicious eruption or symptoms, and to be paid a small fee per case.

(c) That as a matter of urgency on account of the prevalence of small-pox an Order be made under Section 55 of the Public Health (London) Act, 1891, with respect to the notification of infectious diseases to apply to the borough of Saint Pancras as to chicken-pox, the Order to continue in force for a period of six months, and that a [illegible] directed.

(d) That in future no candidate for an appointment or applicant [illegible]

The St. Pancras councillors as a body are evidently alive to the exigencies of the situation.

OPENING OF THE METROPOLITAN MEDICAL SCHOOLS.

WITH the exception of Charing Cross Hospital and St. Thomas's Hospital the metropolitan medical schools commence their winter session on Oct. 1st, the two exceptions mentioned starting their winter's work on the following day. Most of the schools begin their work with some sort of social function and all except St. Mary's Hospital, Westminster Hospital, and the London School of Medicine for Women end the day with a dinner, at which past and present students usually meet. St. Mary's Hospital, however, hold a dinner on Oct. 3rd, and Westminster Hospital on Oct. 4th At St. Bartholomew's Hospital the old students' dinner will be held in the great hall of the hospital on Oct. 1st at seven o'clock; Mr. W. J. Walsham will be in the chair. At Charing Cross Hospital Mr. J. W. Taylor, Professor of Gynæcology in the University of Birmingham, will deliver an introductory address at 4 P.M. The old students' dinner will be held at the Hotel Cecil in the evening, when Mr. Charles Gibbs, late surgeon to the Langman Hospital, will occupy the chair. The St. George's Hospital introductory address will be delivered at 4 P.M. by Dr. P. W. Latham, and the annual dinner will be held at the Hôtel Métropole at seven o'clock, when the chair will be taken by Mr. Warrington Haward. Guy's Hospital house dinner of the Students' Club will take place in the college dining-hall on the opening day, but the first meeting of the Physical Society will not be held till Oct. 5th, when Sir Samuel Wilks, Bart., F.R.S., will preside, and a paper will be read by Mr. S W MacIlwaine on Disease and its Causation King's College Hospital old students' dinner will be held at the Hotel Cecil, when Mr. Paul Swain will take the chair London Hospital old students' dinner will be held in the college library of the hospital, Mr. F. J. P. Daly presiding St. Mary's Hospital introductory lecture will be given by Dr G. William Hill, the aural surgeon, but the annual dinner of past and present students will take place on Thursday, Oct. 3rd, at the Whitehall Rooms, Hôtel Métropole, Colonel A. B. R. Myers in the chair. The Middlesex Hospital introductory address will be delivered by Dr. T H Kellock, after which the prizes gained during the previous year will be distributed by Lord Howard de Walden. The annual dinner of past and present students will take place at seven o'clock at the Trocadéro Restaurant, under the presidency of Mr. J. Bland-Sutton. St. Thomas's Hospital starts with a prize distribution by Major-General Sir Ian Hamilton, K.C.B, in the Governors' Hall, at 3 P M During the afternoon the various departments of the hospital and school will be open for the inspection of visitors. The annual dinner will take place at the Whitehall Rooms, Hôtel Métropole, at seven o'clock, Mr. H. H. Clutton in the chair. The University College Hospital introductory lecture will be given at 4 P.M. by Dr. J. Risien Russell, and the past and present students' dinner will take place at 6.30 at the Hotel Cecil, when Sir Richard Douglas Powell, Bart., will preside. Westminster Hospital annual dinner will not take place till Oct. 4th, when Mr. Charles Stonham will preside. At the London (Royal Free Hospital) School of Medicine for Women the introductory address will be given by Dr. F. W. Andrewes on Oct. 1st at 4 P.M.

A HARD CASE.

AN action unsuccessfully brought in the Grimsby County Court recently illustrated the difficult position in which a medical man may be placed where a patient is brought to him whom it would perhaps be inhuman to send away, but with regard to whom there is doubt as to who will be liable for the services rendered. A little girl was brought to the surgery of Mr. T. W. J. Allen, the plaintiff, with a broken arm, and the board school teacher who accompanied her stated that the school board would pay for attendance upon her. The cost of attendance which was accordingly given seems to have been increased by a subsequent injury to the broken arm, but, to put it briefly, the school board repudiated altogether the liability to which it seems clear that its teacher had no authority to pledge it, and which, in the opinion of the county court judge, it would have had no right to incur in any case. Evidence, however, was given by Mr. Allen that he had, in fact, been paid on previous occasions for attendance on accidents in another similar school. In consequence of this refusal the medical man sued the parents, only to be confronted with the undoubted fact that they were poor people who neither had, nor would have, retained his services, but who, had they known of the occurrence, would have had recourse to the hospital Cases such as these are hard upon the medical practitioner, but they show that where attendance is asked for and where there is any possible doubt as to who is to pay for it this should be made clear before the attendance is given. In cases of emergency, such as accidents, the same point should be elucidated on the first opportunity after that has been done which the circumstances demand or the benevolence of the practitioner may prompt him to do without definite expectation of reward.

"THE MEDICINE AND DOCTORS OF HORACE."

UNDER the above heading Dr. Eugene F. Cordell contributes a long and scholarly article to the August number of the *Bulletin of the Johns Hopkins Hospital.* Considering the small size of the volume formed by the extant works of Horace, his references to matters medical are fairly numerous He uses the word "medicus" nine times and mentions a considerable number of pathological conditions. As regards medical treatment, he refers only to "fomenta," baths, and six medicinal plants—namely, malva (mallow), lapathum (sorrel), elleborum (hellebore), abrotanum (southernwood), cicuta (hemlock), and papaver (poppy) The last line of the "Ars Poetica," the poem which is placed last in most if not all of the editions, is:

> Non missura cutem, nisi plena cruoris, hirudo.

Dr. Cordell states that the leech was first recommended by Themison, a contemporary of Horace, as an addition to the materia medica, but is not found in the extant writings of Celsus. Horace mentions by name two physicians, Antonius Musa and Craterus. After an outline of what has come down to us relative to these practitioners Dr Cordell goes on to what is, from an historical point of view, the most interesting portion of his article—namely, a discussion as to whether the Celsus of Epistle i., 8, Epistle i., 3, and the Celsus Albinovanus of Epistle i., 8, are not, in fact, identical with A. Cornelius Celsus, the medical writer This theory seems to have been first brought forward and championed by Giovanni Ludovico Bianconi in his "Lettere sopra A. Cornelio Celso scritte dal Conte Ludovico Bianconi al celebre Abate Girolamo Tiraboschi," published in 1779 These letters, which are 12 in number, have been reprinted in the second volume of the edition of Celsus brought out by Dr. Salvatore de Renzi of Naples (vol. i., Latin, in 1851; vol. ii., Italian, in 1852), where they fill 82 large pages. Bianconi's theory is discountenanced by Orelli, the commentator on Horace, but is upheld by Targa, the commentator on Celsus, and by Sprengel in his "History of Medicine." Bianconi's "Dissertatio de Celsi Aetate" is contained in the editions of Celsus by Targa published in Leyden in 1785 and in Cologne in 1806. In a German version of the Epistles of Horace by Carl Passow (Leipsic, 1833) Celsus Albinovanus is translated "Celsus of Albinova," a rendering which Dr. Cordell considers to be at least plausible, although Albinova is not known as a geographical name.

DANYZ'S VIRUS AS A DESTROYER OF RATS.

AN investigation has recently been undertaken under the direction of Dr. M. J. Rosenau, assistant surgeon U.S. Marine Hospital Service, at the Hygienic Laboratory, Washington, D.C., of which he is director, to test the efficacy of the cultures of bacillus typhi-murium which Danyz recommended for the destruction of rats. An article by Danyz descriptive of his method appeared in the *Annales de l'Institut Pasteur* for April, 1900. Dr. Rosenau found out that a large primary dose of the virus proves fatal but that a small dose is uncertain. The virus as a destructive agent, like a chemical poison, depends for its effect upon the amount ingested. A rapid deterioration in virulence occurs when it is exposed to the action of air and light or when it becomes dry, as is very apt to happen when laid out for rats in the wild state. Against this the virus has a very decided advantage over the usual chemical agents used to kill rats that in so far as is known it is harmless for man and domestic animals. On the whole, the investigations conducted by Dr. Rosenau do not appear to have shown that this virus is likely to prove of any special value as a rat destroyer on a wholesale scale.

THE DISPOSAL OF POULTICES AND OLD DRESSINGS AT THE LONDON HOSPITALS.

ON Sept. 10th a letter appeared in the *St. James's Gazette* from an anonymous correspondent on the subject of the use of pigs' flesh as food being the means of spreading disease, especially cancer. The writer stated: "I was recently told by a friend of mine, who personally inquired of some bargemen on the Thames what the substance was which filled the barges, that they told him it was composed of poultices from London hospitals, which went by barge down the Thames to the Medway to feed the pigs, which eventually became what is known as 'dairy-fed' pork!" This is a grave accusation to make against the London hospitals, and seems to be another phase of the scare started by an evening contemporary in August last, and commented on in the *City Press* of the 21st of that month. It was then stated that there was a great risk of typhoid fever being spread owing to the fact that St. Bartholomew's Hospital dressings were carted promiscuously through the streets of the City on the way to Letts' Wharf, where they are destroyed in the furnace. This charge has been refuted, and as a proof of the precautions taken it is stated that not one of the men engaged in the work has ever suffered from disease. We have made inquiries at the great London general hospitals, and have received what is practically the same reply from all. We are informed, as we knew that we should be, that the invariable practice is to collect the used poultices and dressings and to take them direct to a destructor, where they are completely consumed, being reduced to dust and clinker which are taken away eventually by the parish authorities. It seems to us a great pity that benevolent institutions should be libelled in the press by anonymous correspondents.

THE opening of the new Pathological Laboratory of the University of Oxford will take place on Saturday, Oct. 12th, at 3.30 P.M. Sir William Church, Bart., President of the Royal College of Physicians of London, Dr. G. Sims Woodhead, Professor of Pathology in the University of Cambridge, and others will take part in the proceedings.

THE annual meeting of the Continental Anglo-American Medical Society will be held at Paris on Tuesday, Oct. 8th, at 5 P.M., at the residence of Dr. Bull, 4, Rue de la Paix. The annual dinner of the society will be given at the Hôtel Ritz on the same evening at eight o'clock, when Sir James Crichton-Browne will preside.

A MEETING in support of Dr. J. G. Glover's candidature for election to the General Medical Council has been called for Friday, Oct. 4th, at 8.15 P.M. It will be held at the residence of Dr. E. A. White, 1, Highbury-place, N. Dr. Glover will make a statement and Sir Thomas Barlow, Dr. Danford Thomas, and others will take part in the proceedings.

AT the introductory lecture at the opening of the Winter Session at the Royal Veterinary College, which will be delivered by Dr. E. M. Crookshank on Tuesday, Oct. 1st, at 12 noon, Mr. Albert Brassey, M.P., will occupy the chair.

WE have received the report for the year ending Dec. 31st, 1900, of the Principal Medical Officer of the Uganda Protectorate. The report is of great interest.

THE ANNUAL REPORT OF THE CHIEF INSPECTOR OF FACTORIES AND WORKSHOPS FOR THE YEAR 1900.

[FIRST NOTICE.]

THE annual report of Dr. Arthur Whitelegge, the Chief Inspector of Factories and Workshops, is published in the form of a Blue-book consisting of over 660 pages. It contains a large amount of interesting information, and shows very clearly the magnitude of the work which is entailed in carrying out the inspections necessitated by recent laws passed chiefly in the interests of the industrial classes.

The arrangement of the items of information given in the report is the same as that which was adopted last year. The body of the report is divided into three parts. There is in the first place a general summary of the work done. This is written by the chief inspector. It consists of about 20 pages, including tables, and is followed by 22 voluminous appendices (pp. 25–153). The second part consists of sectional reports made respectively by the superintending inspectors, the principal lady inspector, the examiner of particulars, the inspector under the Cotton Cloth Factories Acts, the engineering adviser, and the medical inspector (pp. 154–506). The third part consists of tables (pp. 507–664). There is a table of contents, consisting of one page only, but there is no index. This omission very much diminishes the value of the report as a work of reference and must necessarily cause great loss of time to anyone who may wish to investigate one particular subject dealt with in the report, for the information in many instances will be found scattered through the book, and it requires diligent search and the expenditure of much time to collect it. The staff of inspectors of factories and assistants consists of a chief inspector, a deputy chief inspector, five superintending inspectors, a medical inspector, an engineering adviser, over 70 inspectors, and a large number of assistant inspectors. The cost of the travelling expenses alone of these officers amounted to over £10,000 for the year 1900. In these circumstances it seems wasteful that the valuable results obtained by this large staff should not be published in a readily useful form, that is to say with a full index.

During the year 1900 the number of factories on the district registers amounted to 95,664, showing an increase of 4093 for the year. The number of workshops had also increased to the extent of 3463, and amounted to 137,648. It is interesting to note that there has been an increase in the number of laundries in which power is used to the extent of 237, whilst the number of those without power has been diminished by 536 But, still, at the end of the year 1900 it appears that the number of hand laundries was considerably more than double that of those of newer fashion, (the exact figures being 1804 and 4972).

The number of places at which inspections had to be made under special rules was 7529. There are altogether at the present time 23 branches of industry for which special rules have been drawn up for the protection of the workers. The works which are carried on under these rules are as follows: (1) white lead; (2) red and orange lead; (3) yellow lead; (4) lead smelting; (5) paints, colours, &c.; (6) enamelling iron plates; (7) turning and enamelling iron hollow ware; (8) turning and enamelling metal hollow ware; (9) lucifer matches; (10) earthenware and china; (11) making of transfers for earthenware and china; (12) explosives (where nitro-benzole is used); (13) chemicals; (14) bichromate; (15) electric accumulator; (16) yellow chromate of lead; (17) brass; (18) aerated water; (19) wool-sorting; (20) wool-combing; (21) vulcanising of indiarubber by means of bisulphide of carbon; (22) flax working; and (23) humidifying textile factories.

The public attention which was directed some time ago to the disastrous effects of phosphorus poisoning amongst the people engaged in the manufacture of lucifer matches appears to have been the indirect means of causing a falling off in the trade. Amended special rules were drawn up for the regulation of the works in which yellow phosphorus was used. These rules were established as the result of arbitration in the case of the London factories, and were afterwards adopted in the case of 18 other works. Of these factories eight have since been closed and two have discontinued the use of yellow phosphorus. During the year 1900 it appears that only three cases of phosphorus poisoning were reported and none of them proved fatal.

A very great benefit has of late years been conferred on the workers in textile fabrics by the enforcement of what is usually called the "particulars clause," a statutory provision made to secure for the workpeople full and correct particulars of the work which they were required to do and a statement of the amount to be paid for such work. Before this simple act of justice was made a legal obligation, it was a common practice in some places for the employers to defraud their workpeople to the extent of from 12 to 18 per cent. "Previous to the passing of this section," according to the report of Mr. T. Birtwistle, Her Majesty's Examiner of Particulars, "it was very common in certain parts of Lancashire for 36's and even 38's twist to be delivered to the winders and described as 32's and paid for as such; hence the winders (females) in such cases were performing more work than they were paid for. This," he adds, "to some extent applied to almost every branch of the textile trade, but not in the same degree as in the case of the winders, except it may be said that the weavers in a certain district of Yorkshire were almost as badly off." There are now 6227 textile factories in the United Kingdom and 1083 textile workshops in which piece-work rates are wholly or partially paid. During the year 1900 4787 visits were made to textile factories and 1619 to textile workshops, but the Examiner of Particulars found it necessary to lay no more than 20 informations against the employers for neglect in carrying out the regulations which it was his duty to supervise. A conviction was secured in every case in which proceedings were taken, but the average amount of the penalty inflicted amounted to no more than 7*s.* 9 6*d.*—a fact explained by Mr. Birtwistle as probably being due to the fact that the offences were chiefly those of omission and due to carelessness. The number of cases in which legal proceedings have been instituted for offences under the "particulars" section has gradually diminished; in 1898 it was 47, in 1899 it was 30 The examiner concludes his extremely lucid and satisfactory report by saying, "Now we rarely find the particulars of the work deliberately omitted or supplied incorrectly."

It is perhaps not generally known that the manufacture of aerated water is attended by considerable risk to those engaged in the process. During the year 1900 159 accidents were reported, and in one case death was caused. The danger arises from the bursting of the glass vessels into which carbonic acid gas is introduced at a high pressure, and serious accidents frequently occur from this cause. It has long been the practice in some factories to insist that the workers engaged should adopt some protection for their eyes, and "goggles" or masks have in some places been in general use. Some of the workers, however, strongly objected to the use of the instruments of protection which were provided for them. The objection to the use of the guards proceeded entirely from those for whose benefit they were ordered. They alleged that injurious effects on the sight were induced by their use A special inquiry was undertaken to investigate this question, and Mr. Simeon Snell, ophthalmic surgeon to the Sheffield Royal Infirmary, was engaged to make a report on the matter. In the course of his inquiry he visited 17 factories, at which something like 3500 men were in the aggregate employed. It seemed that in the factories in which discipline was generally good there was no difficulty in enforcing the wearing of protectors. In large factories a knowledge of the danger of their occupation was usually appreciated by the workers, for accidents were not of infrequent occurrence. At one large factory, however, although protectors had "in a way" been in use for from 20 to 30 years, it happened that when the Home Office issued special rules making their use compulsory the men declined to wear them. Dr. T. M. Legge and Mr. Snell made in this case a very complete inquiry into the reasons which led the workmen to object to the use of the protectors. They found, in the first place, that a fair trial had not been given to them, but that in many instances their use had been rejected after they had been worn for such short periods as one and a half hours, one hour, or even half an hour. Amongst the complaints were that "a heated sensation over the eyes" was produced and several men complained of headache. One found that when he took off the covering "things danced before his eyes." More than one complained of aching of the eyes and one that after removal of the mask he noticed "a mist before his eyes." No defects of vision were found and it became evident, as a result of the inquiry, that the symptoms complained of were subjective. Careful investigation also proved that in the present conditions of the trade both glass bottles and syphons are liable to burst. New bottles are more liable to burst than those which have been previously used. As a result of a careful enumeration specially made at a large factory Mr. Snell was informed that out of a total quantity of 222.520 bottles filled 1608 had burst The amount per cent. of bottles which burst is, it is true, a small one, but the inquiry showed that it amounts to something like 1 per cent. The only means by which a workman can be protected from the risk of injury is by wearing a mask or shield, and the following summary gives the results of Mr. Snell's investigations:—1. There is an absence of evidence of injury to eyesight from the use of protectors, on the contrary, there are numerous instances of operatives making no complaint after using protectors for 20, 30, or even 40 years. 2. At the factory at which most complaints had arisen as to the protectors it was found that no real use had been made of them in the way that was daily the practice in other similar factories. 3. The occupation, in consequence of the frequency of bottles bursting, is one very prone to accident, the danger not being confined to the fillers All the workers and visitors to the place where bottles are being filled, labeled, or stacked are liable to injury. Bottles placed in boxes, stacked, or being moved on trolleys should be covered with cloth or sacking. 4. Eye "goggles" do not afford sufficient protection. The masks at present in use admit of improvement; the meshes should be fine so as to prevent fragments of glass passing through, and in view of the possibility of injury to the vessels of the neck they should be connected with a leather collar or be continued downwards to afford protection to the neck and its vessels They should be as light as possible and fit without undue pressure. A recently devised shield which, resting on the shoulders, leaves the face free behind it is being brought into use and appears to be in some ways an improvement on those generally in use.

Miss Anderson, the chief lady inspector, very justly gives fully the report of Miss Squire on the accidents and application of special rules in aerated water works. Her observations were exhaustively and cleverly carried out and she has brought to light some things which appear to have escaped the vigilance of other observers. The total number of reported accidents does not, she avers, correctly represent the number of accidents which occur, and this for more than one reason. In the first place, according to the regulations an accident, to be "reportable" must cause an injury which prevents the sufferer from carrying on his work for five hours on any one of the three working days following the accident. "A comprehensive view of the meaning of 'ordinary work' is," Miss Squire believes, "frequently taken in aerated water works, where it is commonly said that the worker must do as the foreman tells her. Such a case," she continues, "I brought before the magistrates who said that inasmuch as the injured person's occupation was altered by her accident it was reportable." Again, many painful accidents happen which are not sufficiently serious to prevent the victim from shortly resuming work and the hands of bottlers and wirers usually show cuts and scars in all directions. Miss Squire thinks that a perfectly satisfactory gauntlet has not yet been invented. The face-guards supplied to girls have often been entirely unsuitable; when those provided are light in weight and clean she has found little opposition to their use by the workers. Some of the guards supplied have been either "heavy fencing masks, men's size," or have had no proper means for fixing them on the head. In one case Miss Squire found all the girls wearing them on the tops of their heads. The manager showed the special rule notice as to wearing the protectors but pointed out that there were no directions as to *where* they were to be worn. The protectors were old and dirty, they could not be worn on the face without flattening the nose, and "no self-respecting woman would put her face into one"; moreover, even a self-respecting woman would be unable to see if she did put her face into one, such was the faultiness of their construction. Fortunately, in the case of this factory matters were subsequently improved and every girl was found on a future visit to be wearing a protector in a proper manner. It cannot be too strongly insisted on that glass bottles charged with carbonic acid at a high pressure are a constant source of danger to all those who are brought near to them.

THE GLASGOW INTERNATIONAL EXHIBITION.

(FROM OUR SPECIAL COMMISSIONER.)

AFTER the great International Exposition held at Paris last year the small exhibition at Glasgow this year affords at least this advantage—namely, that it is possible to see the whole of the exhibits at the latter place, while in the former such a task was beyond the strength of any human being. Indeed, the growth in size of international exhibitions—and in this matter Glasgow follows the general rule—is a serious obstacle to the holding of such exhibitions of the world's produce. In 1889 the total admissions to the Paris Universal Exhibition amounted to 30,350,297 and in 1900 to 50,859,955. At the Glasgow International Exhibition of 1888 the total admissions were 3,975,904; this year the admissions up to Sept. 20th have been 7,815,675 and they may reach 9,000,000 before the exhibition closes. Thus the proportionate increase is even greater in Glasgow than it was in Paris. From both the moral and the health point of view the gathering together of so many people in the Exhibition grounds is an important factor. In the evening the admission is only 6*d.* and a large number of the poorer classes are drawn from the public-houses to the Exhibition. Here there is less drinking, for they are enjoying the bands, the illuminations, and the fireworks. There are also a great number of bungalows with sheltered terraces where tea, excellent French pastry, and other light refreshments are provided at moderate cost. Great crowds thus sit out in the open air, and being exposed to public view they are more inclined to behave themselves. This is much better from the moral and the health point of view than the comparative privacy of a public-house bar, while intellectually the exhibits themselves are object-lessons. The great increase in the number of visitors as compared with the last exhibition held in Glasgow demonstrates that these advantages have been widely appreciated. In the softening of the manners of the rougher sections of the population, in the reduction of the amount of whisky drunk, and in providing more elevating and refining means of relaxation and enjoyment, the Exhibition has been an unalloyed benefit to many hundreds of thousands of poor people.

In regard to the educational influence of the Exhibition, however, it is to be regretted that its international character has not been well supported. It does seem as if the Exhibition has suffered from a tacit boycott. Russia and France alone make a respectable show, Japan comes next with some very beautiful art objects, and there is a very small Austrian section; but German art, science, and industry, which were so very prominent at Paris last year, are unrepresented. There are a few isolated individual exhibits from various nationalities, such as the ever-present Van Houten's cocoa from Holland, a few rugs and curios from Persia and Morocco, and a little furniture and art pottery from Denmark, but practically speaking, there are only two foreign sections worthy of the name, those of France and Russia. Neither of these contains anything of special interest from the medical or sanitary point of view. There are perhaps half a dozen chemical exhibitors in the French section, but perfumery, such as that of the celebrated firm of J. Simon, is more prominent than pharmaceutical products. La Compagnie Générale d'Eaux Minérales, 13, rue Taitbout, Paris, exhibits some of the best known mineral medical waters of France, but the surgical instruments for which French manufacturers have acquired a reputation were missing. On the other hand, there are a good many French wines, alcohols, and preserved fruits, vegetables, that are of interest from a health point of view.

What attracts visitors most in the Russian section is the large and original pavilion containing the exhibits of the Russian department of woods and forests. The development of the wood industry in Scotland would be of great benefit. Close to Glasgow the barren hills that slope down to the numerous lochs and tributaries of the Clyde might well be planted with trees. These, in the course of time, could be cut and slid down to the water below, tied together into rafts, and towed to the great neighbouring centres of industry. This would supply very healthy winter outdoor work and help to reconstitute physically a race that is being seriously deteriorated by town life and work in factories.

On entering the Exhibition by the main entrance the Russian and French sections are immediately to the right. Passing the Russian furs, bronzes, and furniture, we come to the sanitary section. The exhibits here are not numerous, but they are good as far as they go. The first reached are those of Messrs. Twyford, Limited, who, among many other things, show a new hospital bed-pan and urinal bottle-sink. There are flushing-pipes on which the bottle and pan are placed upside down, and by pressing on a pedal below the sink they are scoured out. A third pedal flushes out the entire sink. This obviates any soiling of the hands. In regard to baths most of the manufacturers seem to have been impressed with the danger of scalding the patients. Such an accident did occur recently. The idea is that the protests or complaints of a patient, especially if of unsound mind, may be attributed to his unwillingness to take the bath, while in reality they are due to the over-heated condition of the water. Hence there are various attempts to provide a bath where the heat of the water shall be automatically regulated and the risk of accident through the carelessness of attendants obviated. Messrs. Twyford's patent asylum bath fitting has no handles. A key is employed to turn on the tap, but the aperture for inserting the key to turn on the hot water is covered over, and this cover can only be removed by turning on the cold water. The hot water must therefore be mixed with cold as it enters the bath. The Stockport surgical lavatory shown by this firm differs from other lavatories, inasmuch as it stands independently and free from support four inches away from the wall. It can thus be washed and kept clean behind as well as in front. The detachable metal screw cone employed by this firm to join closet-pans to soilpipes is a very useful contrivance. Being of gun-metal it cannot wear out and may be used over and over again. It joins pipes together in a moment and it may be as rapidly undone. No cement is employed and the joint is perfectly air tight by reason of its accurately fitting cone shape and the pressure of the screw fastening Messrs Twyford have also a revolving pathological table made of one single block of enamelled hardware, the surface of which is fluted for draining purposes The table stands and revolves on a large central pedestal, and round the base there is a circular open drain over which the pipe from under the table discharges the water coming from the surface. This is well adapted to post-mortem examinations Nor should it be omitted to note that all the hardware of this firm is said to be made of leadless glaze and thus its manufacture does not endanger the health of the workers

Next to these exhibits are the very large stands of Messrs Doulton and Co, Limited, comprising art pottery as well as sanitary hardware Most of the exhibits shown here were described last year in the columns of THE LANCET when speaking of the Paris Exhibition, where Messrs. Doulton were appointed members of the jury and attained the highest possible distinction This firm also puts on the market bath fittings with valves that can be so arranged that the water cannot exceed a given temperature. These can be fixed to give any desired degree of heat, but the regulators are then entirely cased up so that they cannot be tampered with in any way Even when the water is turned on very rapidly no concussion is produced, the valves close gradually and therefore there is no risk of breaking the joints Of course there are also specimens of the closets, the sinks, the lavatories, the urinals &c, for which Messrs Doulton have a world-wide reputation.

On the other side of the passage are the exhibits of Messrs Shanks and Co, and they also have a bath where the water is turned on by a handle that moves round a dial from "shut" to "cold," then to "tepid" and to "hot." Here it stops and must be moved back to "shut." The valves can be regulated to suit the pressure and the desired heat is thus obtained. There are likewise some syphonic silent closets in which the surface of the water is larger than the aperture of the seat and therefore the sides of the pan cannot be splashed Messrs Shanks also show an elegant model bath-room where all the fittings are of glass and nickel Next to them, Messrs. Buick and Son of Alloa near Stirling, have a variety of sanitary ware, but they are of well-known models which present no new features. Finally, there are working models of the Exeter septic tank with the alternating gear by which the sewage from the septic tank is discharged first into one filter and then into another Here the system can be studied in its practical application, while on shelves there are bottles containing samples of the filtrate I was informed that some 450 schemes for the disposal of sewage on this system have been prepared, and 120 carried out.

Close by the sanitary section are the exhibits of the colonies of Rhodesia and Queensland and of women's industries The latter are of interest to those who consider the employment of women not only as a social but also as a sanitary problem In this latter respect it is pleasing to note how numerous and varied are the light and artistic forms of work for which the physique of women is well suited Some Indian exhibits, Ceylon teas, and the French section fill up the remaining space of this side of the main building On the left side of the main entrance nearly all the exhibitors are British or colonial Here the principal things from the health point of view relate to food supply, such as Quaker oats, biscuits of all sorts, infant foods, and invalid foods Of course, Messrs Brand and Co are prominent in this section, distributing meat lozenges to hungry visitors; while the samples of protene and of plasmon with a little Mellin's food and a cup of bovril, which can be obtained for the asking would suffice as a substitute for lunch to any curious and bold investigator bent on testing the merits of these well known commodities The wines include Glendenning's port wine mixed with beef extract and malt The well known vintages from Australia hold a prominent place There are notably the Vifera brand and the Orion brand which have been analysed in THE LANCET Laboratory with good results The more these wines are exhibited and known the better, for they are wholesome and preferable to alcoholic liquors which are often not so pure or safe

From the main building a long gallery leads to the machinery hall This gallery contains the shipbuilding exhibit which constitutes one of the most remarkable and successful features of the Glasgow Exhibition, though it is out of the province of these criticisms By the side of these temporary structures a permanent red stone palatial building will remain as the Glasgow Palace of Arts There are here some fine sculptures and an extensive collection of English paintings It is unfortunate that there should be so few foreign paintings in these fine art galleries Close by the art section in the grounds, there are some field ambulances and a tortoise-shell tent capable of holding 10 beds, fully equipped. Here are folding water proof cloth hand basins and buckets and folding chairs tables, &c., all very light and transportable The stretchers are provided with rollers so that they can serve as beds in an emergency and can be pushed along while the patient is lying upon them The portable stove has a flue that divides and can therefore be readily packed Next to this there is an officers' tent and finally Messrs Humphreys's tin and wood base hospital The tables are of enamelled iron with glass slabs There are louvre windows on either side of the ward and also in the pointed roof

Crossing the river Kelvin, which winds through the Exhibition grounds, a square building is reached devoted to heating and lighting The first thing which is seen on entering is a long array of open fire grates, mostly on the Teale principle and by the door there is an historical arm chair These are exhibits of the Carron Co., who in 1801 built the *Charlotte Dundas*, the first steamship ever floated It was employed as a tug on the river Clyde, the armchair is made from the wood of this vessel This firm now own the Carron line of steamers, but their principal business relates to heating and lighting They have kept well up to the times both for coal grates and gas stoves. They have even a drawing room grate which revolves; on one side a coal fire can be lit and if the other side is brought forward then a gas fire can be ignited Their gas cooking stoves, large and small, are so contrived that all the fittings therein can be easily taken out and thoroughly cleaned One of their open grates is composed of tubes carrying air under the fire, then up behind, and out by the mantelpiece thus stimulating the circulation of the air in the room and warming it at the same time

The Richmond Gas Stove and Meter Co have also a very large display The burners of their gas stoves are readily lifted off, so that they can be dipped into hot water and cleaned Messrs Fletcher, Russell, and Co exhibit the Waverley inlet ventilator The air is not admitted in a direct line but is thrown upwards and deflected downwards on a copper gauze. By such means a direct draught is obviated They have also Bunsen burner irons, which are clean and economical and avoid the using of unwholesome coke stoves in workrooms. For baths they can heat two gallons of water to 50° F in one minute The cost in gas for heating a large bath would rarely exceed one penny Messrs R and A. Main and Co have Bunsen burner stands on which irons can be placed and heated in three minutes sufficiently for ironing during 10 minutes, these would consume one pennyworth of gas in eight hours Here, again is another method of improving the sanitation of the workshop. Messrs Smith and Wellstood, Limited, show the improved and convertible open and close fire range which they are supplying to the Glasgow Improvement Trust which manages the cheap tenements built by the corporation for the poor of that town. They are 36 inches in length and cost £3 16s, but they are not provided with boilers Such are the principal exhibits of interest to the sanitary reformer They are not numerous, but they present some interesting features

Apart from sanitation the Exhibition itself is well worth a visit. A visitor need not fear, as was the case in Paris last year that he will have to leave before seeing half of the exhibits he would have liked to examine The Exhibition is small enough for a visitor to see all that is likely to be of interest to him in the course of a few days particularly as there is an almost complete absence of side shows to lead him astray from his main purpose The great increase in the number of visitors as compared with the last Exhibition held in Glasgow shows how much the present show has been appreciated and the citizens are to be congratulated on their success

ASYLUM REPORTS

Warwick County Asylum (Annual Report for 1900).—The average number of patients resident during the year was 948 and comprised 384 males and 554 females The admissions during the year amounted to 224 of which 103 were males and 121 were females Of these 190—viz 82 males and 108 female—were first admissions Dr Alfred

Miller, the medical superintendent, states in his report that among the admissions were the following incurable cases—viz., 13 idiots, 17 epileptics, 11 general paralytics, and 28 cases of chronic insanity. "It will be seen from the above figures that one-third of the number of cases admitted had no chance whatever of recovery and naturally among the remainder a large number will turn out incurables." Dr. Miller adds that "idiots and epileptics should certainly never be received into county asylums to associate with curable cases. What can be more detrimental to recovery from mental disease in pregnancy than the constant and trying association with patients such as the above?" The number of patients discharged as recovered during the year amounted to 72—viz., 37 males and 35 females, or 7·5 per cent. of the average number resident. The deaths during the year amounted to the same number—viz., 72, composed also of 37 males and 35 females, or 7·5 per cent as calculated on the same basis. Of the deaths three were due to senile decay, eight to pneumonia, nine to cerebral hæmorrhage, nine to phthisis and other forms of tuberculosis, 12 to general paralysis, 16 to epilepsy, and the rest to other causes. A plan for two isolation blocks for male and female phthisical patients having been sanctioned by the Commissioners in Lunacy the buildings are in process of erection. The asylum has acquired recently an adjoining farm on a long lease and has been able to improve the dietary of the patients as regards vegetables and eggs. At the time of the report in the preceding year 11 male attendants of the asylum staff were out at the front in South Africa; since then seven have returned and good accounts have recently been received of the rest. "Entering on the twentieth year of my service in the asylum," says Dr. Miller, "I am naturally able to look back on many changes. Great sanitary improvements have been effected and important additions have been made to cope with the increasing number of cases coming under our care. But the most important question I feel bound to ask is: What advancement has been made in our curative methods and what have been their effect on the recovery-rate?" Thirty years ago, when asylum buildings were certainly not what they are at present and the amount of personal comfort supplied was far less, the average recovery-rate, as shown in the reports of the Commissioners in Lunacy, was 11 per cent. of the average number of patients resident. To-day it is barely as much, being but 9¼ per cent. "New drugs have certainly been tried by the score; ...... baths, massage, and electricity have all been successfully used in their turn, and yet our results are no better than at the commencement of the period. ...... Personally, I am led to think," concludes Dr. Miller, "that there will be no material increase in the number of recoveries until there is a more general provision for treating special forms of mental disease in separate buildings. Epileptics, idiots, imbeciles, senile and other incurable cases should be kept apart from the recent and curable cases. The latter class should certainly have buildings set apart for their reception and managed rather on the lines of a hospital where treatment could be carried out under the most favourable surroundings and where patients ...... would not be living in association with those incurables to whom I have alluded." The Asylums Committee state that the weekly charge for maintenance has been raised from 8*s.* 9*d.* per head to 9*s.* 0½*d.* since June 30th, 1900. The Commissioners in Lunacy state in their report that the wards were bright and cheerful, the dormitories were clean and in good order, and the medical case-books were perfectly kept.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 33 of the largest English towns 6261 births and 3704 deaths were registered during the week ending Sept. 21st. The annual rate of mortality in these towns, which had been 21·0, 19·4, and 18·3 per 1000 in the three preceding weeks, further declined last week to 16·8 per 1000. In London the death-rate was 15·6 per 1000, while it averaged 17·7 in the 32 large provincial towns. The lowest death-rates in these towns were 11·2 in Bristol, 11·6 in Swansea, 11·8 in Derby, and 12·2 in Birkenhead; the highest rates were 20·7 in Bolton, 22·7 in Gateshead, 25·2 in Burnley, and 25·6 in Sunderland. The 3704 deaths in these towns last week included 733 which were referred to the principal zymotic diseases, against 1506, 1256, and 971 in the three preceding weeks; of these 733 deaths, 491 resulted from diarrhœal diseases, 70 from "fever" (principally enteric), 49 from diphtheria, 41 from whooping-cough, 40 from measles, 39 from scarlet fever, and three from small-pox. The lowest death-rates from these diseases last week were recorded in Bristol, Cardiff, Swansea, and Leicester; and the highest rates in West Ham, Salford, Burnley, Sunderland, and Gateshead. The greatest proportional mortality from scarlet fever occurred in Derby; from whooping-cough in Swansea; from "fever" in Plymouth, Nottingham, Salford, Huddersfield, Hull, and Sunderland; and from diarrhœal diseases in Burnley, Sheffield, Hull, Sunderland, Gateshead, and Newcastle. The mortality from measles showed no marked excess in any of the large towns. The 49 deaths from diphtheria included 27 in London, three in West Ham, two in Halifax, two in Sheffield, and two in Hull. Three fatal cases of small-pox were registered in London, but not one in any other of the 33 large towns. There were 153 cases of small-pox under treatment in the Metropolitan Asylums hospitals on Saturday, Sept. 21st, against 74, 92, and 137 on the three preceding Saturdays; 37 new cases were admitted during the week, against 52, 31, and 62 in the three preceding weeks. The number of scarlet fever patients in these hospitals and in the London Fever Hospital, which had been 3008, 2994, and 3064 at the end of the three preceding weeks, had further risen to 3098 on Saturday last; 427 new cases were admitted during the week, against 303, 346, and 457 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 124 and 116 in the two preceding weeks, rose again last week to 124, but were 48 below the corrected average. The causes of 45, or 1·2 per cent., of the deaths in the 33 towns last week were not certified, either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Bristol, Nottingham, Leeds, and in 12 other smaller towns; the largest proportions of uncertified deaths were registered in Birmingham, Liverpool, Preston, Sheffield, and Gateshead.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 17·8 and 17·5 per 1000 in the two preceding weeks, further declined to 16·2 per 1000 during the week ending Sept. 21st, and was 0·6 below the mean-rate during the same period in the 33 large English towns. The rates in the eight Scotch towns ranged from 7·9 in Perth and 11·3 in Dundee to 20·9 in Aberdeen and 21·3 in Greenock. The 517 deaths in these towns included 53 which were referred to diarrhœa, 13 to whooping-cough, six to "fever," five to measles, four to diphtheria, and two to scarlet fever. In all, 83 deaths resulted from these principal zymotic diseases last week, against numbers decreasing from 174 to 74 in the seven preceding weeks. These 83 deaths were equal to an annual rate of 2·6 per 1000, which was 0·7 below the mean death-rate last week from the same diseases in the 33 large English towns. The fatal cases of diarrhœa, which had declined from 129 to 38 in the six preceding weeks, rose again last week to 53, of which 24 occurred in Glasgow, 10 in Edinburgh, six in Dundee, five in Aberdeen, four in Leith, and three in Paisley. The deaths from whooping-cough, which had been 13 and 10 in the two preceding weeks, rose again to 13 last week, and included seven in Glasgow, three in Edinburgh, and two in Leith. The fatal cases of "fever," which had been six and 12 in the two preceding weeks, declined again last week to six, of which five were registered in Glasgow. The deaths from measles, which had been eight in each of the two preceding weeks, decreased to five last week, and included two in Glasgow and two in Edinburgh The four fatal cases of diphtheria, two of which were registered in Glasgow, showed a slight increase upon the numbers recorded in recent weeks. The deaths referred to diseases of the respiratory organs in these towns, which had been 60 and 79 in the two preceding weeks, further rose last week to 81, but were 20 below the number in the corresponding period of last year. The causes of 24, or nearly 5 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 23·5, 20·6, and 22·2 per 1000 in the three preceding weeks, further rose to 23·4 per 1000 during the week ending Sept. 21st. During the past four weeks the death-rate has averaged 22·4 per 1000, the rate during the same period being 16·8 both in London and in Edinburgh. The 168 deaths of persons belonging to Dublin registered during the week under notice were 8 in excess of the number in the preceding week, and included 30 which were referred to the principal zymotic diseases, against 35, 35, and 25 in the three preceding weeks; of these, 20 resulted from diarrhœa, four from whooping-cough, three from "fever," two from diphtheria, and one from scarlet fever. These 30 deaths were equal to an annual rate of 4·2 per 1000, the zymotic death-rates during the same period being 2·6 per 1000 in London and also in Edinburgh. The fatal cases of diarrhœa, which had been 28, 29, and 22 in the three preceding weeks, further declined last week to 20. The deaths from whooping-cough, which had been one, two, and one in the three preceding weeks, increased to four last week. The mortality from "fever" exceeded that recorded in any recent week. The 168 deaths in Dublin last week included 47 of children under one year of age and 32 of persons aged upwards of 60 years; the deaths both of infants and of elderly persons showed a slight excess over the respective numbers in the preceding week. One death from violence and five inquest cases were registered during the week; and 59, or more than a third, of the deaths occurred in public institutions. The causes of six, or nearly 4 per cent., of the deaths in Dublin last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are announced:—Fleet Surgeon H. S. R. Sparrow to Pembroke Dockyard. Staff Surgeons: W. G. K. Barnes to the *Formidable* and J. Donnell to the *Empress of India* and to the *Cæsar* on recommissioning. Surgeons: A. F. Fraser to the *Formidable*; W. R Center to the *Ramillies*; and R. Kirby to the Chatham Hospital. Civil Practitioner J. Owen to be Surgeon and Agent at Goodwick.

ROYAL ARMY MEDICAL CORPS.

Captain H. L. G. Chevers, retired list, is selected for service with the troops in South Africa. Lieutenant H. W Long has arrived in the Eastern District for duty. Lieutenant W. C. Stevenson and Lieutenant M. C. Beatty are posted to the 3rd Station and Cambridge Hospital at Aldershot. Lieutenant McAllum is attached to the Cambridge Hospital at Aldershot for duty. Lieutenant R. V. Cowey is under orders for India. Captain I. A. O. MacCarthy is transferred from the Poona District to the Aden District, and Lieutenant G. E. Leary from the Mhow District to the Aden District. Colonel M. O'Connell, Principal Medical Officer, Peshawur District, is transferred to the home establishment. Major L. Heywood takes over medical charge of troops, Station Hospital, &c., Portland. Captain H. D. Mason assumes medical charge of the Royal Artillery, Mounted Infantry, Royal Engineers, District Staff, and details, Marlborough Lines, Aldershot. Captain J. H. Power is appointed for duty with the Royal Horse Guards at Windsor.

N.B.—The date of the grant of the local rank of Colonel to Lieutenant-Colonel W. A. May whilst Principal Medical Officer of a division in South Africa is Jan. 19th, 1900, and not as stated in the *London Gazette* of Nov. 2nd, 1900.

The undermentioned officer of Lord Strathcona's Corps is, on the disbandment of the corps, granted honorary rank in the Army with permission to wear the uniform of the corps. Dated March 16th, 1901.

Temporary Captain C. B. Keenan, D.S.O., Medical Officer, to be Hon. Captain.

VOLUNTEER CORPS.

Artillery: 8th Lancashire: Surgeon-Lieutenant J. D. Wright resigns his commission.

Royal Engineers (Volunteers): 1st Middlesex: Surgeon-Lieutenant H. M. Macnaughton-Jones resigns his commission.

ARMY MEDICAL SCHOOL, NETLEY.

The eighty-third session of the Army Medical School will commence on Wednesday, October 2nd. The session will be attended by 25 surgeons-on-probation for the Indian Medical Service and two for the Royal Army Medical Corps. The following is a list of those entering the school:—

INDIAN MEDICAL SERVICE.

A. E. J. Lister.
T. F. B. Williams.
S. H. L. Abbott.
A. W. Greig.
R. E. Lloyd.
J. Woods.
H. B. Steen.
D. Munro.
E. Bisset.
J. E. Clements.
A. W. Overbeck Wright.
R. J. Bradley
E. A. Loch.
R. M. Carter.
R. L. Hagger.
D. G. R. S. Baker.
T. W. Harley.
J. W. McCoy.
R. A. Willcocks.
T. G. F. Paterson
D. G. Ral.
R. M. Barrow.
W. R. J. Scroggie.
J. R. J. Tyrrell.
L. P. Farrell

ROYAL ARMY MEDICAL CORPS.

B. A. Craig.
C. T. R. White.

SOUTH AFRICAN AFFAIRS.

There have been several untoward events recently in South Africa arising out of a recrudescence of highly enterprising activity on the part of the Boers. Whatever importance these may have from a military point of view, they possess little or no medical interest beyond the fact that besides entailing a lamentable loss of life they lead to an increased number of surgical cases in our hospitals and to the belief that every temporary success on the part of the Boers can only have the effect of prolonging the sufferings caused by the war. In the reverse at Blood River the losses sustained by Major Gough's force amounted to three officers and 17 men killed, three officers and 28 men wounded, and five officers and 272 men captured, a total of 328. In the case of the 17th Lancers the fighting was more severe and the losses among the troopers in killed and wounded, relatively to the number engaged, were much heavier.

According to the last weekly report received from Lord Kitchener the wearing-down process steadily goes on, the notable feature being the number of Boers captured and the losses on the part of the Boers in the way of ammunition, vehicles, horses, and cattle, as compared with the number of Boers returned as killed and wounded or surrendered There are no sick returns of their forces available, and we have not, nor have we ever had throughout the campaign, any means of knowing what their losses from disease have been There is still, considering the season, much enteric fever among the British forces, however, as may be seen from the published sick returns.

DEATHS IN THE SERVICES.

Lieutenant-Colonel James Moran, I.M.S., on Sept. 20th, in London. He entered the service in 1875 and served in Afghanistan in 1878–79 (medal). He was appointed Lieutenant-Colonel in February, 1900

Surgeon-General William Alister Catherwood recently. He was Principal Medical Officer of the Naini Tal District.

Correspondence.

"Audi alteram partem."

"WAS LUIGI CORNARO RIGHT?"

To the Editors of THE LANCET.

SIRS,—I should be gratified to think that Dr. Cameron Kidd is right in assuming that medical men are fully alive to the necessity of thoroughly exercising the infant's jaws and teeth by mastication. Be this as it may, it is certain that the young human does not adequately exercise his jaws; did he do so we should not see so many cases of defective development. Dr Kidd holds, and claims that medical men in general hold, that in order to secure adequate exercise of the teeth we should rely on "artificial exercise of the jaws" rather than on the mastication of food. This view is, I [illegible] I do not for one moment conte[illegible] cords, and the like, may not h[illegible] not a rodent; his teeth are essentially for the purpose of biting food, and not for gnawing hard non-nutrient substances, like a mouse or a rat. Dr. Kidd argues that the child only spends about an hour over his meals every day, and that this time is inadequate for the proper development of the jaws. Well, an hour's good exercise of the jaws every day would, I believe, go a long way towards securing their normal development; unfortunately, however, the child's food is generally so pappy that little mastication is required; if it contained more hard and dry ingredients, not only would he have to masticate more vigorously, but he would be obliged to spend a longer time over his meals. There is a further advantage of allowing the child to expend his abundant masticatory energy in chewing food rather than rings and corals which Dr. Kidd appears to overlook. I refer to the fact that the chewing of food prepares it for the stomach. One of the objections I have urged against feeding children too exclusively on paps is that food of this kind is swallowed without being properly insalivated, and, seeing how powerful is the diastasic action of human saliva, this is surely undesirable. Providing food is such that it compels abundant mastication it is astonishing how digestible it generally is, but if we feed our children almost wholly on soft food how can we secure this preliminary preparation by the mouth?

Dr. Kidd points out that one of the dangers of giving small children solid food is that they may choke, but this danger can be reduced to a minimum by taking simple precautions, and it is better to run this remote risk than to subject the child to the certain evils resulting from the employment of too pappy foods. Finally, Dr. Kidd argues (in favour of relying chiefly on artificial means for exercising the child's jaws) that even if he is fed on the food of adults such food does not, on account of its softness, afford proper exercise for them. This is perfectly true and, being true, how grave an indictment against our present system of feeding! The child needs, in fact, food requiring more abundant mastication than that consumed by most adults, and there is no difficulty in obtaining suitable foods of the kind.

To Mr. Sellors "it is not apparent that defective growth of the jaw is due to lack of mandibular exercise." If he will not grant me this I fear I cannot convince him, any more than he can convince me by his mere *ex cathedrâ* utterances—e.g., "Dr. Campbell mistakes the significance of the phenomena attending the commencement of dentition. ...... I regard (*sic*) the flow of saliva. ......" Anxious as I am for light, eager as I am to get at the truth, I cannot accept the mere *ipse dixit* even of Mr. Sellors.

I am gratified to find so competent an authority on dietetics as Dr. Willoughby Gardner joining the crusade against pap-feeding and supporting the view that the present system may have much to do with the production of adenoids. I agree with all he says. The suggestion that the constant use of the rubber teat may be a cause of this affection is worthy of consideration. Dr. Gardner brings out two important points on which we shall do well to dwell: 1. That adenoid disease is more common among us than it was among our ancestors. This is no mere surmise; it can be proved in a very simple way. A large proportion of those afflicted with this disease show defective development of the upper jaw; if, therefore, in a given community such defective development is rare we may be sure that adenoid disease also is rare in it. Now, if we examine the skulls of our ancestors of even a few generations back, we find a low percentage of such defects, just as we do in the skulls of primitive communities—e.g., those in the museum of the Royal College of Surgeons of England. 2. That the disease is met with under the most favourable sanitary conditions in respect of fresh air, warm clothing, abundant food, muscular exercise, "in the houses of the rich and even of medical men," and that it continues to abound in spite of improved sanitation.

I would ask your readers to keep these two cardinal facts clearly before them. What *factor*, we have to ask, is in operation now which was not in operation—or, if so, in a minor degree only—among our ancestors? In seeking an answer to this question one naturally turns to the food, and I myself have little doubt that it is to be found in this direction. Do we adequately realise how greatly our food has changed during the past few generations? While it is more abundant and nutritious than it used to be it is at the same time much softer and more pappy. In my first letter I complained that the food of the young human is too much limited to pap, and that in consequence of this the jaws and their accessory cavities do not properly develop. Defective development of the nasal cavities, the naso-pharynx, and the pharynx must surely predispose them to disease. Consider, further, the influence of mastication on the flow of blood and lymph in the tissues of the mouth and accessory cavities. No lymph flows from the cut lymphatic trunk of a limb when at rest; it is only during rhythmic muscle contractions that the lymph circulates. Hence it follows that vigorous mastication implies a vigorous flow of the lymph in the tissues of the mouth and its accessory cavities, and defective mastication a defective flow. Now, Sirs, I would ask your readers which is the more liable to get adenoids—a child with well-developed buccal, nasal, and pharyngeal cavities, the tissues of which are periodically flushed by a vigorous flow of blood and lymph, or one in whom these cavities are ill-developed and the flow of blood and lymph thereof not stimulated in the normal fashion? Am I chimerical in suggesting that the former is? Am I rushing to extremes in urging our profession resolutely to put its foot down on the uncommon-sense practice of feeding children almost exclusively on squash?

I do not, of course, contend that this is the only factor in the causation of adenoids. The fact that the disease may occur in young infants and even (so it is said) at birth proves otherwise; the causation of even the simplest thing is complex, and no result is produced by a single cause. Mr. Sellors asserts that adenoids are "frequently met with in the first few months of life." Such is not my experience. I am desirous in this connexion of knowing, and I shall be grateful if any of your readers can help me to ascertain, whether the disease is more common in bottle-fed children than in those who are brought up at the breast. I should expect it to be, inasmuch as the former exercise the oral apparatus far less in obtaining their milk than do breast-fed children. I am, Sirs, yours faithfully,

Wimpole-street, W., Sept. 22nd, 1901. HARRY CAMPBELL.

"WORKHOUSE NURSING."

To the Editors of THE LANCET.

SIRS,—In THE LANCET of Sept. 21st, p. 813, Dr. F. S. Toogood writes: "My opinion is that with adequate salaries and proper government there would be no lack of good nurses even in our smaller infirmaries." No doubt Dr. Toogood speaks from his own experience, but his opinion is not in agreement with that of some of those whose special work is the inspection of Poor-law infirmaries. One of the general inspectors of the Local Government Board thus reports: "The nursing staffs, at any rate in the larger workhouses, are being slowly strengthened, but the same difficulty still exists in getting nurses who have had thorough training, and I do not think that in this part of England (Durham, Northumberland, North Riding of Yorkshire, and parts of Cumberland) the blame can be wholly laid on the salaries offered or the quarters provided" (Twenty-ninth Annual Report, 1899-1900, Local Government Board, p. 149). Another inspector reports: "The chief obstacles in the way of better nursing continue to be inadequate accommodation for nurses and the rather limited supply of experienced nurses" (idem, p. 126). Another inspector remarks: "The difficulty in obtaining and retaining the services of nurses for workhouses continues to increase" (idem, p. 93). The reports teem with similar observations.

Then, again, there is the question of "proper government." Presumably your correspondent means the interference of masters and matrons with the nursing arrangements. But so long as the sick wards are contained within the workhouse walls so long must these officials have some responsibilities towards nurses, patients, and nursing. The nurses will necessarily be under the master as regards general discipline, and the patients likewise; the nursing will be subject to the matron in respect to the supply of necessaries; and the wards will come under the care of the master as regards repairs and such like. There must, therefore, be relations between workhouse nurses and the higher workhouse officials. The past as well as the present show the practical impossibility of these two sections of the staff working together in harmony. Thus, one of the general inspectors reports: "I regret to have to report friction between masters and matrons on the one part and nurses of the infirmaries on the other. ...... I do look forward to the day when, in workhouses of any size, the infirmaries will be detached." The mere fact that the wards are actually within the workhouses exercises a very bad influence upon the recruiting of nurses and probationers. The subordination of the nurses to their social inferiors is fatal. Yet these things cannot fail to be present in the smaller infirmaries.

Dr. Toogood questions the necessity of having highly-trained nurses in country workhouses. Here he is in conflict with the opinion of Dr A H Downes Medical Inspector of the Local Government Board, who in a memorandum dated April, 1892, makes the following observation ' Humanity and economy alike dictate that the sick poor in workhouse sick wards should receive nursing treatment not less efficient than that which is now afforded in general hospitals and in well administered cottage hospitals.' Later in the same memorandum he remarks " It should always be remembered that although the sick are mostly chronic a large number are of such a kind as to require constant care and attention" It is impossible, therefore to accept Dr Toogood's method of solving the nursing difficulty in country workhouses by supplying the infirmaries with untrained nurses The guardians' efforts to secure trained nurses for their sick wards, *too*, indicate *their* opinion as to the necessity for trained nurses Then as to the difficulty of getting or training nurses A large number of boards of guardians passed important resolutions on this subject in 1900 *With one exception all the general inspectors refer forcibly* to it in their last reports How are trained nurses to be obtained in sufficient quantity from outside? The Poor law service compares unfavourably in attractions with the general hospitals, the nursing *institutions* the district nursing associations and such like It requires a certain amount of special training before outside nurses can be put into responsible positions in workhouses The nurses who have come from general hospitals find their ideals in the way rather than otherwise, and the life is extremely monotonous Except in the higher posts they do not care sufficiently for the service to remain any longer in it than they can help I do not think that it will ever be sufficiently attractive to nurses trained outside to induce many of them to fill the lesser posts Under the present conditions they are strongly repelled from workhouse service

To turn from the nurses to the sick the country workhouses are mostly out of date "It is undoubtedly the case that since workhouses were established under the Poor law Amendment Act 1834 the circumstances connected with the administration of relief and the character of those for whom accommodation in workhouses has to be provided have so materially changed that arrangements originally adequate and in accordance with the spirit of the times have ceased to be so" (Circular letter of the Local Government Board to boards of guardians, Jan 29th 1895) One of the general inspectors in his last report refers to the workhouses in the west of England as being "at least half a century old He says ' There are a good many workhouses in the west where improved accommodation for the sick is much needed and where, I believe, that even if existing rooms were vacated their conversion into sick wards would at best be only a makeshift arrangement and nothing but the erection of a new infirmary on modern lines would give really satisfactory results' (p 111) It is the same all over the country, and *boards of guardians are spending* very large sums annually in trying to improve these ancient structures or in building small infirmaries attached to them, the latter are in nearly every such case too small to train probationers *properly and must be dependent upon* nurses trained elsewhere Dr Toogood says that it is impossible to train probationers in country infirmaries because of the want of suitable training material But lower down *he contradicts this, for he says "The larger infirmaries* can and do train their nurses as thoroughly and as fully as any of the hospitals My scheme is so to combine the patients of the small infirmaries as to form institutions large *enough to be capable of training* probationers Your correspondent says that my scheme would mean the expenditure of millions The *fact* is, however, as I have already shown that boards of guardians are wasting immense sums of money annually *on "improvements'* of the existing buildings or in badly considered new buildings About £100,000 were expended on improving existing workhouse infirmary buildings in 1899 90 Other large sums were spent in *improving some of the separate infirmaries It is time* that parochial politics gave place to the general interests of the Poor law service and that these sums should be spent on institutions calculated to benefit the whole service and in furtherance of *some general scheme of organisation*

There is one more difficulty which Dr Toogood seems to consider as final in the matter of the scheme I have drafted This is the distance which patients would have to be carried to the central *institutions* *But the extreme distance of any* of the unions from the central institution to which they are affiliated would only be 15 miles by road or 30 by train Surely Dr Toogood would not think this too far' The removal of a patient would of course, be subject to the certificate of the medical officer of the district workhouse (My scheme provides for the nursing of acute cases at their own unions) Country people think nothing of such distances and patients in a critical condition often travel up to general hospitals from far longer distances

Finally, I would say that one leading feature in my scheme is the establishment of one standard for the nursing of every case which enters the sick wards of a workhouse small or large in town or in country The pioneer work of the Workhouse Infirmary Nursing Association was directed to this end, and it only ceased to train nurses when while feeling that the system should be self supporting it decided that the supply of nurses had become too large a question to be dealt with by a voluntary association So far from "making spies and rebels of' its nurses it was almost invariably the rule that when it *support and encouragement were withdrawn (for any reason)* from its nurses that they found it impossible to stay any longer in the workhouse infirmary The desire which is constantly expressed that the Association would restart its *work of training nurses at once disproves any such uncalled* for charge as that which Dr Toogood makes and which he should withdraw —I am Sirs yours faithfully

Fellows road N W Sept 22nd 1901 J R HUMPHREYS

NORTH INDIA SCHOOL OF MEDICINE FOR CHRISTIAN WOMEN

To the Editors of THE LANCET

SIRS —Seven years ago inquiries were made by the women medical missionaries of the Punjab as to the possibility of obtaining the assistance of native Christian girls of good family as fully qualified house surgeons anæsthetists and nurses The result of these inquiries showed that if a school was provided which gave full and thorough medical training for women only it would meet with every possible encouragement, therefore in the following year, the above hospital and school were opened in Ludhiana

This hospital is unique in that it is the only medical school for women in India where the students are taught by women where they can study apart from the Hindu and Mahomedan male students and where they can receive their clinical teaching in a hospital for women and children That it has proved a success is evident from the following facts —(1 [illegible] Government as a medical school, (2 [illegible] sent students for training [illegible] five compounders eight nurses and six midwives have already successfully completed their course of study at the school and are now engaged in medical mission work in connexion with seven different societies (4) that 16 medical students, 16 nurses and two compounders are still in training, and (5) that many applications are received for trained workers and the reports received about most of the trained students are very encouraging both as to the success of their medical work and the interest which they show in the spiritual welfare of their patients Besides alleviating bodily suffering it may reasonably be hoped that the influence of the Christian medical students will aid the progress of Christianity in India

As the medical school is not yet affiliated to any university the students are at present only eligible for the Government examination for hospital assistants and not for any university [illegible] degree [illegible] would [illegible] ing their [illegible] and who would be allowed by their parents to go to it they could study at a women's college The University of Lahore is willing to affiliate the school as soon as three more members are added to the teaching staff and when good laboratories for anatomy chemistry, physiology, and bacteriology &c. have been provided The 100 hospital beds required to ensure sufficient clinical teaching are already established In order to build and furnish these laboratories and an operating theatre and to supply the outfit and the passages of the extra members of the staff, a sum of £5000 is needed If this money can be raised and the improvements carried out the students will then be eligible for any university degree and will become on passing the necessary examinations, members of the recognised Indian medical profession. To attain this object the committee (consisting of the Lady Kinnaird, the Lady Macnaghten, Miss Maynard, Mrs. Percy Flemming, M.D. Lond., Miss E. Brown, M.D. Brux., the Bishop of Calcutta, Sir Charles Bernard, Dr. W. J. Smyly, Dr. E. Sargood Fry, and Mr. A. Pearce Gould) make an urgent appeal for funds. Subscriptions will be gratefully received by the Lady Macnaghten, 198, Queen's-gate, London, S.W., and Miss E. Brown, M.D. Brux., 120, St. James's-road, West Croydon, Surrey, or may be sent to the "North India School of Medicine Fund," Union Bank (Tottenham Court-road Branch).

We are, Sirs, yours faithfully,
F. A MACNAGHTEN, } Honorary
E. BROWN, } Secretaries.

"THE CHEAP PISTOL."

To the Editors of THE LANCET.

SIRS,—Your sound common-sense annotation upon the indiscriminate manner in which cheap firearms are sold everywhere and the announced determination of the American Government to deal with the class of people from whom these assassins emerge urge me humbly to suggest that our Government should join with the Americans (and I hope all the European and peace-loving Governments) in passing a universal law that every person of every nation should not be allowed to carry any description of arm or weapon that could be used to endanger the life of any other person or animal without a permit or licence; and, further, that no person or persons should be allowed to supply or furnish to anyone else such arms or weapons unless the intended buyer was duly licensed or officially authorised. In addition, manufacturers and salespeople should be licensed to follow their avocation, all licences to be renewed annually and every change of address duly given to the proper authorities directly the change is made.

I am, Sirs, yours faithfully,
Ebury-street, S.W., Sept. 23rd, 1901. D. T. BOSTEL, sen.

"STOCKS AND CROSSMAN *v.* WATSON."

To the Editors of THE LANCET.

SIRS,—THE LANCET of July 13th, containing your leading article on the above case, has just reached me. I think that from a medico-legal point of view, as well as from a purely surgical one, it is of great interest. Mr. H. H. Clutton and Mr. Victor Horsley were of opinion "that the injury to the shoulder might have predisposed it to dislocation and that an injury subsequent to the bicycle accident ...... might have produced it." Is it not possible that this is more common than is generally supposed? When the ligaments of a joint are badly torn it should not be a very difficult matter to produce luxation subsequently, especially in the shoulder-joint, with the shallow glenoid cavity and the large head of the humerus. It has happened to me to have had under my care two cases which illustrate what I mean, though they were not in the shoulder-joint.

1. About 20 years ago I was called to see a woman, aged 30 years or thereabouts, who had fallen and injured her wrist. There was certainly no dislocation—one could scarcely be mistaken in such a case—but the joint appeared to have been severely strained. I applied a light splint and ordered a cooling lotion. A day or two afterwards I called and found that the patient had removed the splint and had been sweeping. I declined to continue in charge of the case, as my instructions were disregarded, but meeting her some time afterwards I found that there was a partial dislocation; it was easily replaced, but readily slipped out again. I wish I could remember the details more accurately, but I have no notes of it, and 20 years is a long time.

2. In November, 1899, the Sikh sergeant in command of the detachment of military police stationed at our mines was knocked down by a tramcar loaded with firewood. He had his little son, aged about two years, in his arms at the time, and in endeavouring to save him from injury, in which he was fortunately successful, paid less regard to himself. The only injury of consequence was to the knee-joint. I saw him within half an hour of the accident and there was certainly then (or while he was under my care) no dislocation. Severe inflammation followed, with a good deal of pain. He got very frightened about himself (he is a very nervous man) and ordered a boat to take him to the station at the mouth of the river, the district headquarters. He walked to the boat, a distance of about 100 yards, though I had ordered him to be carried. When at Kuantan his nervousness only increased, and a steamer being at the dock bound for Singapore he went (ran, I was told) to it and tried to get on board. He had to be brought back by force. About two months ago I examined him with the Residency surgeon of the State. There was an undoubted lateral displacement of the bones of the leg. The articular surface of the external condyle of the femur could be distinctly felt and there was a marked curvature of the whole limb.

I do not suppose my experience is at all peculiar; doubtless many others could supply histories of similar cases.

I am, Sirs, yours faithfully,
J. W. ROLPH,
Medical officer, Pahang Corporation, Limited.
The Mines, Sungei Lembing, Kuantan, Pahang, Malay Peninsula, August 20th, 1901.

"A PECULIAR METHOD OF SUICIDE."

To the Editors of THE LANCET.

SIRS,—In THE LANCET of Sept. 14th, p. 744, a description is given by Mr. C. A. J. Wright of Leytonstone of a method of committing suicide, and you remark that you should think it unprecedented. If, however, you will turn to THE LANCET of June 22nd, 1889, p. 1242, you will find a description of a suicide on somewhat similar lines under the care of Mr. Hulke at the Middlesex Hospital, and another by myself in THE LANCET of Oct. 19th, 1889, p. 791.

I am, Sirs, yours faithfully,
Maryport, Sept. 23rd, 1901. JAMES LITTLE.

"THE ELECTROLYTIC TRANSMISSION OF SULPHUR."

To the Editors of THE LANCET.

SIRS,—My letter of August 24th seems to have given Dr. F. W. Smith the impression that I wished to belittle his valuable observations on the electrolytic deposit of sulphur from the Harrogate waters. Far be it from me to detract in any way from this new application of an old principle. Dr. Smith is in the van of progressive medicine, and I perfectly recognise the value of the investigations which he has made. But at the same time I must demur to his use of the word "discovery" in connexion with this subject. Doubtless Dr. Smith has been the first to apply the principle of cataphoresis in hydrotherapy, and I hasten to congratulate him upon the impetus which his investigations will certainly give to hydrotherapy all over the world. The principle of cataphoresis, however, which is the whole soul of the matter, has long been known. In 1858 Theodore Clemens, as a result of clinical experiments, claimed beneficial results from the electrolytic transmission of iodin through the skin. In 1859 B. W. Richardson made exhaustive experiments in the production of local anæsthesia by the cataphoretic introduction of a mixture of aconite and chloroform, by means of which he was able to perform many operations painlessly. But the profession at large was chary of adopting a method which was theoretically sound but which to the hyper-sensitive palate of prejudice might smack somewhat of charlatanism. The industrial arts, however, as Jacoby remarks, quickly recognised the value of the method. For instance, the tanning of hides by electricity became quite general when it was learned that by means of the usual tanning solution and an electric current a hide could be tanned in four days, while by ordinary methods it would require from 10 to 12 months to complete the process.

There are certainly factors which militate against the adoption of this method as a means of general medication, not the least of which is the fact that comparatively small quantities of a medicinal agent can be transmitted and these become rapidly eliminated by the emunctories. But as a method of local medication the method is more promising, especially if Morton's plan of rendering the part to which the application is to be made as far as possible anæmic beforehand be employed.

I am, Sirs, yours faithfully,
CHARLES J. NEPEAN LONGRIDGE.
St. George's Hospital, S.W., Sept. 25th, 1901.

"THE HABITUAL INEBRIATES ACTS"

To the Editors of THE LANCET

SIRS,—As one who has worked for many years among the class from which the habitual inebriate is largely drawn I was pleased to read the very pertinent remarks of Dr L A Parry on this subject in THE LANCET of Sept 21st, p 786

It seems to me that either the scheme of private or local reformatories must altogether fail and the entire class of inebriates become the special care of the State or else the managers of the former institutions must make up their minds to a radical alteration of their present "rose water" rules and procedure Lady Henry Somerset refers to "dangerous" cases being sent to her Now, with the greatest respect for this lady's opinions, I prefer to take the view which I believe is unanimously held by prison officials—i e, that inebriates are far more undisciplined than felons In other words the inebriate (continuing like Dr Parry, to speak mainly of the female variety) usually *is* "dangerous" in the sense of being a brutalised half unsexed virago, who on the slightest thwarting of her individual desires will indifferently assault, as likely as not with the nearest lethal weapon whosoever may have incurred her displeasure What does she care for the flowers and the [illegible] "sweetness and [illegible]ly barter all for [illegible] she sighs for the fighting the squalor, the obscenity of her filthy lodging-house or slum What if she did find herself at short intervals in gaol? The sentence was not as many weeks as she is now serving years, and at the worst it served to recruit her powers for fresh debauchery or the propagation of a race of degenerates I have been told on what I believe to be good authority that many of the women whom Lady Henry Somerset doubtless classifies as "dangerous" have shammed insanity or have committed assaults or damage with the single idea of escaping from the reformatory Could anything be more farcical? The climax of absurdity is reached by one institution, which I forbear to specify which insists on the *sexual purity* of its candidates for admission as if an inebriate were not the one woman of all others whose loss of self respect has long robbed her of such an attribute

I am, Sirs, yours faithfully,

A. W P

Sept. 23rd 1901

SOME MEDICAL ASPECTS OF THE PAN-AMERICAN EXPOSITION AT BUFFALO

(FROM OUR SPECIAL CORRESPONDENT)

IN former communications to THE LANCET[1] respecting the model brigade field hospital exhibited at the Pan American Exposition the most important features were described With an account of the United States army ambulance a description of this exhibit will be complete

The United States army ambulance of the latest pattern is intended to be drawn when in the field, by four mules and has a total weight unloaded of slightly less than 1400 pounds The inside width of the wagon box is 82 inches its length over all is 106 inches and the length of the litter space is 91 inches There are hinged seats capable of accommodating 12 patients when seated these seats swinging back out of the way against the sides of the ambulance when the latter is used for recumbent patients A stout post permanently fastened in position rises from the centre of the litter space in front to the roof of the ambulance This post is provided with leather covered metallic hooks about half way up which receive the inner handles of the two litters forming the upper tier A similar post at the rear of the ambulance provides support for the rear of the same litter shafts the post swinging up out of the way and being strapped to the roof when not in use The two litters of the upper tier are supported on their external aspect by having the litter handles of the outer poles inserted in loops of leather straps suspended from the ambulance roof The lower tier of litters is loaded directly on the ambulance floor between the supporting posts and the packed seats of the ambulance The latter thus has accommodation for four recumbent patients or for two recumbent patients and six seated The fact that both recumbent and seated patients can be carried at the same time is of great practical importance The ambulance is furnished with small hammocks hung along the sides similar to those used in sleeping cars, for the carriage of the patients effects The roof is of light wood, covered with "pantasote" a new material which is waterproof fireproof durable as leather and not readily torn by brush or overhanging branches The wagon wheels have broad tyres and iron axles There are accessory springs so that the vehicle rides as easily with three or four occupants as when loaded with eight or ten Water is carried in metallic receptacles underneath the floor of the ambulance and behind the rear axle It is readily accessible yet when the tail gate of the wagon is dropped as in loading patients, the containers are perfectly protected from injury The box underneath the driver's seat is intended to contain three boxes of the same size so as to be interchangeable one containing dressings another stimulants, and the third condensed foods The front wheels of the ambulance "cut under" so that the vehicle can turn in its own length This ambulance is a result of a careful study of the transportation of wounded by a board of medical officers from experience gained during the recent Spanish American war As showing its superiority over other patterns it is only necessary to say that it has lately been adopted in the Canadian militia and that samples have already been ordered for trial by the Governments of Great Britain, France Spain and Chili

That the equipment of army field hospitals of the United States is in a high degree excellent is freely admitted by army surgeons of other nations The commendations passed upon these hospitals in China were very high and when the fact is taken into consideration that the ones in use there were not nearly so well equipped as they are at present it will be easily understood that the arrangements of the United States Army Medical Department are worthy of close attention by similar departments of other armies

NOTES FROM INDIA

(FROM OUR SPECIAL CORRESPONDENT)

The New General Hospital Calcutta —Bombay City and the Recent Census —Dr Nield Cook's Deputy —The Indian Medical Service —Vaccination and Smallpox in Bengal —The Standard of a Well filtered Water —Regimental Cooks

AFTER considerable delay the new block of the Presidency General Hospital was formally opened by the Lieutenant Governor on August 31st It is a plain building outside but replete with every convenience within Great care has evidently been bestowed upon its construction which is up to date in every particular There are three storeys identical in their construction and arrangement and each storey has two large open wards with service rooms and offices adjacent while between the wards in the centre of the building are groups of rooms for private patients, sisters, resident officers &c Altogether it will provide accommodation for about 160 patients There is an excellent verandah for each storey and the roof has been arranged to form a magnificent promenade The operation room over the portico facing the north is particularly good and has been fitted up on the latest scientific principles Electric fans lights lift and water pumps constitute the excellent electrical installation The kitchen and the [illegible] quarters are in separate detached buildings One oversight has certainly been made but there is still time to remedy it A large dirty [illegible] is situated close to the front of the building and within [illegible] the ground Surely this should be filled up as it is of no use but may be a positive danger to the [illegible]

The returns of plague mortality from various places continue to show large [illegible] Mysore [illegible] Bombay city and Karachi the disease is active At Bombay the Government [illegible] published [illegible] the census He calculates [illegible] population [illegible] the census [illegible] 115 000 The mortality of Bombay in the recent [illegible] census being taken during the height of the [illegible] estimated that 30 000 resident [illegible] that perhaps as many [illegible] of the city [illegible] afield The most densely peopled part of the city [illegible] 598 persons to the [illegible] Calcutta It has been discovered in the census that there are no less than 53 dialects spoken in the city, and that only about a fourth of its total population were born in it. Two houses were found to contain 691 and 663 inmates respectively and the most crowded room had 54 occupants!

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[1] THE LANCET Sept 14th (p 749) and 21st (p 809) 1901

During the absence on privilege leave of Mr. J. Nield Cook the Corporation of Calcutta have asked for the services of Dr. T. F. Pearse, one of the plague officers. There being little plague in Calcutta at the present time work in this department must be reduced to a minimum. Dr. Pearse should be well qualified for the post as he holds high diplomas in medicine, surgery, and public health.

It is understood that the Secretary of State for India has sanctioned the strengthening of the Indian Medical Service by the addition of 26 officers and that the Government of India will shortly announce their intentions as to recruitment.

A resolution of the Government on vaccination in Bengal has just been issued. Small-pox was very rife during the past year and in some of the districts only a small proportion of the population has been protected by vaccination. The Lieutenant-Governor refers particularly to the insufficient protection afforded by the arrangements in Calcutta, but finds evidence of real progress in other towns where vaccination is compulsory. The difficulty in Calcutta is the large immigrant population. In the outlying districts the proportion of protected persons is very small. The total number of deaths from small-pox in Bengal was 25,302, against 14,514 in the preceding year. Out of 476 persons admitted into the Campbell Hospital in Calcutta only 124 had been vaccinated. It must be admitted that the obstacles to extensive vaccination are enormous.

Mr. Hankin in his report to the Government of the North-West Provinces lays it down that a public water-supply may be considered "well filtered" if it contains less than 100 microbes per cubic centimetre. This is a somewhat lower standard than that of some authorities, but according to it the municipal water-supplies in the North-West Provinces are shown to have been "well filtered."

The experimental scheme under which British troops in India are to do their own cooking is a matter of the highest importance. When soldiers are in the plains during the hot weather there may be difficulties, but during the cool season and when in the hills there is no reason why the cook-boy should not be abolished. The experiment was tried a few years ago with the Gordon Highlanders and for months together not a single case of enteric fever occurred. I understand that men trained in England are to be eventually attached to regiments in India. It is not sufficiently recognised that though the native can cook he is a very dangerous cook. He will keep dirty pots and pans, foul water, and fouler dishcloths, and he has not the remotest idea of sanitary precautions. The cooking must, of course, be well done or there will be other troubles. It behoves the authorities, therefore, to supply the trained men without delay or the substitution of the soldier-cook for the native one may in the meantime prove disastrous to the proposed change.

Sept. 7th.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

Houses and Health.

IN the present day we are met with many schemes for the development of ideal modes of dealing with the various influences which retard our physical and moral progress. One or two enthusiasts full of abstract notions of virtue and philanthropy combine with some followers to form an association, an attractive title is assumed, and the propaganda go forth. In many instances the objects set out are laudable and praiseworthy; in the majority there is an unbiased desire to benefit the human race; but there is generally a vast difference exhibited between what is theoretically advanced and what is practically possible. An instance of this kind is displayed in the Garden City Association which has recently held its conference in Birmingham. The present conditions of life in cities were pointed out as likely to reach a point in which the race would become degenerate, when we should be no longer able to hold our own. The advantages of a garden city were explained to be increased light and space, cheapness of land, readiness of market, facilities in getting to and from work, and all the attractions of a country life. We are all aware that the unfavourable conditions of life in crowded cities must be detrimental to health, and we view the slums of such localities with abhorrence and dismay. But the plan of reformation is not so easy as the promoters of the Garden City Association would wish. The minor industries of agriculture and gardening may possibly be fostered by such benevolent advocates; but the greater manufactories of towns must be located for the present, we fear, in confined areas. Though in some instances the managers of large industries have taken their works outside the city and have thus brought comfort to their operatives, it is somewhat utopian to expect that this course can be pursued on a scale sufficient to meet the demands of the ever-increasing growth of the population. The sacrifice of commercial interests entailed is too heavy.

Epidemic of Scarlet Fever.

The Health Committee have to face an increase in the cases of scarlet fever. At this season the type of cases is mild and the mortality in proportion to the number has been low. Still, the increase in the numbers admitted into the infectious hospitals is great enough to give apprehensions as to the accommodation at the disposal of the committee. Thus last week there were 471 patients in the scarlet fever hospital, as compared with 324 in the corresponding week of last year, and the record shows an earlier time of the increase for the season. Arrangements are being made to provide extra room for any additions, and there is every reason to believe that due preparations will meet any emergency. Cases of typhoid fever form a large item in the work of the Health Committee. 28 cases were reported last week, with 60 cases already in the hospital. A large number of these cases are also treated at the General Hospital and the Queen's Hospital, where it is considered by some unwise to admit such patients. Certainly disasters at times occur among those who attend to them, in spite of all precautions and care.

Poisons in Medicine Bottles.

A lamentable instance of death lately occurred from the want of some distinctive mark between bottles containing poison and those containing medicine. A man, aged 39 years, complained of having a cold and remained in bed. The medical attendant prescribed two draughts in small bottles, one to be taken at night and one in the morning; a small bottle of carbolic acid was also bought at a dispensing chemist's for inhaling. It was supplied in a bottle almost identical with the others, but labeled "Poison" in red. The bottles were placed on a tray by the servant and were carried upstairs. The night draught was given as directed. In the morning the wife of the patient administered, as she thought, the second draught, but immediately it was swallowed the patient became aware that the wrong bottle had been emptied and he died in 20 minutes. Many plans have been proposed for avoiding such mistakes. The most feasible would be, it seems to me, that all poisons should be sold in screw-stoppered bottles, which would thereby attract attention to the contents, though this would not be infallible unless other medicine bottles were universally precluded from having this form of stopper. Nothing, as a matter of fact, can supply the want of thought and care which should be associated with the function of nursing the sick.

Vaccination Exemption Certificates.

At a meeting of the West Bromwich Board of Guardians attention was recently drawn to the excessive fees which were charged for vaccination exemption certificates. It was stated that in many instances not only did the fathers lose a day's work in attending before the justices but were charged 3*s.* or 5*s.* for the certificates. The chairman pointed out that the guardians had no jurisdiction in the matter and ruled any discussion on the subject out of order. A notice to move a resolution another time was carried.

Sept. 24th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

The Blind of Manchester and Salford.

HENSHAW'S Blind Asylum has long been known beyond the limits of Manchester and Salford as an institution that has deserved well of the community, but for some time it has had its critics, which, perhaps, is not to be wondered at, for the old ways of an institution tend to become stereotyped while those outside it look for progress Moreover, it cannot cover the whole ground There are in the two towns which, *pace* Salford, may for the nonce be called Manchester, some 500 poor blind people who, with a few exceptions, receive no help from the charity The first article of its regulations is as follows "To afford an asylum for the impotent and aged blind, and to maintain and afford such instruction to the indigent blind of both sexes capable of employment as will enable them to provide, either wholly or in part, for their own subsistence, and to promote the employment of, or to employ, blind persons." This comprehensive scheme, however, is not carried out, partly, perhaps, because it is so large and partly from lack of funds, and the central institution has become the chief care of the managers The asylum itself gives a good elementary education and boards 90 blind children, it trains some 50 men to trades, and it houses and feeds 50 old men and women To make it possible for much more than this to be done there must be more and larger subscriptions It is said that "the public gives its support spasmodically," and that the strictest economy has to be exercised, so that "with the present income it would be hazardous to undertake additional responsibilities" Even now, however, something is done for the blind outside the walls of the asylum There are workshops in Deansgate with a shop for the sale of work at which 50 blind persons earn small wages They were built at a cost of £11,000 which was provided by a comparatively small number of persons, and they are carried on unfortunately at an annual loss to the asylum of £700 Pensions also are given "to 112 persons at a cost of £800 a year, they have occasionally made loans or gifts of money to start the blind in business and they have paid the fees of old pupils at the asylum who have proceeded to colleges" but the institution has failed in the 'after care" of those whom it has trained and sent out into the world, and without this the majority are apt to drift into beggary and street organ playing There is room, therefore, for a society to do the work which the asylum cannot do, to help the outsider, and one indeed, has been at work for about 18 months mainly through the initiative of a lady, Miss Isabel M Heywood who for some years has been accustomed to read to the blind workers in the Deansgate workshops during the dinner hour She wrote, with the help of a few friends, to the clergy and ministers and other workers among the poor, and by their aid obtained a pretty correct register of the poor blind The Manchester and Salford Blind Aid Society was formed, with Sir William Houldsworth, M P, as president. One of the first steps taken was to appoint two blind visitors to the blind, who will talk to them more freely of their circumstances and needs than to 'sighted" people The society has also a sick and benefit branch, a home of rest at St Anne's on the Sea a home for blind women in Salford, a visiting branch with about 50 visitors in all parts of the district, and a Braille library They have also two or three rooms in the old Eye Hospital where the blind go to read their Braille or Moon books, and where they have occasionally tea and music and once a week a religious service Sometimes there are 60 or 70 at the "socials,' and there was a blind picnic recently at which the Bishop of Manchester spoke, which was attended by 350 persons. The object of the society is as far as possible to help the blind to help themselves and to be self-supporting There are among them organists, pianoforte players and tuners, wood choppers knitters, Braille writers tea agents, &c., and as far as possible help is given in the way of finding work and situations Both the old asylum at Old Trafford and the Blind Aid Society are worthy of help, though the former has not escaped censure Archdeacon Wilson seems to consider it a long way from being in the front line of the "centres of blind instruction" and that no real advance will be made without "a strong and entirely independent commission, including some experts in the training and care of the adult blind, with power to report on the whole scope and results of their work and its cost and to make recommendations" If such a commission will bring new life to this old charity it should be appointed without delay The critics who only criticise and give no help in setting things right are of no great value

Prison v Workhouse

Much discussion is going on as to the treatment of pauper children, and there seems to be a strong feeling in favour of their being saved from the contamination of the workhouse *Apropos* of the Youthful Offenders Act, relating to children whom the magistrates remanded to the workhouse pending their trial, Mr Scott, master of the Carlisle Workhouse, said that it would be much better for them to be remanded to the prison than to the workhouse The clerk to the guardians said that a slur was cast on them by being in prison, even though they might be proved to be innocent, but the master repeated that they had better be sent to gaol as in the workhouse "they were bound to associate with some inmates regular old criminals," and would be less likely to receive contamination in gaol. This is a strong argument in favour of cottage homes or of boarding out

More Males than Females

The census returns for the Northwich Urban District have brought out the fact that the number of the male population was 9015, while that of the females was 8596 This is accounted for "by lack of opportunities for female labour" The same preponderance of males exists also at Crewe and for similar reasons—a state of things quite opposed to that of the country generally, where as a rule the female population is in excess

Parks and Recreation Grounds

Though the Manchester parks do not force themselves on the attention of the casual visitor, who may come and go without being aware of their existence, a good deal has been done, especially of late years, towards providing breathing spaces, or lungs, as they are called, for the ever increasing population Indeed, it is only in comparatively recent days that the corporation have risen to the idea that they had any duties or responsibilities in the matter and many valuable opportunities of acquiring open spaces have been lost However, since 1846 the capital sum spent on this object has been £445 127 The area of the various sites acquired, some large some small, some by purchase and others by private beneficence is over 411 acres and with the cemeteries it amounts to 632 acres This is exclusive of Heaton Park which the City Council recently decided to purchase Its area together with that of some adjacent land to be included in the purchase, will not be far short of 700 acres

Sept 24th

WALES AND WESTERN COUNTIES

(FROM OUR OWN CORRESPONDENTS)

The Gothenburg System at Barry

THE progressive town of Barry, the population of which has increased from 165 in 1881 to 27,028 in 1901 is quite keeping up its reputation by providing the first licensed house in South Wales to be conducted on the lines of the Gothenburg system On Sept 19th the Barry licensing justices granted a licence to the representative of a limited liability company who are the owners of a recently erected hotel The articles of association of the company provide that the shareholders shall not receive a dividend of more than 6 per cent The remaining profits are to be divided among certain objects in the county of Glamorgan to be elected by the Lord Lieutenant In the event of the sale of the licence the whole of the profits resulting from such sale are to be divided as the Lord Lieutenant may direct. Contributions may be made to the Cardiff Infirmary and to the Barry or other nursing associations and there may also be provided by the company or contributions may be made towards the provision of a reading room an institute, a public library a gymnasium, a public hall, or swimming baths in any part of Glamorgan If this venture is successful there is no doubt that it will be followed by others in the colliery districts where the licensing justices grant fresh licences every year

Poor law Conferences

Two conferences of Welsh Poor law unions representatives were held on Sept 18th Delegates from the unions of North Wales met at Rhyl and from the unions of South Wales at Langland Bay The Rhyl meeting was addressed by Dr J Lloyd Roberts upon the Housing of the Poor as it affected Pauperism Dr Roberts urged that county councils should be asked to include classes relating to domestic matters in their technical instruction schemes At Langland Bay the question of out-door relief was discussed when it was suggested that a series of questions should be sent to applicants for relief as to their past careers and opportunities for thrift, and that the industrious and unfortunate should be relieved in preference to the idle and thriftless. Sir John Llewellyn stated that in Swansea a man who had been a member of a friendly society was always looked upon as a worthy applicant Miss C. M. Williams read a paper upon Some Aspects of Hospital Management, in which she spoke strongly of the necessity for employing paid labour and of the unsatisfactory results attending the employment of patients as nurses, especially upon the male side. She considered that the difficulty which many of the smaller unions found in obtaining and keeping nurses was due to the absence of any organised system of promotion and to the objection which many nurses had to being regarded as Poor-law officers.

Conference on Tuberculosis at Cardiff.

The Mayor of Cardiff has issued invitations to a public conference to be held at Cardiff on Oct. 3rd to consider the propriety of establishing a South Wales and Monmouthshire Branch of the National Association for the Prevention of Consumption and other Forms of Tuberculosis. The response to the invitation by sanitary authorities and others has been very large and it is anticipated that the conference will be a successful one. At a meeting of the Swansea Corporation held on Sept. 18th a report from the Sanitary Committee was accepted in which the opinion was expressed that it was very desirable that a sanatorium for the treatment of patients suffering from phthisis should be established in South Wales.

Accident Hospital for Ebbw Vale.

A small accident hospital for the workmen employed at the Ebbw Vale collieries was formally opened on Sept. 21st by Mrs. Gordon-Canning, one of the ground landowners of the colliery. There is accommodation in the hospital for 10 patients in three wards. The kitchens and wards are on the first floor, and on the ground floor are the matron's rooms, a convalescent room, a receiving room, and an operating theatre, this last having smooth cement walls and a floor of terrazzo. The building and furnishing cost £3050. The greater portion of this sum was contributed from the workmen's medical fund which has about 7000 members. The workmen have consented to the deduction of a halfpenny in the pound from their wages in support of the institution.

Isolation Hospital at Ogmore.

The Ogmore and Garw Urban District Council have decided to erect an isolation hospital with accommodation for 12 patients upon half an acre of land situated near Brynmenyn at an estimated cost of £6000. The district is growing rapidly owing to the extensive mining operations. The population, which in 1881 was 6893 and in 1891 was 13,800, had increased at the last census to 19,912.

Hospital Saturday at Swindon.

As a result of the recent Hospital Saturday collections the sum of £130 has been handed over to the Swindon Victoria Hospital. Since 1885 sums amounting to £1373 have been forwarded to the hospital authorities, the average for the past five years being £111.

Vaccination Grant.

Mr. J. Dibble Staple, M.R.C.S. Eng., L.S.A., public vaccinator for the Ashley district of the Bristol union, has for the second consecutive time been awarded a Local Government Board grant for successful vaccination.

Sept. 23rd.

SCOTLAND.

(From our own Correspondents.)

New Parish Hospital, Glasgow.

The memorial stone of the new general hospital which is being erected at Stobhill by the Glasgow Parish Council was laid on Sept. 16th by the Right Honourable Lord Balfour of Burleigh, K.T., Secretary for Scotland. The hospital covers 53 acres, will provide accommodation for 1500 patients and 150 nurses and other members of the staff, and its estimated cost is £200,000 It stands on an admirable site, 350 feet above the sea-level, and commands a fine view of the open country. The buildings are to be constructed according to the most modern plans and the equipment is to be in every sense complete. The institution is intended as a general hospital and infirmary for aged and infirm persons, and also for phthisical cases. On a separate part of the ground provision is being made for the reception of 400 children, the greater number of whom are ultimately to be boarded out—that is, as soon as opportunities for doing this can be secured. The parish council has, in addition, undertaken to erect two other hospitals, one at the west end and the other at the east end of the city; these are to be fitted up entirely for acute curable cases. In this way it is intended, by separate classification, to surmount some of the difficulties and objections which at present exist in the treatment of those who become chargeable to the public rates. The new hospitals will allow the old buildings to be used solely for those among the applicants for indoor relief who are fitted to perform a greater or less amount of manual labour. Lord Balfour spoke in appreciative terms of the policy of the Glasgow Parish Council and stated that it had the most cordial approval of the Local Government Board for Scotland. He considered that the administration of the Poor-law, though not absolutely beyond reproach, was such as to secure for the majority of those who deserved it the greatest possible consideration. Speeches were also delivered by the Lord Provost of Glasgow and by Mr. Brand, the chairman of the council. The latter argued that power should be given to the parish councils to deal with incorrigible drunkards. Numbers of these were continually entering and leaving the poorhouse, and if they could only be detained a serious, and he believed a successful, attempt at their reform could be made.

British Association at Glasgow.

The sectional meetings of the British Association were brought to a close on Sept. 19th. Several of the papers read during the week were of unusual interest. Major Ronald Ross, in dealing with the subject of malaria, described the part played by the mosquito in the dissemination of the disease and expressed the opinion that by the extinction of the mosquito every town in the tropics in the course of a few years would be freed from the malarial poison. All that was necessary was to clear away every drop of stagnant water through the town by a means of a gang of men maintained for the purpose by the local municipality. Major Ross described the experiments now being carried on in Sierra Leone by the Liverpool School of Tropical Medicine assisted with a sum of £2000 subscribed by a west of Scotland gentleman. The experiments have been in progress for two or three months and have already produced an obvious reduction in the number of mosquitoes. In the Zoological Section also Dr. Rankin of Glasgow University announced that arrangements had been made at the Millport Marine Biological Station for the erection of a research laboratory and also of a private boarding-house. The site for the new buildings has been promised by the Marquis of Bute, and a gentleman who prefers to remain anonymous has given £3000 towards their erection. In the same section an exhibit which attracted much interest was that of three hybrid zebras which were shown by Professor Cossar Ewart. The animals, which were very graceful and were much admired, were seen quietly grazing in the University quadrangle. One of them was described as reproducing "fairly accurately the colouration of the primeval common ancestor of the horse and the zebra." One use to which it is suggested these animals may be put is in connexion with mountain batteries. A discussion in the Economical Section on the Housing Problem excited much interest. It was introduced by Professor Smart, LL.D., and in the course of it the Lord Provost offered an eloquent defence of the policy of the City Improvement Trust. The Association next year is to meet at Belfast.

Bequests to Glasgow Hospitals.

The trustees under the will of the late Mrs. James Rodger, Glasgow, have intimated the following legacies: to the Glasgow Royal Infirmary, £3000; to the Western Infirmary, £1500; to the Victoria Infirmary, £1000; and to Quarrier's Orphan Homes, £1500. A further sum of £1000 is distributed among the special hospitals and other charitable associations. It should be mentioned that Mrs. Rodger in 1891 divided £10,000 among the Glasgow hospitals and benevolent societies and that in 1893 she made a similar distribution of £3000.—The late Mr. James McWilliam, Glasgow, has left a sum of £500 each to the Royal Infirmary, the Western Infirmary, and the Victoria Infirmary.

Glasgow University.

Mr. Alex. Galt, D.Sc., who was for several years official assistant to Lord Kelvin in the University, has been selected by Lord Balfour of Burleigh for appointment to the technological department in the Edinburgh Museum of Science and Art. This is a new appointment having for its object the development of science and art in their relations to technical education.

Sept. 24th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Typhoid Fever at the Richmond Asylum.

AT the meeting of the Committee of Management of the Richmond District Lunatic Asylum held on Sept. 19th the medical officer (Mr. Conolly Norman) submitted a special report on the occurrence of typhoid fever in the asylum last autumn and its recurrence recently. Last year the infection broke out in the month of August and attacked only the female department, the nurses being the first to suffer and subsequently the patients. There were 54 cases altogether and seven deaths. The observations of the medical staff led them to the conclusion that the method of inoculation with anti-typhoid vaccine, which was energetically carried out, prevented a much larger spread of the disease. In the month of August of the present year typhoid fever again appeared in the female asylum. One nurse and four patients were attacked. Last year Sir Charles Cameron reported on the matter and drew attention to some defects in the sanitary arrangements which were at once set right. The medical superintendent states his own opinion that the occurrence of typhoid fever was due to the condition of the underground drain which runs partly under the main female house and which has long ago been looked upon as a source of danger to the institution. The committee unanimously resolved to refer the matter to the city engineer.

The Royal Commission on University Education.

The Royal Commission on University Education had their first sitting in the Royal University Buildings, Earlsfort-terrace, Dublin, on Sept. 19th, the Right Hon. Lord Robertson, the chairman presiding. To the surprise of everyone when the press representatives appeared they were informed that the Commissioners had decided to conduct the proceedings in private and that they would not be admitted at any time, but that the secretary would see that official reports were published. This decision, though it may follow the precedents of other Royal Commissions has given the greatest offence and is really an error in tactics. When a Commission about the mode of appointment and *personnel* of which there has already been so much discussion decides that its proceedings shall be held *in camerâ* it is not to be wondered at that from all the Irish newspaper press, representing every shade of thought and political opinion on this most difficult subject, there is for once a unanimous protest. The evidence of the secretaries of the University, Bishop O'Dwyer of Limerick, the President of Queen's College, Belfast, and the President of University College, Dublin, has been taken.

Hospital Saturday in Carrickfergus.

The Saturday collection for the Royal Victoria Hospital, Belfast, was taken up in Carrickfergus (the old county town of Antrim) on Sept. 21st, when upwards of £28 was the result, an increase of £6 over the total of the previous year.

The Forster Green Hospital, Belfast.

At a meeting of the General Committee and friends of the Forster Green Hospital for Consumption and Diseases of the Chest, held at that institution on Sept. 21st, the secretary reported that on Jan. 1st 23 patients were in hospital. 105 have since been admitted, making a total of 128 cases treated during the current year. The average number of patients in hospital at one time has risen from 24 in 1900 to 29 this year. A total of 34 beds will by certain rearrangements be soon available, a supply very inadequate to cope with the enormous number of persons affected in this district with tuberculous disease. The public are specially appealed to for help, as between the present time and the end of the year £1162 are needed without going into debt. The open-air treatment is being thoroughly carried out at this hospital and ample confirmation (medical and lay) was given at the meeting as to the success of this modern treatment.

The Outbreak of Typhoid Fever in Belfast.

There is practically no change yet in the outbreak of typhoid fever, and at present, in addition to a very large number of cases of that disease there are 23 cases of diphtheria, an altogether unprecedented epidemic of that zymotic. The weather at present is very wet and the temperature keeps high, a sort of English "monsoon," and with just the conditions suitable for bacterial growth. At the last meeting of the Public Health Committee attention was drawn to the practice which some medical men, it is reported, have of holding over notifications of cases of infectious disease till they have several to notify at once. It is probable that the medical men would reply that until they are quite sure it is wiser to wait. At a previous meeting of the Public Health Committee fault was found with medical men for reporting cases that were not typhoid fever as that disease, but the statistics of the union fever hospital show that cases of mistaken diagnosis (that is, cases sent in as typhoid fever which turn out not to be so) are fewer than those recorded in the metropolitan fever hospitals. This sort of criticism does not meet the real facts which are that in a comparatively new city like Belfast typhoid fever—a preventable disease—is never absent and at times, as at present, assumes a serious epidemic form. The duty of the Public Health Committee is to find out first what is the cause of this most discreditable state of affairs and secondly, to put an end to it. A number of years ago the corporation, seeing that the fire brigade was in an inefficient condition, reorganised it, so that now people from all parts come to see it. At present they are making most advanced and elaborate arrangements for technical education. Why do they not reorganise their Public Health Department and bring it up to modern requirements? Until this is done there is little hope for improvement in city hygiene and sanitation in Belfast.

The Local Government Board of Ireland.

The constant quarrelling between the Local Government Board and the various local authorities in Ireland is deplorable. Quite recently the Board issued a sealed order directing the Downpatrick Board of Guardians to appoint a midwife in the Strangford District, but on Sept. 21st it was resolved by 17 votes to 2 to test the validity of this order in the law courts, and the solicitor of the guardians was ordered to employ counsel to apply for a writ of certiorari in the King's Bench. Then there is a standing dispute between the Belfast Board of Guardians and the Local Government Board as to the expenditure of a sum of money in the building of a new board room. The Local Government Board refuse so far to sanction this—and they are quite right, as there are lots of more pressing needs such as the building of a new nurses' home; but still the question arises, as the chairman put it, Are the affairs of the Belfast Union to be managed by the representatives of the people or by the Local Government Board? Constant wrangling is taking place all over Ireland in reference to the nursing regulations issued by the Local Government Board. Either there is great difficulty in interpreting the Irish Local Government Act or the Central Board in Dublin is not well advised and is weak.

Sept. 24th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

being attended to than if they were only ordinary travellers. Among the passengers were Dr. de Valcourt, Dr. Charles Leroux, Dr. Bucquoy, a member of the Academy of Medicine, Dr. Masbrenier, Dr. Lacambre, Dr. de Zvan, Dr. Hirschfeld, Dr. Fayard, Dr. Olivier, and M. Raymond Poincarré, formerly a Minister, and others.

The Paris Hospital Attendants.

The Paris hospital attendants, both male and female, have recently held an important meeting. They demand immediate permission to form a union, a permission which is refused by the Prefect of Police on the ground that no class of municipal servants is allowed to form a union. They also demand that instead of being boarded and lodged as they are they shall be allowed to keep their present salary and be free to board and lodge themselves how and where they please at their own expense. One result of this reform will be that their retiring allowance, which as matters stand at present is calculated upon the amount of their salary, due deduction being made for the cost of their board and lodging, would in future be calculated upon the whole of their salary without deduction. Finally, they ask for the formation of a nursing school and also that they shall be paid during their eight days' annual holiday as well as during their two periods of military service which last for 28 and 13 days respectively. The president of the meeting was M. Artreux, a *surveillant*, assisted by M. Malbos and M. Iger, *infirmiers*. These gentlemen, together with M. L'Héritier, spoke and laid the claims of their class before the meeting. The following resolution was carried unanimously:—

> The hospital attendants, both female and male, in this meeting, held on Sept. 7th, 1901, in the great hall of the Labour Exchange, beg to thank the Trades Committee for the efforts made on their behalf. The members invite all absent friends to join together with themselves in endeavouring to bring about as soon as possible the realisation of their just claims.

September Congresses.

Two important congresses have been held this month. That of the French Association for the Advancement of Science was held last week at Ajaccio, under the presidency of Dr. Hamy, a member of the Institute. The members had a great reception and the Mayor, M. Bodoy, in his speech expressed the hope that the important discussions upon climatology which formed part of the proceedings of the congress would result in great advantages for the town of Ajaccio and of Corsica in general, a country which had many sites eminently adapted for sanatoria, but one also where drainage of the marshlands was necessary for making the land really healthy. At Nantes on Sept. 23rd the Congress of Gynæcology, Obstetrics, and Pediatrics was opened. An interesting excursion had been organised for the members to the seamen's hospital of Croisic at Pen Bron. During the congress a monument was unveiled to the memory of two famous surgeons, Chassaignac and Maisonneuve, Professor Guyon being president of the proceedings.

Sept. 24th.

SWITZERLAND.

(FROM OUR OWN CORRESPONDENT.)

Operative Results in Panophthalmia.

DR. C. BAUER, late assistant at the Zürich Ophthalmological Clinique under Professor Haab, has just published a report on the results of enucleation in cases of panophthalmia. As Professor Pflüger does not consider this operation justified, but wishes it replaced by the "exenteratio bulbi" (Paris Congress, 1900), it is desirable that all ophthalmological cliniques should report their results. Dr. Bauer writes on 53 cases which were operated on in the Zürich Ophthalmological Hospital from 1886 to 1900—viz., 45 men and eight women—the ages varying from 16 to 75 years. The origin of the panophthalmia was generally traumatic. The operations took place from three to 20 days after the injury (the average being seven days) and all the patients could be dismissed in from four to 14 days after the successful operation, the average date of dismissal being eight days after the operation. The report includes only very distinct cases of panophthalmia, an acute, purulent uveitis combined with severe inflammation of the surrounding tissues with swelling of the eyelids, protrusion and impeded motility of the bulbus oculi.[1] Bonnet's operation was always performed. The original chloroform narcosis has been supplanted by ether narcosis following an injection of morphine, this proving especially suitable in alcoholic patients. These 53 cases form 16 per cent., or about the usual average, of all the 320 cases of removal of the bulbus oculi which have been performed at the hospital during the past 15 years.

Gangrene of the Lower Extremity after Parturition.

Dr. E. Wormser reports one more of these very rare cases which he has observed at the Basle Lying-in Hospital; there are only about 20 such cases on record. A woman, aged 36 years, was suffering from purulent bursitis near the knee-joint when her sixth confinement came on. Notwithstanding every precaution—the abscess having been opened previously—the patient was feverish and on the twelfth day after the confinement she developed gangrene of the left foot and died three days later. The infection proved to be due to streptococci, and three injections of anti-streptococcic serum proved of no avail. As in some other similar cases, the relatives made legal claims against the medical attendant for mismanagement of the case, but the claims were not allowed.

Obituary.

I regret to report the death of two Zürich medical men. Dr. Hans von Wyss, who has many connexions in England, succumbed to apoplexy at the early age of 55 years; he was Professor of Legal Medicine and the author of a book on the subject. He had been a member of the sanitary council (*Sanitätsrath*) for many years. Dr. Max Freudweiler also died suddenly, a very promising young man, aged 30 years, and lecturer (*privat-docent*) on Hydrotherapy at the Zürich University.

Zurich, Sept. 23rd.

CANADA.

(FROM OUR OWN CORRESPONDENT.)

Canadian Medical Association.

THE thirty-fourth annual meeting of this association was held at Winnipeg, in the province of Manitoba, on August 28th, 29th, and 31st. Although Winnipeg is situated some 1300 miles from the leading centres of medical thought in Canada the attendance, which reached over 175 members from all parts of the Dominion, was greater, with one exception, than that of any meeting and was pronounced the best in every respect since the Association was organised in 1867. Every province in the Dominion was represented, with the single exception of Prince Edward Island, one delegate travelling 3000 miles to attend the meeting; and there were several visiting physicians from the United States. The social functions have never been surpassed; the special excursion through the great wheat belt of Manitoba offered to the members of the Association by the Canadian Pacific Railway was a trip thoroughly enjoyed by all and not soon to be forgotten. Dr. H. H. Chown of Winnipeg was the president, while Dr. F. N. G. Starr of Toronto discharged the duties of secretary. One of the oldest practitioners in the West, Dr. J. H. O'Donnell of Winnipeg, delivered the address of welcome and gave the history of the growth of the medical profession in that section of the Dominion from 1869 onwards—a time when Winnipeg was only an outpost of civilisation. The question of the formation of a Medical Defence Union was presented by Dr. Russell Thomas of Lennoxville, Quebec, who was delegated by the St. Francis District Association of that province to hand over to the Canadian Medical Association a scheme of medical defence which was already in operation in the eastern townships. The Canadian Medical Association unanimously adopted this scheme and forthwith organised a Medical Protective Union or Physicians' Protective Union, with its headquarters at the capital, Ottawa, and with Dr. R. W. Powell as president, Dr. McKinnon as secretary, and Dr. James Grant, jun., as treasurer, all being well-known practitioners.

A very able Presidential Address was delivered by Dr. Chown who made some interesting references to the future of the city of Winnipeg and the Province of Manitoba. Although less than 10 per cent. of the arable land of the province was under cultivation, the farmers of Manitoba would this year have a crop estimated at 85,000,000 bushels of grain. He referred to the water-supply and the sewerage system of Winnipeg, which with a population of 45,000 got its water from an artesian well 17 feet in diameter and 48 feet deep, and although they had been pumping for months a supply of from 2,000,000 to 3,000,000 gallons per day there was not the slightest evidence of any diminution of the amount flowing in The well was supposed to tap an underground passage which ran from Lake Manitoba and as this lake was 130 miles long the supply was inexhaustible Speaking of the question of tuberculosis he instanced cases of young farmers free from tuberculous taint l [illegible] bacilli, and separat [illegible] in whom tubercul [illegible] heredity, house [illegible] eliminated how w [illegible] these outbreaks?

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[1] Haab's Atlas, Tab. 27 and Tab. 356.

The Address in Medicine was delivered by Dr J R. Jones of Winnipeg who is associated with the Manitoba Medical College. He took for his subject ' The Question of Medical Education " He thought that medical students generally entered upon the study of medicine poorly equipped in English and advocated a higher standard of medical matriculation He was in favour of a Dominion Medical Board, so that anyone with the proper qualifications could be registered in every province of the Dominion They should not only be Canadian, but Imperial, capable of registration in Great and Greater Britain He would not eliminate Latin, but would go a step further and advocate a more general knowledge of Greek The didactic lecture was adversely criticised and clinical methods of teaching, particularly the case method of teaching were upheld Dominion registration was a question thoroughly debated and discussed and delegates from all the provinces assured Dr Roddick of provincial support in this matter —Dr W S Muir of Truro Nova Scotia, read a very interesting paper on Infectious Pneumonia, reporting four cases seen in one family at a time when there was no influenza in the district

Epidemic Cerebro spinal Meningitis was the subject of a paper delivered by Dr James McKenty of Gretna Manitoba, who gave the history of an epidemic occurring in North Dakota, U S , during the winter and spring of 1893 It occurred within an area of 50 miles by 20 miles and about 70 persons were seriously ill 25 cases ending fatally Dr McKenty gave notes of 22 out of 30 cases occurring in his practice, the average age was 17 years , the youngest was 15 months and the oldest was 38 years The duration of the disease extended from 12 hours to 15 weeks —Dr A J Macdonnell of Winnipeg contributed a paper on Splenic Anæmia and reported a case —Dr J N Hutchison of Winnipeg read a paper on Physical Development in which he advocated periodical lectures, by duly qualified physicians, in the schools to separate classes of boys and girls on the subject of sex —Dr W H. Pepler of Toronto reported several cases of rheumatism, eczema, and varicose ulcer of the legs treated by superheated dry air, recording excellent results

Orthopædic Treatment of Deformities and Disabilities resulting from Diseases of the Nervous System with special reference to Tendon Transposition was the title of a paper contributed by Dr B E McKenzie of Toronto —Dr G A. Kennedy of McLeod, Alberta presented a paper on Mild Small pox which dealt with the recent outbreak of the disease in the North west Territories There had been 1500 cases and a noteworthy fact was that the greatest number of cases occurred among the French half breeds who had never been vaccinated , and further, Indians on reserves had not suffered to any great extent, as annual vaccination was the rule Not one case was seen or heard of among the Galicians Doukhobors, or Roumanians who had lately settled in the Canadian North west, and this was due to the fact that compulsory vaccination was the rule in youth with these people, and then they had been revaccinated on their recent passage across the Atlantic and at Halifax. 13 deaths had occurred from the disease.—Dr Montizambert the Director General of Public Health for the Dominion, in discussing this paper considered that it would be unfortunate if the impression went abroad that any doubt existed in the minds of the members of the Canadian Medical Association as to the true nature of the disease which had now been epidemic on the North American Continent for some years He considered that the facts presented in Dr Kennedy's paper relating to the Doukhobors and Galicians were the most valuable portion.—At the close of this discussion the following motion was unanimously adopted .—

> That in view of the general prevalence of small pox throughout this continent this Association desires to urge upon the profession and the public generally the necessity of vaccination and of revaccination

A very interesting case was that recorded by Dr J F W Ross of Toronto of Chronic Ulceration of the Stomach simulating Cancerous Disease in which the Operation of Gastro-enterostomy with the Murphy Button was Performed This occurred in a young woman aged 20 years who had been reduced to 75 pounds in weight At the operation a large growth was found at the pyloric end of the stomach It was looked upon as a hopeless case and temporary relief was secured by gastro enterostomy The patient fully recovered from all her symptoms and 11 months after the operation she weighed 140 pounds and on examination of the abdomen no mass could be felt and the patient was not suffering from any gastric symptoms at all.—Some Forms of Hyperacidity and their Treatment was dealt with by Dr C F Martin of Montreal in an interesting paper —On the evening of the second day Dr Thomas S Cullen of Baltimore, U S A , read a very interesting and valuable communication on Cancer of the Uterus with lantern demonstrations and following this was another demonstration on Skin Diseases conducted by Dr Francis J Shepherd of Montreal which was equally appreciated Both these demonstrations will take rank as features of the Winnipeg meeting of the Canadian Medical Association.—The Varieties and Distribution of the Bacillus Diphtheriæ and their Clinical Significance was a subject handled by Dr F F Westbrook of the University of Minnesota U S A , and was primarily from a laboratory point of view —Dr H A Bruce of Toronto showed a Hairy Tumour which had been extracted from the stomach of a young married woman aged 26 years. On opening the stomach the mass was found to be free in that organ, a portion extending through the pyloric end into the duodenum It was about 24 inches in length being about two inches in diameter at one end and gradually tapering to a point at the other The colour of the tumour was uniform throughout and of the same colour as the hair on the patient's head. There were no evidences of hysteria in the patient and the surgeon did not offer any solution of the problem as to how the hair got there —A case of Transplantation of the Ureter for the cure of Uretero vaginal Fistula was reported by Dr A Lapthorn Smith of Montreal. The operation performed for the relief of the patient was one which Dr Smith had seen Sänger perform at Leipsic three years ago This was the first time that this operation had been done in Canada Dr Smith stated that not a drop of urine had passed through the fistula since The patient had made an excellent recovery —Dr F Buller of Montreal read an able paper on Syphilis as Seen by [illegible] The largest share of the ophthal [illegible] was with the tertiary period [illegible] t which the syphilitic lesion [illegible] very important element in [illegible] did not believe in the [illegible] rdinarily administered [illegible] and appeared to favour the inunction method of treatment with grey powder —Dr H M Bracken the medical officer of health of Minnesota U S A , contributed a paper on the Recent Outbreak of Small pox in America He traced the origin of the disease as regarded the State of Minnesota where there had been a total of 9429 cases the disease still existing and having many centres of infection in that State He was of the opinion that small pox was probably imported into the United States by Cuban refugees before war broke out between that country and Spain Referring to the subject of vaccine, he said that it was frequently spoilt by not being kept in proper temperature, as it was frequently being shipped in cans which were too hot and then subsequently kept in warm offices He said that the health commissioner of Minneapolis kept all his vaccine in an ice box but of course, not frozen, and he always obtained good results Replying to a question in regard to isolation Dr Bracken favoured 18 days quarantine —The Necessity of a Recognition and Isolation of Trachomatous patients in Canada was the title of a paper prepared by Mr W Gordon M Byers of Montreal and read in his absence by Dr C F Martin of the same city The writer believed that there were many unrecognised and untreated cases scattered here and there throughout the Dominion of Canada especially in certain centres of the eastern counties of Ontario, some in Quebec and others in Manitoba Mr Byers thought that the attention of the Dominion Government should be directed to the exclusion of immigrants afflicted with trachoma.—Dr Montizambert stated that this question had been under consideration by the Government of Canada for some time —The Treatment of Typhoid Fever was dealt with by Dr. J. L. Bray of Chatham, Ontario, who now gave very little milk in feeding, but that little always peptonised. He believed in making the patient drink two or three quarts of pure water in the 24 hours. He sponged frequently with tepid water and thought that they got just as good results from tepid water as from sponging with very cold water or using the cold bath, and then it was not so distasteful to most patients. In hospital practice Dr. Bray used the electric fan after using the tepid water and he had found this plan very satisfactory, especially in young and sensitive children.

The Address in Surgery was delivered by Mr. O. M. Jones of Victoria, British Columbia, who was formerly an assistant of Mr. Treves. His address dealt mainly with Surgery of the Stomach, relating the deductions he had arrived at from his own experience of 26 cases. Gastro-enterostomy Mr. Jones considered the most important and most interesting part of the whole subject of surgery of the stomach. He said that nothing could be simpler than this operation performed with the Murphy button. He had used it in 14 cases and in only one case was there any trouble.—Dr. Henry Howitt of Guelph, Ontario, described a Surgical Procedure for the relief of Ovarian Pain which consisted in a number of cross-sections quickly made through the tense capsule of the ovary. Hæmorrhage and adhesions never gave any trouble.—Dr. Lapthorn Smith stated that he had never heard of this operation before and thought that it was original with Dr. Howitt.

On the last evening of the meeting a symposium on Tuberculosis was held which was opened by Professor Russell of the University of Wisconsin, U.S.A., who contributed a carefully prepared and exhaustive paper on Human and Bovine Tuberculosis and their Inter-relation. He considered his subject from the standpoint of animal industry and from that of public health.—Dr. A. J. Richer of Montreal dealt with the Sanatorium Treatment of Tuberculosis, a treatment made up of rest, outdoor life, over-feeding, and medical supervision, the latter being described as the keynote to success in phthisical treatment.—The Etiology and Early Diagnosis of Pulmonary Tuberculosis was the last paper read at the meeting and was contributed by Dr. Gilbert Gordon of Toronto. A very important discussion then ensued on this topic and a motion was unanimously adopted calling upon the Government of the Dominion of Canada to grant aid in the erection of sanatoria and also in the prevention and treatment of tuberculosis.

The city of Montreal was selected as the place of meeting in 1902 and a suggestion was left with the members of the Association that the meeting of 1903 should be held in the far-off province of British Columbia. The following were the officers elected for the ensuing year: President, Dr. Francis J. Shepherd of Montreal; treasurer, Dr. H. B. Small of Ottawa; and general secretary, Dr. George Elliott of Toronto.

Sept 17th.

Obituary.

WILLIAM LAKE ROBERTS, M.R.C.S. ENG., L.S.A.

MR. W. L. ROBERTS, senior honorary surgeon of the Bradford Royal Infirmary, died on Sept. 8th at his residence in Peel-square, Bradford. Mr Roberts, who was in his fifty-sixth year, was a native of Alford, Lincolnshire, and went to Bradford almost 30 years ago. He received his medical education at King's College, London, and became qualified as M.R.C.S. Eng. and L.S.A. in 1868. Before going to Bradford he was for a short time assistant house surgeon at Stockport. He was house surgeon at the Bradford Infirmary for 10 years, and upon resigning the position in 1880 his portrait was painted by order of the House Committee and hung in the board-room. At that period he entered into partnership with the late Mr. Herbert Spencer, to whose practice he succeeded. He was not only a man of whom everybody spoke well, but one of whom everybody thought well. Handsome in person, his upright, well-knit figure and clear, honest blue eye were only the index of a loveable, honest, frank, and modest character. As a surgeon and practitioner he was cautious, conscientious, and able; as a friend he was always the same—cheerful, quiet, and true. He has left a widow and one daughter.

Such is the life that was cut short on the Sunday night of Sept. 8th, after a long and painful illness, borne with the greatest fortitude and during which he to the last showed the same consideration for others and the same gratitude for all services rendered to him that had characterised him through life.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—In September the following candidates passed in the subjects indicated:—

Surgery—H. Richardson (Sections I. and II.), Leeds; and C. W. Rowntree (Sections I. and II.), Middlesex Hospital.
Medicine.—C. J. E. Edmonds (Sections I. and II.), St. Thomas's Hospital; R. L. Jones (Sections I. and II.), Middlesex Hospital; G. J. W. Keigwin (Section II.), London Hospital; C. A. Lower (Section I.), Guy's Hospital and Bristol; and C. W. Rowntree (Sections I. and II.), Middlesex Hospital.
Forensic Medicine.—C. J. E. Edmonds, St. Thomas's Hospital; R. L. Jones, Middlesex Hospital; O. Millauro, Westminster Hospital; C. W. Rowntree [illegible] H. Smith, Birmingham.
Midwifery.—C. H [illegible] E. O. Libbey, Leeds; C. W. Rowntree [illegible] Taylor, Sheffield and Bristol; and J. [illegible] al.

The diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery:—

C. J. E. Edmonds, R. L. Jones, G. J. W. Keigwin, C. W. Rowntree, and H. Smith.

UNIVERSITY OF DURHAM.—In the Faculty of Medicine the following candidates have been successful in the following examinations for the degree of Bachelor in Medicine:—

FIRST EXAMINATION.

Old Regulations.

1. *Chemistry, with Chemical Physics.*—Babaji Sarvottam Mankar, L.S.A., London Hospital.

New Regulations.

1. *Elementary Anatomy and Biology, Chemistry and Physics.*—Second-class Honours: Reginald Inglis Douglas, St. Bartholomew's Hospital. Pass list: James Henry Cooke, B.Litt., William Cowden, Arthur Beresford Jones, William Ernest Craven Lunn, and Richard Geoffrey Shaw Simpson, College of Medicine, Newcastle-upon-Tyne.
2. *Chemistry and Physics.*—Reginal Bigg, M.R.C.S., L.R.C.P., St. Bartholomew's Hospital; John Bowman Cooke, College of Medicine, Newcastle-upon-Tyne; Saville James Fielding, St. Thomas's Hospital; Archibald Finlay, London Hospital; James Glenny Gibb, St. Bartholomew's Hospit[illegible] Grant College, Bombay; Cyril [illegible] Markham, and Francis Henry [illegible] Newcastle-upon Tyne; Roland W[illegible] Owens College, Manchester; [illegible] London Hospital; and Edward Tate and Tys Visser, College of Medicine, Newcastle-upon-Tyne.
3. *Elementary Anatomy and Biology.*—Hugh Boyd Cunningham, Samuel Leslie McBean, and John Charles Norman, College of Medicine, Newcastle-upon-Tyne.
4. *Elementary Anatomy.*—Thomas Henry Bishop, Edinburgh University.

SECOND EXAMINATION.

Old and New Regulations.

Anatomy, Physiology, and Materia Medica.—First-class Honours: John George Ogilby Hugh Lane, M.R.C.S., L.R.C.P., Guy's Hospital, and Thomas William Maddison, College of Medicine, Newcastle-upon-Tyne. Second-class Honours: George Errington Lloyd, College of Medicine, Newcastle-upon-Tyne. Pass List: John Arthur Bell, St. Bartholomew's Hospital; Llewelyn Alfred Henry Bulkeley, Arthur Budd, Henry Mounsey Braithwaite, and Herbert Christal, College of Medicine, Newcastle-upon-Tyne; Edgar Fletcher Edmunds, University College, Sheffield; Harold Edgar Featherstone, Arthur Henry Hogg, and Norman Haliburton Hume, College of Medicine, Newcastle-upon-Tyne. William Watkiss Jones, Birmingham University; Sophia Bangham Jackson, University College, Cardiff; Frederick William Kemp, College of Medicine, Newcastle-upon-Tyne; Aurelius Victor Maybury, Guy's Hospital; Colin Francis Frederick McDowall and Constance Charlotte Robertson, College of Medicine, Newcastle-upon-Tyne; Leslie Martin Rosten, St. Bartholomew's Hospital; Stanley Robson, William Edward Stevenson, and William Seymour, College of Medicine, Newcastle-upon-Tyne; Francis Rupert Snell, St. Thomas's Hospital; Arthur Lewin Sheppard, William Tait Sewell, Frederick James Strachan, and William Lister Tindle, College of Medicine, Newcastle-upon-Tyne; and Samuel George Webb, Birmingham University.

NEW OPEN SPACE FOR FULHAM.—The borough of Fulham is to be congratulated upon having secured another recreation-ground for the use of the inhabitants. The Southfield estate, close to Hurlingham Park, consisting of 22 acres, has been purchased at a cost of £1500 per acre. The total cost, including the laying-out of the grounds, &c., is estimated at £45,000, towards which the London County Council will contribute £30,000.

THE PRINCE OF WALES'S HOSPITAL FUND FOR LONDON.—At the Bank of England £100 have been received from Sir Henry Irving and £50 from the Duke of Westminster for the Prince of Wales's Hospital Fund for London.—Among the latest contributions to the same Fund are the following:—Annual subscriptions—Mr. George Livesey, £25; Messrs. James Clarke and Co., proprietors of the *Christian World*, £21.

WELSH SEASIDE RESORTS.—At a recent meeting of the Merioneth County Council Dr. R. Jones, medical officer of health, reported that in the seaside towns of Carnarvonshire and Merionethshire the infant mortality was above the average and he thought that some of this might be due to the artificial feeding of infants whose mothers were engaged in the work of lodging-houses patronised by visitors. Dr. Jones also stated that the sleeping accommodation provided for domestic servants during the holiday season at Welsh seaside resorts was often very unsatisfactory. The council decided to send copies of the report to the educational and sanitary authorities of the county.

[illegible] TIFICATION ACT.—[illegible] 14th, Mr. T. Finney, a [illegible] charged with aiding [illegible] ear Haverfordwest, in exposing himself while suffering from scarlet fever on July 10th, 1901. The prosecution was conducted on behalf of the Haverfordwest Rural District Council. The evidence showed that on July 1st Mr. Finney saw the patient, who was suffering from a [illegible], and thinking it might be a cas[illegible] accordingly; he visited him a[illegible] and finding no symptoms came to the conclusion that he had made an error in diagnosis and that the man was not suffering from scarlet fever. He accordingly gave permission to the patient, who was away from home, to return to his own residence. Medical evidence showed that Mr. Finney had taken great trouble in the case and emphasised the difficulty of diagnosing scarlet fever in its early stages, and the magistrates rightly dismissed the case.

LITERARY INTELLIGENCE.—Dr. John Brown's "Horæ Subsecivæ" in the small handy edition, met with o much success last Christmas that Messrs. Adam and harles Black are getting ready for the coming Christmas a niform edition of "Dr. John Brown and His Sisters," by T. M'Laren. It will contain an introduction by Dr. John rown's brother, Professor Crum Brown, and will be illustrated with seven page family portraits and a photogravure ontispiece of Dr. John Brown.—Mr. Douglas Hall and Lord lbert Osborne have collaborated in a volume to be entitled "Sunshine and Surf" which will be published immediately y Messrs. Adam and Charles Black. It will contain their imressions of a year's wanderings in the South Sea Islands, nd will be profusely illustrated.—Messrs. Rebman, imited, announce the publication of the first three lumes of a "System of Physiologic Therapeutics," practical exposition of the methods, other than drugving, useful in the treatment of the sick and in the preention of disease, by English, American, French, and erman authors and edited by Solomon Solis Cohen, A.M., D., Professor of Medicine and Therapeutics in the Philalphia Polyclinic. The complete "System" will consist 11 medium octavo volumes, the first three of which are w ready—viz., Vols. I. and II. devoted to "Electroerapy" and Vol. III. comprising Book I of a treatise "Climatology, Health Resorts, and Mineral Springs." e remaining eight volumes of the series will be published short intervals.—The same firm have also ready or are out to issue the following:—Vol. I. of a new work on e "Practice of Medicine," by Dr. Henry Walter Syers, of e Great Northern Central Hospital; a new edition of Dr O. Thresh's "Water and Water Supplies"; a translation Professor Dr. R. Greef's "Guide to the Microscopic amination of the Eye," by Dr. Hugh Walker of Glasgow; E. Stanmore Bishop's new work on "Uterine Fibroomata, their Pathology, Diagnosis, and Treatment"; the rd edition of "The Pocket Formulary for the Treatment of sease in Children," by Dr. L. Freyberger; a work by Dr. nry Leffman and Dr. W. Beam on "Select Methods in Food alysis"; Mr Macleod Yearsley's translation of Professor Broca's monograph on the "Surgical Anatomy and rative Surgery of the Middle Ear"; the first volume of Professor Hemmeter's new work on "Diseases of the Intestines"; an entirely new edition, rewritten and much enlarged, of Dr. Louis Starr's "Diseases of the Digestive Organs in Children"; and "A Manual of Bacteriology," by Dr. H. M. Williams of Buffalo.

HOME FOR INEBRIATES.—On Sept. 19th the Bishop of Ipswich opened a home for inebriate women at Hamond Lodge, Terrington, near King's Lynn. This home has been established by the Church of England Temperance Society and can receive 33 inmates.

THE Council of the South Wales and Monmouthshire University College, Cardiff, held a meeting on Sept. 18th, when it was resolved to advertise for a successor to the late Principal Viriamu Jones at a salary of £1000 per annum.

LONGEVITY.—John MacDone, who died recently in Ennislainin, Connemara, is said to have been born in 1776 He was twice married, and his second wife, who is now 78 years of age, survives him. Like many of the inhabitants of Connemara, the deceased spoke only Irish. There does not seem to be any proper evidence that he had attained the age alleged

BRITISH MEDICAL BENEVOLENT FUND.—This fund, which has for its objects the affording of immediate pecuniary relief to distressed qualified members of the medical profession, their widows and orphans, and the granting of annuities to such after 60 years of age, has just issued its report for 1900. In the annuity department steady and satisfactory progress has been made. The capital has been increased by the purchase of £1600 Paisley Corporation 3 per cent. stock. The income from investments amounted to £2355 13s 3d, of which £2213 6s. 8d. have been paid away in annuities. During the year 16 vacancies were caused by death The increase of income has enabled one new annuitant to be elected, so that the total number is now 111 as against 110 on last year's list. In the grant department the committee report that the subscriptions show an increase upon 1899, though the amount is still below that of 1898. The donations include two special gifts of 200 guineas and 100 guineas respectively. For the donation of 200 guineas the fund is indebted to the liberality of an old friend and previous benefactor, Mr. G. E Rundle, F.R.C.S. Edin., of Looe, New South Wales. The donation of 100 guineas was a contribution from the president, Sir William Broadbent, who generously came to the rescue of the fund at a time when the balance available for grants had been reduced to less than £1. To both these donors the committee, in the report, tender grateful thanks. The grants actually paid in 1900 amounted to £1549. This sum was distributed among 165 cases, in amounts varying from £5 to £20.

NATIONAL REGISTRATION OF PLUMBERS.—The Lord Mayor of Birmingham, at a meeting of Master and Operative Plumbers held in the Council House on Sept. 17th, referred to the evils of bad plumbing which, he said, were great and far-reaching. In presenting a number of certificates granted in connexion with the National Registration of Plumbers he emphasised the importance of only duly qualified men being engaged in trades which were so closely identified with the health of the community. He said that it was gratifying to find that the reforms which were taking place in the trade were not forced upon them by outside pressure but arose from an almost spontaneous desire of the masters and men to uplift the trade and secure for it public confidence. A motion was proposed by Mr Bellamy, master plumber, seconded by Mr. Clarke, operative plumber, affirming that in the opinion of the meeting, representing the master and operative plumbers of Birmingham and the district, it would be a great public advantage if a measure be passed through Parliament securing an efficient system of registration, and urging that it is the duty of the Government to carry through such a measure in the public interest. Dr A Hill, medical officer of health of Birmingham, referred to the action taken in Parliament with that object The Lord Mayor observed that it was disappointing that Parliament was so tardy in giving attention to legislation that had common sense written over it—At Eastbourne the Mayor recently presented certificates of registration to 21 master and operative plumbers who had qualified under the conditions applying to the National Registration of Plumbers.

ROYAL COMMISSION ON ARSENICAL POISONING.—The Royal Commission on Arsenical Poisoning due to beer containing glucose made with arsenical sulphuric acid will probably resume its sittings at Westminster in the middle of October.

PRESENTATION TO A MEDICAL PRACTITIONER.—Mr. E. Rice Morgan, M.R.C.S. Eng., L.S.A., has been presented with an illuminated testimonial and a diamond ring by the inhabitants of Morriston, Swansea, and his friends on his return from a voyage round the world to recruit his health.

BEQUESTS AND DONATIONS TO HOSPITALS.—A bequest of £1000 has been made to the Royal Hants County Hospital by the late Marquis of Winchester who was killed in South Africa. About £5000 have been subscribed in response to a special appeal made by the hospital.—An anonymous donor has sent £1000 to the Friedenheim Hospital, Swiss Cottage, N.W., to endow a bed "in memory of John Thomas Emmett."

THE QUEEN'S JUBILEE INSTITUTE FOR NURSES.—On Sept. 21st a drawing-room meeting was held at East Cowes Castle to decide as to the best means of promoting the women's memorial to Queen Victoria, which is to take the form of endowing the late Queen's Jubilee Institute for Nurses. The meeting was held under the presidency of Lady Gort. Lady Adela Cochrane stated that the object of their gathering was to enlist the practical sympathy of the women of the Isle of Wight in the work, which was that of nursing the poorest of His Majesty's subjects in their own homes. The secretary stated that the Queen's nurses now numbered over 900, and reminded the meeting that the movement was founded by the late Queen in 1887, on which occasion Her Majesty contributed £70,000 from the women's Jubilee offering. It was decided to start a women's fund in the Isle of Wight.

A PROMISING CAREER has been cut short by the death at an early age of Mr. R. U. West who during his student days and also during a short period of actual practice had gained the warm esteem of both teachers and fellow students. Mr. West seemed well fitted to carry on the traditions of a family that had done much honourable service in the medical profession, his father, the late Mr. J. G. U. West, having been a highly respected practitioner in Stoke-upon-Trent and a member of the honorary staff of the North Staffordshire Infirmary, and his grandfather a well-known practitioner in Lincolnshire. Mr. West's death, which occurred on Sept. 3rd from enteric fever, contracted whilst acting as house surgeon to the Seamen's Hospital, Greenwich, was a cause of sincere grief to the members of the visiting staff who had much respect for him as an able, considerate, and loyal colleague.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, TINDALL, AND COX, 8, Henrietta-street, Strand, W.C.
A Manual of Surgery for Students and Practitioners. By W. Rose, M.B., B.S. Lond., F.R.C.S., and A. Carless, M.S. Lond., F.R.C.S. Fourth edition. Price 21s.

BLACK, ADAM AND CHARLES, Soho-square, W.
Use-inheritance, Illustrated by the Direction of Hair on the Bodies of Animals. By Walter Kidd, M.D., F.Z.S. Price 2s. 6*d.*

FISCHER, GUSTAV, Jena.
Morbus Hungaricus. By Dr. Tiberius von Györy. Price 5 marks.
Der Ursprung der Syphilis. By Dr. Med. Iwan Bloch. Price 6 marks.

JOHN BALE, SONS, AND DANIELSSON, Limited, 83–89, Great Titchfield-street, W.
Motherhood. By Charles J. Glasson, M.D. Brux., M.R.C.S., L.R.C.P. Lond. Price 1s. 6*d.*

LONGMANS, GREEN, AND CO., Paternoster-row, E.C.
Memoirs and Letters of Sir James Paget. Edited by Stephen Paget, One of his Sons. Price not stated.
A Practical Guide to the Administration of Anæsthetics. By R. J. Probyn-Williams, M.D. Durh., &c. Price 4s. 6*d.*

MACMILLAN AND CO., Limited, London.
A Manual of Det[illegible]eriology. By Frederick D. Chester, Bac[illegible] Sta[illegible] College Agricultural Experiment

NEW YORK PATHOLOGICAL SOCIETY.
Proceedings for the Years 1899 and 1900. Price not stated.

REBMAN, LIMITED, 129, Shaftesbury-avenue, W.C.
International Directory of Laryngologists and Otologists. Comp by Richard Lake, F.R.C.S. Eng. Second Edition, revised a larged. Price 5s.

SCIENTIFIC PRESS, LIMITED, 28 and 29, Southampton-street, W.C.
Tendencies to Consumption: How to Counteract them. By J. Mortimer, M.B. Lond., F.R.C.S. Eng. Price 2s. 6*d.*

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutio and others possessing information suitable for this column, invited to forward it to THE LANCET *Office, directed to the S Editor, not later than 9 o'clock on the Thursday morning of e week, for publication in the next number.*

AHRENS, H. A., M.R.C.S., L.R.C.P. Lond., has been appointed Certify Surgeon under the Factory Acts for the Basingstoke District, Hampshire.

AITKEN, PETER, L.R.C.P. Edin., L.R.C.S. Edin., L.F.P.S. Glasg., been appointed Certifying Surgeon under the Factory Acts for Bo'ness District of Linlithgowshire.

BEESLEY, ROBERT W., M.D., C.M., M.R.C.P. Edin., M.R.C.S. En L.R.C.P. Lond., has been appointed Honorary Medical Officer the Bolton Infirmary and Dispensary.

BEVAN, WILLIAM LL. P., M.D. Edin., has been re-appointed Medi Officer of Health of Alton, Hants.

BEYER, WILLIAM H., M.B., C.M. Edin., has been appointed Honor Medical Officer to the Bolton Infirmary and Dispensary.

BUTT, FRANCIS J., M.B., C.M. Edin., has been appointed Medi Officer of Health of Hoole Urban District.

CRICHTON, DAVID, L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., been appointed Certifying Surgeon under the Factory Acts for Newtyle District of Forfarshire.

EASTERBROOK, A. M., M.B., M.S. Edin., has been appointed Certify Surgeon under the Factory Acts for the Gorebridge District Midlothian.

GORDON, THOMAS E., M.D. Durh., M.R.C.S. Eng., has been appoin Medical Officer of Health of Towyn Urban District.

JOHNSON, H., L.R.C.P. Edin., L.R.C.S. Edin., L.F.P.S. Glasg., has b appointed Medical Officer of the South District of the Lin Union.

JOHNSON, WILLIAM CROSBY, M.B., Ch.B. Vict., has been appoin Junior House Surgeon to the Salford Royal Hospital.

MYLES, F. J., M.B., B.S. Dub., has been appointed a Medical Refe under the Workmen's Compensation Acts, 1897 and 1900, to a the county of Longford, Ireland.

ROBERTSON, GEORGE, L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., been appointed Certifying Surgeon under the Factory Acts the Kirkpatrick Durham District of Kirkcudbrightshire.

RODGER, A., M.B., M.S. Edin., has been appointed Certifying Surg under the Factory Acts for the Yetholm District of the county Roxburgh.

SCOTT, BERNARD, M.R.C.S. Eng., has been appointed Assistant Medi Officer of the West Bromwich Workhouse.

WILSON, WALTER R. M.B., B.C. Cantab., has been appointed Honora Surgeon to the Doncaster Infirmary.

YOUNG, ARCHIBALD J., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., been appointed Medical Officer of Health of the Whitefield Urb District.

Vacancies.

For further information regarding each vacancy reference should made to the advertisement (see Index).

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Resident Surgic Officer. Salary £100 per annum, with board and attendance.

BRIDGNORTH AND SOUTH SHROPSHIRE INFIRMARY.—House Surge Salary £100, with board and lodgings.

BRIGHTON, HOVE, AND SUSSEX THROAT AND EAR HOSPITAL, Churc street, Queen's-road, Brighton.—Non-resident House Surgeon six months, renewable. Salary at rate of £75 per annum.

BRISTOL GENERAL HOSPITAL.—Assistant House Surgeon. Sala £70 per annum, with board, residence, &c. Also Physician to t Skin Department; also a Physician and Assistant Physician.

BURTON-ON-TRENT INFIRMARY.—House Surgeon. Salary £120 for t first year and £140 for the second year, with board, furni rooms, coal, and light.

CHELSEA HOSPITAL FOR WOMEN, Fulham-road, S.W.—Physicia out-patients.

CHICHESTER INFIRMARY.—House Surgeon. Salary £100 per an with board, lodging, and washing.

CLAYTON HOSPITAL AND WAKEFIELD GENERAL DISPENSARY.—S House Surgeon, unmarried. Salary £120 per annum, with b lodging, and washing.

COUNTY ASYLUM, *Mickleover, Derby.*—Senior Assistant Medical Off Salary £130, rising to £150 per annum, with apartments, b washing, and attendance.

DENBIGHSHIRE INFIRMARY, Denbigh.—House Surgeon. Salary with board, residence, and washing.

ESSEX COUNTY ASYLUM, Brentwood.—Junior Assistant Me Officer. Salary £140 per annum.

[illegible] Medical Officer of Health. [illegible] alary £90 per annum, with [illegible]

[illegible].—Dental Surgeon.

[illegible] End, St. Albans.—Junior [illegible] Salary £100 a year, with [illegible] washing.

[illegible] W. Assistant Physician.

[illegible] al Pathology and Bacteriology, Demonstrator.

es Dispensary and Infirmary and Victoria Hospital.—Resident Medical Officer. Salary £100 per annum, with apartments, board, and attendance.

on Throat Hospital, 204, Great Portland street, W.—Pathologist.

chester Children's Hospital, Pendlebury.—Medical Officer. Salary £180 per annum.

[illegible] washing.

[illegible] washing.

th Wales Counties Lunatic Asylum, Denbigh.—Second Assistant Medical Officer. Salary £120 per annum, rising to £160, with board, residence, and washing.

[illegible] nmarried. Salary [illegible] partments.

[illegible] Surgeon. Salary [illegible]

[illegible] Surgeon. Salary £100 per annum, with board.

Mark's Hospital for Fistula and other Diseases of the Rectum, City-road London E.C.—House Surgeon. Salary [illegible] annum, with [illegible]

[illegible]

fordshire General Infirmary, Stafford.—Assistant House Surgeon. Salary £60 per annum, with board, lodging, and washing.

ling District Asylum, Larbert, N.B.—Junior Assistant Medical Officer. Salary £100, [illegible]

nton and Somerset [illegible] Assistant House Surgeon for s[illegible] of £60 per annum, with board, lodging, and washing.

oria Hospital, Folkestone.—House Surgeon. Salary £100 per [illegible]

Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies for Certifying Surgeons under the Factory Acts at Northleach, Gloucester, at Brixworth, Northampton, and at Ballylongford, County Kerry.

Births, Marriages, and Deaths.

BIRTHS.

son.—On Sept. 17th, at Beachlands, Deal, the wife of Lieutenant-Colonel P. H. Benson, I.M.S. (Mysore), of a son.

[illegible]

MARRIAGES.

tt—Baker.—On Sept. 12th, at St. Stephen's Church, Paddington, by the Rev. L. Titley, Sydney Richard Scott, M.B. Lond., M.R.C.S., L.R.C.P. Lond., to Ethel, daughter of the late George Baker of Shrewsbury.

lcox—Griffin.—On August 29th [illegible]

DEATHS.

her.—On Sept. 20th, at Upper Woburn-place, Francis Bonfield Archer, M.D., C.M., in his 64th year.

glas.—On Sept. 13th, at Bellingdon-road, Chesham, James Richard Alexander Douglas, M.R.C.S., L.S.A., in his 83rd year.

ran.—On Sept. 20th, at Marylebone, W., Lieutenant Colonel James Moran, M.D., I.M.S.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

QUERIES IN POOR-LAW ADMINISTRATION.

A correspondent asks us the following questions:—Is a medical officer obliged to resign his appointment and accept his superannuation when 65 years of age? Has the chairman of guardians (being a J.P. residing in another parish six miles away) a right to direct the relieving officer of this parish to take all pauper lunatics into the workhouse (out of this parish) after receiving notice from the district medical officer? In answer to (1) the Superannuation Act states that an officer "*may* be superannuated when he reaches the age of 65 years." The guardians, therefore, *may* call upon their medical officer to take his superannuation the moment he reaches the age of 65 years, or they may retain his services for a further period if they think that he is still "capable of performing the duties with efficiency." The answer to (2) depends upon the chairman as a J.P. having jurisdiction or not in the parish where the lunatic resides. If he has he can, by Section 14 (3) of the Lunacy Act, require the relieving officer to bring the lunatic before him at such time and place as shall be appointed in his order, and the place may be the workhouse. The chairman and J.P. has no authority to give a general order to the relieving officer. He can only give the order upon receiving notice that a person is deemed to be a lunatic. See Section 14 (3). The relieving officer can remove without an order under Section 20 The extract from Section 14 (2)—"in the place where the pauper resides"—refers to the jurisdiction of the justice, not to the place where the pauper is to be taken.

THE CAPACITY OF THE URINARY BLADDER.

To the Editors of The Lancet.

Sirs,—On July 24th last a primipara, aged 24 years, was delivered of a male child, stillborn. The child weighed 11 pounds, and the woman, who was very stout, carried it well forward. Nineteen hours after delivery over 50 ounces of urine were withdrawn with the catheter. On the following day the catheter was used twice, but subsequently the urine was passed in the natural manner, though with increased frequency. The patient was up before the tenth day and continued well, and remains so at the present date, the amount of urine retained being excessive with no impairment of function. This note is made by permission of Mr. F. Dymoke of Bristol.

I am, Sirs, yours faithfully,

University College, London, Sept. 11th, 1901. A. P. Walters.

⁂ The interest in Mr. Walters's note lies in the fact that there was no impairment of function, as the amount of urine drawn off is not very remarkable and has often been exceeded. The rapid recovery of the bladder in this instance is chiefly attributable to the patient's age. In older people atony is much more likely to follow over-distension.—Ed. L.

THE BATTLE OF THE CLUBS.

We learn that the post of surgeon to the Wanstead Foresters is at present vacant. The local practitioners have agreed among themselves to ask for a remuneration of 5s. per member per annum instead of 4s. A local medical man has been elected and the appointment offered to him at the old rate, which offer has been refused. The Foresters argue that all their courts in the eastern division of London pay but 4s. and they have therefore decided to look elsewhere for a surgeon. We need not reiterate all the reasons for medical men asking an increase in their salary. Suffice it to say that if working men's expenses have gone up so have those of medical men. But working men's wages have risen and it is only fair that the payments made to medical men should go up too. We are very glad that the practitioners of Wanstead are united, and can only urge any practitioners in the neighbourhood who may be approached to back up their professional brethren in their demands.

A "CONSCIENTIOUS OBJECTION."

On Sept. 16th a labourer appeared before the magistrates at Thorpe, Essex, applying for a vaccination exemption certificate for his child, the reason given being that the child's grandmother had died after vaccination. It appeared that the grandmother had been vaccinated when a child. The certificate was granted by a majority of the magistrates, two of whom were opposed to it.

LOCUM-TENENTS' FEES.

To the Editors of The Lancet.

Sirs,—Will you or any of your readers let me know how much a doubly qualified man is entitled to if called away to work as a locum-tenent for less than a week without settling any terms? A medical student friend of mine asked me if I would work for a medical friend of his who wanted to go out for a change I asked him the terms, to which he said that the medical man did not say anything about the terms in his letter or wire, and as there was hardly any time to lose asked me to leave town, assuring me that I would not be taken advantage of in any way. Consequently I left town at a very short notice on Thursday and stayed till the following Wednesday morning. For this period I was paid 30*s.* including 7*s.* travelling expenses. I put the money in my pocket without looking at it, but when I found that it was 30*s.* I was very much surprised but thought it better not to say a word until I had seen this medical student. He still told me that the medical man did not say anything about the terms when engaging me and asked me to write to that gentleman. So I wrote and asked five guineas and travelling expenses, minus 30*s.* already received. In reply the medical man said that he had offered 30*s.* and thought that was quite enough. Under the circumstances, when he had no direct correspondence with me and the terms were not told to me by the medical student, how much am I entitled to and how should I proceed to realise it? Thanking you for the trouble in anticipation,

I am, Sirs, yours faithfully,

Sept. 23rd, 1901. LOCUM.

⁂ The remuneration is altogether inadequate. We do not know what our correspondent's legal remedy may be, as he accepted the post without arranging for his fee, but he will be ill-advised to act without consulting a solicitor.—ED. L.

"INSUFFICIENT LAVATORY ACCOMMODATION IN GIRLS' SCHOOLS."

To the Editors of THE LANCET.

SIRS,—The insufficiency of lavatory accommodation in girls' schools to which Mr. Hughes Davies has very properly drawn attention in THE LANCET (Sept. 21st, p. 825) is certainly a condition which ought not to be allowed to continue, but I fear it would not be practicable to effect a remedy in the manner he suggests, through the local sanitary authority and the medical officer of health. I think, however, that this is a question which might very well be dealt with by the Medical Officers of Schools' Association. If the association would issue a memorandum addressed to the principals of schools I am quite sure the coöperation of medical officers of health could be obtained to secure its distribution. The conditions described by Mr. Davies are not to be found in at least one school with which I am acquainted, where the girls breakfast at 7.30 A.M. and have no definite school duties until 9.30.

I am, Sirs, yours faithfully,

Hereford, Sept. 21st, 1901. HERBERT JONES, D.P.H. Camb.

"MEMBRANOUS COLITIS?"

To the Editors of THE LANCET.

SIRS,—In answer to your correspondent "Worried" in THE LANCET of Sept. 21st, p. 826, I can tell him that I have obtained refreshingly good results in some cases of membranous colitis by throwing to the winds commonly accepted theories—salol, &c.—indeed, disregarding the local conditions as compared with treating the individual as a whole—generally a neurotic. Rest, food, and warmth are, I venture to say, the common-sense weapons we have wherewith to combat suchlike complaints—they are simple-sounding but much more powerful than any drug. Mr. Bunsby once said: "The bearing of this observation lays in the application on it." One of the chief arts of the physician lies in arranging, adjusting, and dovetailing simple remedies, thereby giving the chance which the *vis medicatrix naturæ* is longing for.

I am, Sirs, yours faithfully,

Crouch End, N., Sept. 23rd, 1901. F. ORTON, M.D. Dub.

To the Editors of THE LANCET.

SIRS,—"Worried" will find an account of mucous and membranous colitis, &c., in the Encyclopædia Medica, vol. ii., under "Colon"; also further reference in the *Medical Chronicle* for August, 1901, under "Mucous Colitis." If Bright's disease and amyloid disease can be excluded I would suggest, after attention to the teeth, a diet including green vegetables—e.g., spinach, meat, and fat—but limited as to carbohydrates, and these well cooked. Warmth also is necessary in clothing, &c., a regular mode of life, and as much change to a bracing and socially congenial atmosphere as is attainable. In any case much patience and avoidance of over-drugging are necessary.

I am, Sirs, yours faithfully,

Sept. 23rd, 1901. T. C. B.

To the Editors of THE LANCET.

SIRS,—As a patient of mine has suffered since her return from India, where she had hill diarrhœa and peritonitis 25 years ago, from membranous colitis with symptoms similar to those of the patient cited by "Worried," I may be able to give some hints, and shall be very thankful if they prove of use. She has been better for the last 10 years than previously, though a very experienced Indian practitioner who saw her at her worst, which was about 1882, thought the thickening of the cæcum would probably increase gradually and produce a fatal result. At that time, even between the attacks, there was usually pain after food, especially if vegetables were taken, so that she had to live mainly on meat. Later on the vegetable that suited her best was beetroot, plain boiled. More recently she has been able to take vegetables, but *not meat*, which produces headache and scanty urine. (When she was a child she could not take meat.) Before an attack there is often a feeling of terror or impending disaster; this, however is not uncommon in abdominal maladies. The attacks seem to have reference to damp and to vegetation, being most frequent in spring and when the leaves fall. Indeed, I have always tried to get her away to the sea, especially to Brighton, at those times. The sea acts both as preventive and cure and is better than any drugs. I should say that the heart is affected. It is dilated and when she is ill there is sometimes a systolic apex bruit, but not always. Now, as to treatment. Bael, bismuth, arsenic, sulphate of copper, and iodine applications do little or no good. I manage the case somewhat as follows:—In a very acute attack of right iliac pain she keeps to bed or sofa with constant large, hot linseed poultices, taking as little food as possible—only Brand's jelly, &c. I order Dover's powder if there is blood in the slime and glycerine suppositories if necessary (enemata increasing the pain). When improving the yelk of an egg mixed with a teaspoonful of flour relieves diarrhœa. Resorcin, one or two grains in water, is very soothing, also useful in minor attacks, but tends to constipate if continued long and affects the heart. After an attack is over I find pernitrate of iron useful in strengthening the bowel. The pain, I think, is worst when the membrane has been shed, leaving a raw surface. By the time the membrane is passed the pain is often better. I am very doubtful about the desirability of giving aperients. I believe an attack has frequently been averted by a timely visit to Brighton, and after an acute attack I generally find that as soon as she is sufficiently recovered to be carried downstairs and put into a cab and from that into the train a fortnight there sets her up again in a marvellous manner. Brighton appears to be specially suitable from the absence of decaying vegetation. I shall be very happy to g "Worried" any further information privately.

I am, Sirs, yours truly,

Woolwich Common, Sept. 21st, 1901. THEODORE MAXWEL

ORGANO-THERAPY 170 YEARS AGO.

IN our issue of July 13th, p. 94, we gave some examples of prescriptic by thirteenth-century practitioners of the school of Salerno, a more recently we noted that mandrakes still have a sale; but t following prescriptions which were published in 1731 show a deg of credulity hardly to be expected from "the father of mod chemistry and brother of the Earl of Cork." The book is said to written by "The Honourable R. Boyle, Esq., late Fellow of the Ro Society," for the benefit of "those poor Upholders of Families v cannot find or fee a Surgeon or a Doctor." Here are a specimens:—

FOR THE DYSENTERY.

Take *Pigs-Dung*, dry it, and burn it to grey (not white) Ash of these give about half a Dram for a Dose, drinking after th about three spoonfuls of Wine Vinegar.

FOR CONVULSIONS, ESPECIALLY IN CHILDREN.

Take *Earth-Worms*, wash them well in White-wine to clea them, but so as that they may not die in the Wine: Then u hollow Tiles, or between them, dry the Worms with a moder Heat, and no further than that they may be conveniently redu to Powder; to one Ounce of which add a pretty Number of Gra of *Ambergrise*, both to perfume the Powder, (whose Scent of it is rank) and to make the medicine the more efficacious.

TO PREVENT THE TOOTH-ACH, AND KEEP THE TEETH SOUND.

Let the Patient frequently rub his Teeth moderately with Ashes that remain in *Tobacco-Pipes*, after the rest of the Body h been consumed in Smoak; some time after, washing (if need his Mouth with fair Water not too cold.

FOR OBSTRUCTIONS, AND DIVERS DISEASES PROCEEDING THENCE.

Let the Patient drink, every Morning fasting, a moder Draught of his own *Urine* newly made, and (if it can convenien be) whilst 'tis yet warm, forbearing Food for an Hour or t after it.

AN UNCOMMON BUT EXPERIENC'D REMEDY FOR DYSENTERICA FLUXES.

Take the Bone of the Thigh of a hang'd Man (perhaps anot may serve), calcine it to Whiteness, and having purg'd the Pati with an Antimonial Medicine, give him 1 Dram of this wh Powder for one Dose, in some good Cordial, whether Conserve Liquor.

A CHOICE EXTERNAL REMEDY FOR A SORE THROAT.

Take *Millepedes*, Sows or Hogs Lice alive, and sew them between the Foldings of a piece of Linnen, and apply them to Throat in the form of a Stay, which is to be kept on all Night.

FOR AN AGUE.

Take of the Bone called *Platella*, of the Knee of a dead Man, a having reduced it to fine Powder, give of it as much as will upon a groat or a six-pence for one Dose, in any proper Conser or fit Vehicle.

κ. τ. λ.

"PRESERVING THE ELASTICITY OF INDIARUBBER."

To the Editors of THE LANCET.

SIRS,—The following hints may be useful to your correspondent Richards (THE LANCET, Sept. 21st, p. 826). I am indebted to t manager of a rubber factory for them. Rubber goods should be kept i temperature that does not fall below 60° F. (I keep mine in a cupboa at the back of which the kitchen chimney ascends). Tubes and tubu goods should be hung up or laid on a shelf carefully coiled, free fr bends, kinks, or pressure. Rubber sheeting should be rolled on a sti not folded. Water-bottles, air-beds, pillows, &c., should be sligh inflated with air and be thoroughly dry before being put away. T or three days' exposure in a temperature of 70° F. will soften rub articles that have become hard.

I am, Sirs, yours faithfully,

Sept. 23rd, 1901. EXPERIENCE.

H. [illegible] the information. We cannot, [illegible] may really mean. We [illegible] societies the manage- [illegible] er, but sometimes an advertisement of this character will get into our columns because on the face of it it is innocent.

F. W. A.—The advertisement is presumably inserted by the house agent and not by the medical man in question. If his attention were called to it we are sure that he would be the first to insist upon its withdrawal.

During the week marked copies of the following newspapers have been received:—*Yorkshire Post, Kent and Sussex Courier, Mining Journal, Rochester and Chatham Journal, South African News, Leeds Mercury, Coventry Standard, Windsor and Eton Express, Reading Mercury, Liverpool Daily Post, Local Government Journal, Lancaster Observer, Bristol Mercury, The Times, Southwark and Bermondsey Recorder and South London Gazette, South London Chronicle, Epsom Herald, Surrey Advertiser, Dorking Advertiser and County Post, Essex Telegraph, Essex County Standard, Hertfordshire Mercury, &c.*

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Sept. 26th, 1901.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind	Rain-fall.	Solar Radia in Vacuo	Maximum Temp. Shade	Min. Temp	Wet Bulb	Dry Bulb	Remarks at 8.30 A.M.
Sept. 20	29·49	S.W.	...	96	68	56	54	63	Cloudy
" 21	29·42	S.W.	0·39	83	66	60	60	62	Overcast
" 22	29·62	S.	...	111	68	56	61	62	Hazy
" 23	29·60	S.E.	...	92	68	61	60	62	Overcast
" 24	29·82	S.	...	90	68	57	58	60	Hazy
" 25	29·87	N.E.	...	81	67	57	58	59	Foggy
" 26	30·04	N.	...	104	69	54	57	59	Cloudy

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (30th).—London (2 P.M.), St. [illegible] Thomas's (3.30 P.M.), St. George's [illegible] Middlesex (1.30 P.M.), Westminster [illegible] Samaritan (Gynæcological by [illegible] (2 P.M.), Royal Orthopædic (2 P.M.) [illegible] Gt. Northern Central (2.30 P.M.) [illegible] London (2.30 P.M.), London Throat (2 P.M.).

TUESDAY (1st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's [illegible] (2.30 P.M.) [illegible] (2 [illegible] 2.3 [illegible]

WEDNESDAY [illegible] (2 [illegible] (3 [illegible] (2 [illegible] Nr [illegible] (9. [illegible] Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.).

THURSDAY (3rd).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross [illegible] St. George's (1 P.M.) [illegible] (1.30 P.M.), St [illegible] London (2 P.M.) [illegible] Throat (2 P.M.), [illegible] (2.30 P.M.), Throat, [illegible] (9.30 A.M.).

FRIDAY (4th).—London (2 P.M.), St. Bartholomew's [illegible] Thomas's (3.30 P.M.), Guy's [illegible] cross (3 P.M.), St. George's (1 [illegible] (2 P.M.), Ophthalmic (10 A.M.) [illegible] Northern Central (2.30 P.M.) [illegible] Throat (2 P.M. and 6 P.M.), [illegible] Samaritan (9.30 A.M. and 2.30 P.M.), London Throat, Golden [illegible]

SATURDAY [illegible] and 2 P.M.), London (2 P.M.), [illegible] (2 P.M.), University College [illegible] St. George's (1 P.M.), St. Mary's [illegible] London Throat (2 P.M.), Throat, Golden-square (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

WEDNESDAY (2nd).—OBSTETRICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8 P.M. Specimens will be shown by Dr. Lewers, Dr. H. Spencer, and others. Paper:—Dr. Herman: Leukæmia and Pregnancy.

FRIDAY (4th).—WEST LONDON MEDICO-CHIRURGICAL SOCIETY (West London Hospital, Hammersmith-road, W.).—8.30 P.M. Mr. A. Cooper (President): Inaugural Address.

WEST KENT MEDICO-CHIRURGICAL SOCIETY (Royal West Kent Dispensary, Greenwich-road, S.E.).—8.45 P.M. Clinical Evening. Dr. Toogood: Cases from Lewisham Infirmary.—Dr. Scholefield: Clinical Cases.—Dr. Dockrell: Dermatological Cases.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (30th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. A. Whitfield: Clinique. (Skin.)

TUESDAY (1st).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. S. Taylor: Clinique. (Medical.)

WEDNESDAY (2nd).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. R. Harrison: Clinique. (Surgical.)

THURSDAY (3rd).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. Hutchinson: Clinique.

[illegible] GRADUATES' COLLEGE AND POLYCLINIC [illegible] —4 P.M. Mr. H. Tilley: Clinique. (Throat.)

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1901 are on sale. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

Cases for binding the half-year's numbers are also on sale Cloth, gilt lettered, price 2*s.*, by post 2*s.* 3*d.*

To be obtained on application to the Manager, accompanied by remittance.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Office, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

The rates of subscriptions, post free, either from THE LANCET Offices or from Agents, are:—

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Six Months	0 16 3	Six Months	0 17 4
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Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, MR. CHARLES GOOD, THE LANCET Office, 423, Strand, London, W.C.

Communications, Letters, &c., have been received from—

A.—Messrs. Allen and Hanburys, Lond.; Ashton-under-Lyne Corporation, Sanitary Superintendent of; Dr. R. Alcock, Goole; Dr. C. M[illegible] Bradford; Mr. C. E [illegible] Dr. T. J. [illegible] Torquay; Anglo-American and Continental Pharmaceutical Co., Croydon.

B.—Mr. W. E. Barton, Lond.; Dr. E. F. Buzzard, Lond.; Messrs. J. Beal and Son, Brighton; Dr. F. G. Bushnell, Plymouth; Mr. F. N. Dimock Brown, Chobham; Burton-on-Trent Infirmary, Secretary of; Benskin's Watford Brewery, Watford; Mr. F. E. Bissell, Irchester; Mrs. E. Stanley Berkeley, Lond.; Mr. H. J. Blakesley, Mr. F. J. Brady, Earlestone, Lancs.; Mr. J. Bell, Hong-Kong; Dr. C. Bolton, Lond.; Dr. G. J. Bull, Paris; Mr. H. Brabant, Lee; Mr. E. Baker, Birmingham; Bristol General Hospital, Secretary of; Mr. L. A. Bidwell, Lond.; Sir T. Barlow, Lond.; Mr. W. H. Brown, Leeds.

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